This Catalog provides detailed information for current and prospective students about traditional undergraduate programs at Penn as well as important academic policies and resources for undergraduate students. It also provides information about courses at all levels of study.

This Catalog is intended to provide general information about the University of Pennsylvania and is accurate as of May 2018. The University reserves the right to change, modify, or correct any information contained herein without prior notice, at any time.

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<td>Landscape Architecture &amp; Regional Planning (LARP)</td>
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UNDERGRADUATE CATALOG

This Catalog provides detailed information for current and prospective students about traditional undergraduate programs at Penn as well as important academic policies and resources for undergraduate students. It also provides information about courses at all levels of study.

This Catalog is intended to provide general information about the University of Pennsylvania and is accurate as of May 2018. The University reserves the right to change, modify, or correct any information contained herein without prior notice, at any time.

Feedback? Email catalog@lists.upenn.edu
The following list includes traditional undergraduate programs. PhD, research master’s, professional, and other degree programs are listed in the Graduate Catalog (http://catalog.upenn.edu/graduate).

A
- Accounting, BS (p. 207)
- Actuarial Mathematics, Minor (p. 136)
- Actuarial Science, BS (p. 207)
- Africana Studies, Minor (p. 136)
- Africana Studies: African American Studies, BA (p. 22)
- Africana Studies: African Diaspora Studies, BA (p. 130)
- Africana Studies: African Studies, BA (p. 130)
- American Public Policy, Minor (p. 137)
- American Sign Language and Deaf Studies, Minor (p. 137)
- Ancient History, BA (p. 23)
- Ancient History, Minor (p. 137)
- Anthropology, Minor (p. 138)
- Anthropology: Archaeology, BA (p. 23)
- Anthropology: Cultural and Linguistic Anthropology, BA (p. 25)
- Anthropology: General Anthropology, BA (p. 25)
- Anthropology: Human Biology, BA (p. 24)
- Anthropology: Medical Anthropology & Global Health, BA (p. 26)
- Archaeological Science, Minor (p. 138)
- Architectural History, Minor (p. 138)
- Architecture, Minor (p. 139)
- Architecture: Design (Intensive), BA (p. 26)
- Architecture: Design, BA (p. 27)
- Architecture: History and Theory, BA (p. 27)
- Asian American Studies, Minor (p. 139)

B
- Behavioral Economics, BS (p. 208)
- Biochemistry, BA (p. 28)
- Bioengineering, BSE (p. 170)
- Bioethics, Minor (p. 139)
- Biological Basis of Behavior, BA (p. 29)
- Biological Basis of Behavior, Minor (p. 139)
- Biology, Minor (p. 140)
- Biology: Computational Biology, BA (p. 29)
- Biology, Ecology & Evolutionary Biology, BA (p. 30)
- Biology: General Biology, BA (p. 31)
- Biology: Mathematical Biology, BA (p. 32)
- Biology: Mechanisms of Disease, BA (p. 33)
- Biology: Molecular & Cell Biology, BA (p. 33)
- Biology: Neurobiology, BA (p. 34)
- Biomedical Science, BAS (p. 171)
- Biophysics, BA (p. 35)
- Biophysics, Minor (p. 140)
- Business Analytics, BS (p. 209)
- Business Economics and Public Policy, BS (p. 210)

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- Chemical and Biomolecular Engineering, BSE (p. 172)
- Chemical and Biomolecular Engineering, Minor (p. 191)
- Chemistry, BA (p. 36)
- Chemistry, Minor (p. 141)
- Cinema and Media Studies, BA (p. 37)
- Cinema and Media Studies, Minor (p. 141)
- Classical Studies, Minor (p. 141)
- Classical Studies: Classical Civilizations, BA (p. 37)
- Classical Studies: Classical Languages and Literature, BA (p. 38)
- Classical Studies: Mediterranean Archaeology, BA (p. 38)
- Cognitive Science, Minor (p. 142)
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- Cognitive Science: Computation and Cognition, BA (p. 39)
- Cognitive Science: Individualized, BA (p. 40)
- Cognitive Science: Language & Mind, BA (p. 41)
- Communication: Communication & Public Service, BA (p. 42)
- Communication: General Communication, BA (p. 42)
- Comparative Literature, Minor (p. 142)
- Comparative Literature: (Trans)national Literatures, BA (p. 128)
- Comparative Literature: Globalization, BA (p. 44)
- Comparative Literature: Theory, BA (p. 129)
- Computational Biology, BAS (p. 173)
- Computational Neuroscience, Minor (p. 143)
- Computer and Cognitive Science, BAS (p. 175)
- Computer Engineering, BSE (p. 176)
- Computer Science, BAS (p. 178)
- Computer Science, BSE (p. 177)
- Computer Science, Minor (p. 187)
- Consumer Psychology, Minor (p. 143)
- Creative Writing, Minor (p. 144)
- Criminology, BA (p. 44)

D
- Data Science, Minor (p. 191)
- Design, Minor (p. 144)
- Digital Humanities, Minor (p. 144)
- Digital Media Design, BSE (p. 180)
- Digital Media Design, Minor (p. 190)
- Dutch (Netherlandic), Minor (p. 145)

E
- Earth Science: Environmental Science, BA (p. 45)
- Earth Science: Geology, BA (p. 46)
- Earth Science: Paleobiology, BA (p. 47)
- East Asian Area Studies, Minor (p. 145)
- East Asian Languages and Civilizations: Chinese and Japanese, BA (p. 47)
- East Asian Languages and Civilizations: Chinese, BA (p. 48)
- East Asian Languages and Civilizations: Chinese, Minor (p. 165)
- East Asian Languages and Civilizations: East Asian Area Studies, BA (p. 131)
• East Asian Languages and Civilizations: Japanese, BA (p. 49)
• East Asian Languages and Civilizations: Japanese, Minor (p. 165)
• East Asian Languages and Civilizations: Korean, BA (p. 128)
• East Asian Languages and Civilizations: Korean, Minor (p. 165)
• East Central European Studies, Minor (p. 145)
• Economic Policy, Minor (p. 146)
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• Economics, Minor (p. 146)
• Electrical Engineering, BSE (p. 180)
• Electrical Engineering, Minor (p. 189)
• Energy & Sustainability, Minor (p. 187)
• Engineering Entrepreneurship, Minor (p. 188)
• English, Minor (p. 146)
• English: 18th/19th Centuries, BA (p. 50)
• English: 20th/21st Centuries, BA (p. 51)
• English: Africana Literatures & Culture, BA (p. 52)
• English: American Literature & Culture, BA (p. 52)
• English: Celtic Literature & Culture, BA (p. 53)
• English: Cinema & Media Studies, BA (p. 54)
• English: Colonial & Postcolonial, BA (p. 54)
• English: Creative Writing, BA (p. 55)
• English: Drama, BA (p. 55)
• English: Gender/Sexuality, BA (p. 56)
• English: General English, BA (p. 57)
• English: Historical, BA (p. 57)
• English: Individualized, BA (p. 58)
• English: Law and Literature, BA (p. 58)
• English: Literary Theory & Cultural Studies, BA (p. 59)
• English: Literature, Journalism and Print Culture, BA (p. 60)
• English: Medieval/Renaissance, BA (p. 60)
• English: Poetry and Poetics, BA (p. 61)
• English: The Novel, BA (p. 61)
• Environmental Policy & Management, BS (p. 211)
• Environmental Science, Minor (p. 167)
• Environmental Studies, Minor (p. 147)
• Environmental Studies: Environmental History and Regional Studies, BA (p. 62)
• Environmental Studies: Environmental Policy and Application, BA (p. 63)
• Environmental Studies: General Environmental Studies, BA (p. 63)
• Environmental Studies: Global Environmental Systems, BA (p. 64)
• Environmental Studies: Sustainability and Environmental Management, BA (p. 65)
• European Studies, Minor (p. 147)

F
• Finance, BS (p. 212)
• Fine Arts, BA (p. 66)
• Fine Arts, Minor (p. 148)
• French and Francophone Studies, BA (p. 66)
• French and Francophone Studies, Minor (p. 148)

G
• Gender, Sexuality, & Women's Studies, BA (p. 67)
• Gender, Sexuality, and Women's Studies, Minor (p. 149)
• Geology, Minor (p. 149)
• German, BA (p. 68)
• German, Minor (p. 149)
• Global Analysis, BS (p. 213)
• Global Health, Minor (p. 201)
• Global Medieval Studies, Minor (p. 166)

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• Health and Societies: Bioethics & Society, BA (p. 68)
• Health and Societies: Disease & Society, BA (p. 69)
• Health and Societies: Environment & Health, BA (p. 69)
• Health and Societies: Gender & Health, BA (p. 70)
• Health and Societies: Global Health, BA (p. 71)
• Health and Societies: Health Care Markets & Finance, BA (p. 71)
• Health and Societies: Health Policy & Law, BA (p. 72)
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• Health and Societies: Public Health, BA (p. 74)
• Health Care Management and Policy, BS (p. 214)
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• History and Legal Studies, Minor (p. 150)
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• History, Health and the Humanities, Minor (p. 202)
• History, Minor (p. 151)
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• History: Diplomatic History, BA (p. 76)
• History: Economic History, BA (p. 77)
• History: European History, BA (p. 78)
• History: Gender History, BA (p. 78)
• History: General History, BA (p. 79)
• History: Intellectual History, BA (p. 80)
• History: Jewish History, BA (p. 80)
• History: World History, BA (p. 81)

I
• Individualized Major, BA (p. 82)
• Individualized Program, BAS (p. 182)
• Individualized, BS (p. 215)
• International Development, Minor (p. 151)
• International Relations, BA (p. 82)
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• Italian Studies: Italian Culture, BA (p. 83)
• Italian Studies: Italian Culture, Minor (p. 164)
• Italian Studies: Italian Literature, BA (p. 83)
• Italian Studies: Italian Literature, Minor (p. 152)
N

- Nanotechnology, Minor (p. 190)
- Native American and Indigenous Studies, Minor (p. 157)
- Near Eastern Languages & Civilizations: Ancient Near East, BA (p. 90)
- Near Eastern Languages & Civilizations: Ancient Near East, Minor (p. 157)
- Near Eastern Languages & Civilizations: Arabic & Hebrew Studies, BA (p. 91)
- Near Eastern Languages & Civilizations: Arabic & Hebrew Studies, Minor (p. 164)
- Legal Studies & Business Ethics, BS (p. 164)
-Near Eastern Languages & Civilizations: Arabic & Islamic Studies, BA (p. 92)
- Near Eastern Languages & Civilizations: Arabic & Islamic Studies, Minor (p. 157)
- Near Eastern Languages & Civilizations: Hebrew & Judaica, BA (p. 92)
- Near Eastern Languages & Civilizations: Hebrew & Judaica, Minor (p. 164)
- Near Eastern Languages & Civilizations: Persian Language & Literature, BA (p. 132)
- Near Eastern Languages & Civilizations: Persian Language & Literature, Minor (p. 167)
- Networked and Social Systems Engineering, BSE (p. 184)
- Nursing and Health Services Management, Minor (p. 202)
- Nursing, BSN (p. 197)
- Nutrition Science, BA (p. 135)
- Nutrition, BSN (p. 200)
- Nutrition, Minor (p. 158)
- Nutrition, Minor (p. 203)

O

- Operations, Information & Decisions: Decision Processes Track, BS (p. 227)
- Operations, Information & Decisions: General Track, BS (p. 228)
- Operations, Information & Decisions: Information Systems Track, BS (p. 229)
- Operations, Information & Decisions: Operations Management/Management Science Track, BS (p. 229)

P

- Philosophy, Minor (p. 158)
- Philosophy, Politics and Economics: Choice & Behavior, BA (p. 93)
- Philosophy, Politics and Economics: Distributive Justice, BA (p. 93)
- Philosophy, Politics and Economics: Ethics & Professions, BA (p. 94)
- Philosophy, Politics and Economics: Globalization, BA (p. 95)
- Philosophy, Politics and Economics: Public Policy & Governance, BA (p. 96)
- Philosophy: General Philosophy, BA (p. 96)
- Philosophy: Humanistic Philosophy, BA (p. 97)
- Philosophy: Philosophy and Science, BA (p. 98)
- Philosophy: Political and Moral Philosophy, BA (p. 98)
- Physics, Minor (p. 158)
- Physics: Astrophysics, BA (p. 99)
- Physics: Biological Science, BA (p. 100)
- Physics: Business & Technology, BA (p. 101)
- Physics: Chemical Principles, BA (p. 101)
- Physics: Computer Techniques, BA (p. 102)
- Physics: Physical Theory and Experimental Technique, BA (p. 103)
- Political Science, Minor (p. 159)
- Political Science: American Politics, BA (p. 104)
- Political Science: Comparative Politics, BA (p. 105)
- Political Science: General Political Science, BA (p. 105)
• Political Science: Individualized, BA (p. 106)
• Political Science: International Relations, BA (p. 107)
• Political Science: Political Economy, BA (p. 108)
• Political Science: Political Theory, BA (p. 108)
• Psychoanalytic Studies, Minor (p. 159)
• Psychology, BA (p. 109)
• Psychology, Minor (p. 159)

R
• Real Estate, BS (p. 230)
• Religious Studies, BA (p. 110)
• Religious Studies, Minor (p. 160)
• Retailing, BS (p. 231)
• Romance Languages: French and Italian, BA (p. 111)
• Romance Languages: French and Spanish, BA (p. 111)
• Romance Languages: Italian and Spanish, BA (p. 112)
• Russian and East European Studies: Cinema, Arts and Letters, BA (p. 134)
• Russian and East European Studies: History, Politics and Society, BA (p. 133)
• Russian and East European Studies: Language, Literature and Culture, BA (p. 132)
• Russian and East European Studies: Russian Culture and History, Minor (p. 160)
• Russian and East European Studies: Russian Language, Literature and Culture, Minor (p. 161)

S
• Science, Technology and Society, Minor (p. 161)
• Science, Technology and Society: Biotechnology & Biomedicine, BA (p. 113)
• Science, Technology and Society: Energy and Environment, BA (p. 113)
• Science, Technology and Society: Global Science and Technology, BA (p. 114)
• Science, Technology and Society: Information and Organizations, BA (p. 115)
• Science, Technology and Society: Science/Nature/Culture, BA (p. 115)
• Social Impact & Responsibility, BS (p. 232)
• Sociology, Minor (p. 161)
• Sociology: Global and International Studies, BA (p. 116)
• Sociology: Law and Society, BA (p. 117)
• Sociology: Quantitative Methods, BA (p. 117)
• Sociology: Sociology of Culture, BA (p. 118)
• Sociology: Sociology of Families and Populations, BA (p. 119)
• Sociology: Sociology of Health and Medicine, BA (p. 120)
• Sociology: Structures of Opportunity and Inequality, BA (p. 120)
• Sociology: Urban Sociology, BA (p. 121)
• South Asia Studies, BA (p. 122)
• South Asia Studies, Minor (p. 162)
• Statistics, BS (p. 233)
• Statistics, Minor (p. 234)
• Survey Research and Data Analytics, Minor (p. 162)
• Sustainability and Environmental Management, Minor (p. 162)
• Systems Science and Engineering, BSE (p. 185)
• Systems Science and Engineering, Minor (p. 189)

T
• Theatre Arts, BA (p. 122)
• Theatre Arts, Minor (p. 163)

U
• Urban Education, Minor (p. 166)
• Urban Real Estate and Development, Minor (p. 163)
• Urban Studies, BA (p. 123)
• Urban Studies, Minor (p. 163)

V
• Visual Studies: Architecture Practice and Technology, BA (p. 124)
• Visual Studies: Art and Culture of Seeing, BA (p. 125)
• Visual Studies: Art, Practice and Technology, BA (p. 126)
• Visual Studies: Philosophy and Science of Seeing, BA (p. 127)

Systems Science & Engineering, Minor

SEAS Second Major or Minor Option
Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Academic Programs Office, 109 Towne Building.

Systems Science & Engineering Minor

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<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<td>ESE 204</td>
<td>Decision Models</td>
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<td>ESE 210</td>
<td>Introduction to Dynamic Systems</td>
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<td>ESE 224</td>
<td>Signal and Information Processing</td>
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<tr>
<td>ESE 303</td>
<td>Stochastic Systems Analysis and Simulation</td>
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Electives

Select 1 Information Systems Elective
Select 1 Information Systems or Systems Design Elective

Total Course Units 5.5

1 Approved elective lists can be found on the most recent SSE worksheet

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
SCHOOL OF ARTS & SCIENCES

In the tradition of its eighteenth-century founders, the College of Arts and Sciences (https://www.college.upenn.edu) regards the enduring purpose of education as the liberation of the mind from ignorance, superstition, and prejudice. From its central position in an international research university, the College invites students to explore the broad spectrum of human knowledge and takes pride in its capacity to respond to the particular intellectual needs of those who join it. The College thrives on the diversity of scholars and students whose interests it sustains and whose intellectual goals it unites.

Study of the arts and sciences provides a solid basis for advanced scientific and scholarly research, for subsequent training in the professions, and for the informed exercise of the rights and responsibilities of citizenship. The College's goal is to help students to become knowledgeable about the world and the complexities of today's society, aware of moral, ethical, and social issues, prepared to exercise intellectual leadership, and enlivened by the use of their mind.

The College is committed to offering a broad education that will lay a durable foundation for critical and creative thinking. We believe that students should explore fundamental approaches to the acquisition and interpretation of knowledge through introduction to substantive bodies of current thought in the natural sciences, social sciences, and humanities. Equally important, they should learn to understand and evaluate the sources and methods from which this knowledge derives. In this way they can be led to appreciate the contingency of all knowledge and to participate in the ongoing excitement of intellectual discovery that is at the heart of the College.

We challenge our students to develop the skills of analysis and communication that will enable them to perceive pattern in complexity, render reasoned judgments, make wise choices under conditions of uncertainty, and join with others in the pursuit of common endeavors. They should, for example, be able to write and speak effectively and to use another people's language as one means of access to the diversity of contemporary and historical culture.

A student's emerging interests and talents find expression through an organized program of study in a major field. In the specialized context of the major, students investigate the traditions and contemporary status of an established branch of knowledge. The structured study of a discipline complements the general exploration of our intellectual heritage to provide the balance of educational breadth and depth to which the College is committed.

There is no single or easy path to the benefits of liberal education. A program of study must be shaped as a student grows. But the special strengths of the University of Pennsylvania—its combination of academic and professional excellence, its diverse and interdisciplinary tradition, its active community of scholars at all levels of experience—provide a setting in which the College can dedicate itself to nurturing honest, eager, and critical minds. The College welcomes those who seek to understand, appreciate, and contribute to the achievements of the human intellect.

The College of Arts and Sciences (https://www.college.upenn.edu) is the full-time undergraduate division of the School of Arts and Sciences (SAS), which offers the Bachelor of Arts (B.A.) degree. Other divisions include:

- The Graduate School of Arts and Sciences which offers the advanced degrees of Master of Arts (M.A.), Master of Science (M.S.) and Doctor of Philosophy (Ph.D.);
- The College of Liberal and Professional Studies (LPS) is the home of lifelong learning at the University of Pennsylvania. It offers high school, undergraduate, post-baccalaureate, graduate, summer and online studies as well as customizable professional training with courses that span across disciplines. LPS also administers the Summer Sessions.

The twenty-seven departments in SAS represent the core disciplines of the liberal arts. They individually offer thirty-two majors. In addition, through interdepartmental collaborations, the SAS faculty offer a number of interdisciplinary majors. Around SAS are grouped the various specialized professional schools, all of them drawing extensively on the intellectual resources provided by SAS. Two of these schools, the Annenberg School for Communication and the School of Design, offer undergraduate majors for College students through special collaborative relationships with SAS.

The College aims to provide its undergraduates with a broad general education that will lay the groundwork for critical and creative thinking in all fields. Ideally the graduate of the College will be well informed about the world and confident in today's complex technological society. He or she will be willing and able to make critical judgments and to exercise intellectual leadership. The B.A. degree thus provides a solid basis for specialized scientific and scholarly research, for education for the professions, and for the informed exercise of the rights and responsibilities of citizenship.

The University of Pennsylvania is particularly well placed to provide its students with an education that links the theoretical and the practical. Within the College and the other schools is an extraordinary range of programs. The College alone offers over fifty different major programs. The College does its best to make all of the University's resources accessible to its students, giving them wide latitude in planning their programs of study and in deciding on their areas of specialization.

In 1739, the noted evangelist George Whitefield preached to thousands of Philadelphians. His sermons were so impressive that, one year later, a "House of Public Worship" and "Charity School" were established at Fourth and Arch Streets for the religious education of young men. Whitefield supported the idea of forming a "Negro School," but it was never implemented due to lack of support. The "Charity School" was not officially opened until 1749, when Benjamin Franklin and twenty-one leading citizens of Philadelphia founded an "Academy." By 1755, the academy had come to be known as the "College, Academy and Charitable School of Philadelphia in Pennsylvania." The first commencement took place on May 17, 1757, and graduated a class of seven.

Alumni of the College of Philadelphia were instrumental in the development of the nation and played vital roles in the American Revolution. Twenty-one members of the Continental Congress were graduates of the College; nine signers of the Declaration of Independence were either trustees or alumni; and eleven signers of the Constitution were associated with the College. In 1779, Pennsylvania's state legislature decided that the College was a hotbed of loyalism and tried to abrogate its charter. The provost and trustees of the College refused to be unseated. This forced the legislature to transfer the assets and property to a new board of trustees of a "University of the State of Pennsylvania." After a ten-year legal battle, the College was allowed to reopen its doors in its old buildings. Meanwhile, the University continued down the block on Fifth and Chestnut Streets. This situation continued until 1791, when the two merged to form what we now know as the University of Pennsylvania, the first university in the United States.
During Benjamin Franklin's forty years on the board of trustees, his idea of combining practical and traditional education guided the curriculum of the University. Thanks to Franklin, Penn went beyond the traditional classical education and diversified into the sciences, mathematics, history, logic and philosophy. Franklin indicated his philosophy of education when, in establishing the University, he said, "As to their Studies, it would be well if they could be taught every Thing that is useful . . . Regard being held to the several Professions for which they are intended." This emphasis on the practical aspects of education distinguished the University of Pennsylvania from other colleges and universities of the era. The tradition has continued. For example, the first medical school (1765), the first law classes (1850) and the first business school (1881) in America were founded here.

The University arrived at its present location by twice moving west. In 1802, it moved from Fourth and Arch Streets into a mansion on Ninth and Chestnut Streets built for, but never occupied by, the President of the United States. It moved again in 1872 to a ten-acre spot of land located across the Schuylkill River that was purchased for $80,000. That plot of land was in a section called Blockley Township, a semi-rural area known mostly for its alms house and the Hamilton Grange, a farm.

The Pennsylvania courts ruled in 1877 that the University should provide scholarships to young men and "instruction to female students so far as may be convenient and practicable in the University building." Therefore, in 1878, the Towne Scientific School and the Music Department responded by admitting nine women into their programs. In 1879 George Whitefield's dream of a "Negro School" was realized when Penn admitted one black student to the College, one to the Dental School and one to the Medical School. The Law School was the first major division of the University to admit women to its courses as degree candidates. The College of Liberal Arts for Women was established in 1933 to provide women with a liberal arts education instead of one designed specifically for teachers. The College for Women merged with the College of Arts and Sciences in 1974, thus forming our modern-day School of Arts and Sciences, which includes the Graduate School, the College of Liberal and Professional Studies and the College of Arts and Sciences.

The College is the largest of the undergraduate schools, enrolling 6,000 of the University's 10,000 undergraduates, and it teaches all of Penn's undergraduates. The study of the arts and sciences provides students with critical perspectives on their world and with the fundamental intellectual skills necessary for engaging it. As Franklin recognized, professional education relies on the sustenance provided by the arts and sciences and could not exist without them. The School of Arts and Sciences remains the heart and the soul of the modern University.

The fundamental purpose of the University as an academic community is the pursuit of knowledge. Essential to the success of this educational mission is a commitment to the principles of academic integrity. Academic work represents not only what we have learned about a subject but also how we have learned it. Values and beliefs about academic integrity have been adopted by scholars so that others may trace our honorable footsteps, verify what we have learned, and build upon our work. Every member of the University community is responsible for upholding the highest standards of honesty at all times.

As members of the University community, students are also responsible for adhering to the principles and spirit of the Code of Academic Integrity (http://catalog.upenn.edu/pennbook/code-of-academic-integrity). Penn believes strongly in the importance of academic integrity. Students who violate its precepts are subject to punishment through the judicial system. Ignorance of the rules is no excuse. If a student is unsure whether his or her action(s) constitute a violation of the Code of Academic Integrity, it is that student's responsibility to consult with the instructor to clarify any ambiguity.

Curriculum

The Purpose of the Curriculum

A curriculum is often identified with a set of degree requirements: "What do I have to do to receive my degree?" But degree requirements are not themselves sufficient to define appropriate educational goals. One might fulfill all of the College's degree requirements and yet fail to get a good education. It would also be possible to acquire a good education but neglect to fulfill the degree requirements. Now, we certainly do want you to fulfill all of the degree requirements, and we will work with you to see that this happens. But you are not here fundamentally for the purpose of completing degree requirements. If you think of your education solely in those terms, the result will be dull and unsatisfying.

"Curriculum" comes from the Latin for "course," in the sense in which one might speak of the course of a journey. The term denotes a means rather than an end, but it suggests better than "degree requirements" what it is to become educated. It denotes a movement from a starting point to a destination, a movement that proceeds along some path. You are not left to your own devices to figure out how to get from here to there. But neither is the path straight and narrow. You will have many choices to make as you negotiate the course of your education, but they will be informed by the experience of the faculty, who in the curriculum offer their considered advice for your educational journey.

The College's curriculum draws you toward two distinctive goals: toward general education across the wide range of the arts and sciences and toward specialized education in a major. A commitment to holding these two—general and specialized education—together has been the genius of American higher education since the early part of the last century. We continue to believe that these two elements constitute an education best suited to enabling intelligent individuals to live humane, productive and fulfilling lives in the 21st century.

The College of Arts and Sciences curriculum (https://www.college.upenn.edu/curriculum) provides you with an academic framework for becoming an educated and successful citizen of the 21st century. Its flexible structure is designed to inspire curiosity and frame opportunities while drawing you toward two distinct goals: general education across the wide range of the arts and sciences and specialized education in a major. With help from academic advisors, you will select from a variety of courses to fulfill each element of the curriculum. You may also choose to expand your academic experience beyond the classroom through options like research or study abroad.

The elements of the College Curriculum are:

• The General Education Curriculum (p. 17)
• The Major (p. 20)
• Free Electives (p. 20)

Visit the College website (https://www.college.upenn.edu/curriculum-policy) for policies governing the College Curriculum.

General Education Curriculum

The College's General Education Curriculum for its part has two broad objectives. It seeks to develop in you some general skills or approaches
to knowledge and to engage you in the intellectual work of the disciplines in a variety of fields across the arts and sciences.

In following this curriculum, you will be guided by two kinds of degree requirements corresponding to these two objectives. One deals with foundational approaches, the other with specific disciplines and fields of knowledge. Within any given course, these two—an approach and a field of study—are integral to one another. An approach is learned by practice in relation to a field of knowledge: your ability to use a foreign language is developed through learning about the culture in which the language is rooted; understanding a work of art is acquired by learning how to write about it—that is, by learning how to use words to describe, compare, question and argue about works of art and the contexts in which they were created and are appreciated; you learn how to analyze quantitative data by thinking about what data mean for our knowledge of natural or social phenomena we observe. Some courses, however, give priority to developing skills and approaches, while others give priority to the field under investigation.

The General Education component of the Curricular is comprised of two elements. Foundational Approaches (p. 18) develop key intellectual capabilities demanded in a variety of disciplines, while Sectors of Knowledge (p. 19) allow you to tailor your own education in the arts and sciences while gaining valuable knowledge across a broad range of disciplines.

Visit the College website (https://www.college.upenn.edu/curriculum) for more information on the College curriculum.

Foundational Approaches

Writing

Writing is the primary medium through which the quality of a student’s intellectual work will be judged. The ability to express oneself clearly and persuasively in writing is fundamental for success across all academic disciplines, and throughout one’s personal and professional life.

For these reasons, writing plays a central role within the College curriculum. Students must take a writing seminar to fulfill the College’s Writing Requirement. It is recommended that students take this course during their first year of study. Students are also encouraged to continue development of their writing skills by participating in Penn’s writing programs.

Foreign Language

Competence in a foreign language is essential for an educated person. Participation in the global community is predicated on the ability to understand and appreciate cultural difference, and nothing brings this more sharply into focus than the experience of learning a foreign language. The foreign language not only affords unique access to a different culture and its ways of life and thought; it also increases awareness of one’s own language and culture. For this reason, College students are required to attain a certain degree of competency.

While students often opt to satisfy the Language Requirement by continuing to study the language that they have already begun in high school or earlier, the wealth of languages that the University offers is such that many students decide to explore a new culture and area of our globe by beginning a foreign language that they have never studied before. French, Spanish, and a few other languages are taught at the pre-collegiate level, but students are less likely to have been exposed to Arabic, Hindi or Japanese—let alone Uzbek or Hausa—and each of these languages is a mode of access to a fascinating culture and history.

Quantitative Data Analysis

In contemporary society, citizenship, work and personal decision-making all require sophisticated thinking about quantitative evidence. Students in the College must complete a course that uses mathematical or statistical analysis of quantitative data as an important method for understanding another subject. Through such study, students learn to think critically about quantitative data and the inferences that can be drawn from these data. They also gain experience with the use of quantitative analysis to interpret empirical data and to test hypotheses.

Courses in calculus and computer science do not fulfill the requirement because these courses do not require students to analyze actual data sets with the goal of evaluating hypotheses or interpreting results. To count toward the Quantitative Data Analysis Requirement, a course must include such data analysis.

Formal Reasoning and Analysis

In contrast to Quantitative Data Analysis courses, which deal with inductive reasoning, courses designated for this requirement focus on deductive reasoning and the formal structure of human thought, including its linguistic, logical and mathematical constituents. These courses emphasize mathematical and logical thinking and reasoning about formal structures and their application to the investigation of real-world phenomena. In addition to courses in mathematics, this requirement includes courses in computer science, formal linguistics, symbolic logic and decision theory.

Cross Cultural Analysis

In our increasingly interconnected world, the Cross-Cultural Analysis Requirement aims to increase students’ knowledge and understanding of socio-cultural systems outside the United States.

College students are required to take at least one course to develop their ability to understand and interpret the cultures of peoples with histories different from their own. The focus may be on the past or the present and it should expose students to distinctive sets of values, attitudes and methods of organizing experience that may not be obtained from American cultures. This exposure to the internal dynamic of another society should lead students to understand the values and practices that define their own cultural framework.

Cultural Diversity in the U.S.

The Cultural Diversity in the U.S. Requirement complements the Cross-Cultural Analysis Requirement and aims to develop students’ knowledge of the history, dynamic cultural systems and heterogeneous populations that make up the national culture of the United States.

College students are required to take at least one course to develop the skills necessary for understanding the population and culture of the United States as it becomes increasingly diverse. Through historical inquiry, the study of cultural expressions and the analysis of social data, students will develop their ability to examine issues of diversity with a focus on race, ethnicity, gender, sexuality, class and religion. The goal is to equip graduates with the ability to become perceptive and engaged members of society.
Sectors

The sectors are intended to ensure breadth of education across the sectors or fields of knowledge, along with interdisciplinary explorations that link several fields of knowledge.

I. Society

This sector focuses on the structure and norms of contemporary human society, including their psychological and cultural dimensions.

Courses in this sector use many analytical techniques that have been developed to study contemporary society, with its complex relations between individuals and larger forms of mass participation. Some Society courses are largely devoted to the analysis of aggregate forms of human behavior (encounters, markets, civil society, nations, supranational organizations, and so on), while others may focus on the relations between individuals and their various societies. While historical materials may be studied, the primary objective of Society courses is to enable students to develop concepts and principles, test theories, and perfect tools that can be used to interpret, explain and evaluate the behavior of human beings in contemporary societies. This objective will be realized through the specific content of the various courses, but the emphasis in each course should be on developing in students a general capacity for social analysis and understanding.

II. History and Tradition

This sector focuses on studies of continuity and change in human thought, belief and action. Understanding both ancient and modern civilizations provides students with an essential perspective on contemporary life. Courses in this sector examine the histories of diverse civilizations, their cultures and forms of expression, their formal and informal belief systems and ideologies, and the record of their human actors. Students should learn to interpret primary sources, identify and discuss their core intellectual issues, understand the social contexts in which these sources were created, pose questions about their validity and ability to represent broader perspectives and utilize them when writing persuasive essays.

III. Arts & Letters

This sector encompasses the means and meaning of visual arts, literature and music, together with the criticism surrounding them.

Most courses in this sector are concerned with works of creativity—paintings, films, poetry, fiction, theatre, dance and music. They generally address a considerable breadth of material rather than an individual work or artist. The objective of Arts and Letters courses is to confront students with works of creativity; cultivate their powers of perception (visual, textual, auditory), and equip them with tools for analysis, interpretation and criticism. This objective will be realized through the specific content of the various courses, but the emphasis in each course should be on developing and strengthening in students a general capacity for understanding meaning and the ways in which it is achieved in its distinctive environment of culture and moment.

IV. Humanities & Social Science

This sector comprises courses that combine methods and approaches at work in at least two of the first three sectors.

Students will engage with diverse approaches to society, history, tradition and the arts more deeply than a single course from each domain can allow. Greater depth of experience is gained by bringing to bear several humanistic and social scientific perspectives upon a single issue or topic or by engaging directly in academically-based service or performance informed by these perspectives.

In this sector, students seek to broaden their perspective by taking a course in the humanities or social sciences that has been approved as a general education course but that cuts across two or more of sectors I, II, and III. Some courses approved for this sector will seek a more integrative approach by addressing a problem or topic from a variety of disciplinary perspectives. Others will combine disciplinary study with community service or activism, and constructively and reflectively connect the theoretical with the actual. Finally, some courses in the arts that combine creative or performance experience with reflection and grounding within a discipline may be found in this sector.

V. The Living World

This sector deals substantively with the evolution, development, structure and/or function of living systems.

Courses in this sector study the variety of approaches that are useful in understanding the diversity of living organisms, their interrelatedness, and their interactions with their environment. Analytical approaches employed range from analyses at the molecular and cellular level, to analyses of the cognitive and neural bases of behavior, to analyses of evolutionary processes and ecological systems. Students learn the methods used by contemporary natural science to study these topics, including ways in which hypotheses are developed, tested, and reformulated in light of new research findings. A full understanding of living organisms incorporates insights from approaches at many different levels.

VI. The Physical World

This sector focuses on the methodology and concepts of physical science.

Courses in this sector aim to provide insight into the content and workings of modern physical science. Some courses in this sector are part of a major, while others are designed primarily to provide an introduction to the field for non-science majors. Courses for non-science majors may include some discussion of the historical development of the subject as well as the most important conceptual notions and their mathematical expressions. All courses in this sector seek to demonstrate the generally accepted paradigm of modern science: experiment and observation suggest mathematically formulated theories, which are then tested by comparison with new experiments and observations.

All courses in this sector use a significant mathematical prerequisite (advanced high school algebra through introductory calculus) that is, students will actually be expected to use mathematical methods and concepts to achieve an understanding of subjects in physical science.

VII. Natural Sciences & Mathematics

Students should engage with the diverse approaches to the natural sciences and mathematics more deeply than a single course from the physical and life sciences would allow. Greater depth of experience can be accomplished by either greater focus on one area, study in a related area, bringing various scientific perspectives to bear upon a single issue or topic, or engaging directly in academically-based activities informed by these perspectives.
In this sector, students broaden their perspective by taking a course in the natural sciences or mathematics that has been approved as a General Education course and that cuts across the two sectors. Other courses approved for this sector will seek a more integrative approach by addressing a problem or topic from a variety of disciplinary perspectives. Still others will combine disciplinary study with community service or activism, constructively and reflectively connecting the theoretical with the actual.

The Major

The Major provides an opportunity to know a segment of human knowledge deeply, with a sufficient grasp of its modes of thinking and analysis to make your own contribution.

The College offers more than 55 majors (p. 20) across the humanities, social sciences and natural sciences, and many programs provide options for concentrating in any number of specialty areas.

Visit the College website (https://www.college.upenn.edu/curriculum) for more information on the College curriculum.

Free Electives

In addition to these structural elements, the curriculum provides space in your studies for a number of Free Electives. These give you the freedom to pursue interests that may lie outside your major and that extend beyond those addressed in the General Education Curriculum. Take a course in a field that you have not otherwise encountered. Use one or more Free Electives to explore further a subject introduced in a sector course or learn about a subject that sheds light on your major.

Visit the College website (https://www.college.upenn.edu/curriculum) for more information on the College curriculum.

Academic Opportunities

Learning happens inside and outside of the traditional classroom.

The value of a rich liberal arts tradition extends beyond the curriculum itself to the far reaches of cutting edge research and real-world internships, community partnerships and study abroad.

- Penn is a world-class research institution where undergraduates have the opportunity to participate in the creation of knowledge.
- Students in the College integrate knowledge from a variety of specializations or dig deeply into a particular area of study.
- Through their work with local schools and organizations, students in Academically Based Community Service Courses combine classroom and community work to solve critical issues.
- Students in study abroad programs and internship experience diverse communities and real world challenges in and outside of Philadelphia.

Visit the College website (https://www.college.upenn.edu/courses-options) for a comprehensive view of academic opportunities for College students.

Advising

College students need to choose courses, declare a major and define career goals. They will need to examine their performance in different courses, identify their skills and those they wish to develop, and decide what really matters to them. Much of this assessment they will do themselves, but faculty members, academic advisors, career counselors and peers can help.

Students in the College have a strong network of academic advisors available to assist them throughout their undergraduate careers.

- Pre-major advisors help first- and second-year students navigate their entrance into academic and intellectual life in the College beginning with the issues of incoming freshmen and continuing through the student’s exploration of a potential major.
- Peer advisors work with the pre-major advisor and are one of the first points of contact for incoming College students. They provide the perspective of an upperclass student in the College and assist first-year students in making the transition from high school to Penn by sharing their strategies for academic success and knowledge of campus resources.
- After declaring a major, students are assigned an academic advisor affiliated with the major department or program.
- All students are welcome and encouraged to speak with assistant deans for advising in the College Office. These advisors can help students explore the many options and opportunities available to College students, and are available by appointment or on a walk-in basis throughout the year.

For more information, visit the College website (https://www.college.upenn.edu/advising).

Policies and Procedures

The College of Arts and Sciences Policies and Procedures are intended to provide guidelines for academic conduct and planning.

- Students are subject to the policies and procedures in place for the class into which they matriculated. Class-specific Policies and Procedures manuals can be found on the College site.
- Policies and procedures are subject to change throughout the year at the discretion of the University of Pennsylvania and the College of Arts and Sciences.
- Students are encouraged to consult with an academic advisor in the College Office for further information and clarification.

For class-specific manuals and current policies, visit the College website (https://www.college.upenn.edu/policies).

Majors

- Africana Studies
  - African American Studies, BA (p. 22)
  - African Diaspora Studies, BA (p. 130)
  - African Studies, BA (p. 130)
- Ancient History, BA (p. 23)
- Anthropology
  - Archaeology, BA (p. 23)
  - Cultural and Linguistic Anthropology, BA (p. 25)
  - General Anthropology, BA (p. 25)
  - Human Biology, BA (p. 24)
  - Medical Anthropology & Global Health, BA (p. 26)
- Architecture
• Design (Intensive), BA (p. 26)
• Design, BA (p. 27)
• History and Theory, BA (p. 27)

• Biochemistry, BA (p. 28)
• Biological Basis of Behavior, BA (p. 29)
• Biology
  • Computational Biology, BA (p. 29)
  • Ecology & Evolutionary Biology, BA (p. 30)
  • General Biology, BA (p. 31)
  • Mathematical Biology, BA (p. 32)
  • Mechanisms of Disease, BA (p. 33)
  • Molecular & Cell Biology, BA (p. 33)
  • Neurobiology, BA (p. 34)

• Biophysics, BA (p. 35)
• Chemistry, BA (p. 36)
• Cinema and Media Studies, BA (p. 37)
• Classical Studies
  • Classical Civilizations, BA (p. 37)
  • Classical Languages and Literature, BA (p. 38)
  • Mediterranean Archaeology, BA (p. 38)

• Cognitive Science
  • Cognitive Neuroscience, BA (p. 39)
  • Computation and Cognition, BA (p. 39)
  • Individualized, BA (p. 40)
  • Language & Mind, BA (p. 41)

• Communication
  • Communication & Public Service, BA (p. 42)
  • General Communication, BA (p. 42)

• Comparative Literature
  • (Trans)national Literatures, BA (p. 128)
  • Globalization, BA (p. 44)
  • Theory, BA (p. 129)

• Criminology, BA (p. 44)
• Earth Science
  • Environmental Science, BA (p. 45)
  • Geology, BA (p. 46)
  • Paleobiology, BA (p. 47)

• East Asian Languages and Civilizations
  • Chinese and Japanese, BA (p. 47)
  • Chinese, BA (p. 48)
  • East Asian Area Studies, BA (p. 131)
  • Japanese, BA (p. 49)
  • Korean, BA (p. 128)

• Economics, BA (p. 49)
• English
  • 18th/19th Centuries, BA (p. 50)
  • 20th/21st Centuries, BA (p. 51)
  • Africana Literatures & Culture, BA (p. 52)
  • American Literature & Culture, BA (p. 52)
  • Celtic Literature & Culture, BA (p. 53)

• Cinema & Media Studies, BA (p. 54)
• Colonial & Postcolonial, BA (p. 54)
• Creative Writing, BA (p. 55)
• Drama, BA (p. 55)
• Gender/Sexuality, BA (p. 56)
• General English, BA (p. 57)
• Historical, BA (p. 57)
• Individualized, BA (p. 58)
• Law and Literature, BA (p. 58)
• Literary Theory & Cultural Studies, BA (p. 59)
• Literature, Journalism and Print Culture, BA (p. 60)
• Medieval/Renaissance, BA (p. 60)
• Poetry and Poetics, BA (p. 61)
• The Novel, BA (p. 61)

• Environmental Studies
  • Environmental History and Regional Studies, BA (p. 62)
  • Environmental Policy and Application, BA (p. 63)
  • General Environmental Studies, BA (p. 63)
  • Global Environmental Systems, BA (p. 64)
  • Sustainability and Environmental Management, BA (p. 65)

• Fine Arts, BA (p. 66)
• French and Francophone Studies, BA (p. 66)
• Gender, Sexuality, & Women’s Studies, BA (p. 67)
• German, BA (p. 68)
• Health and Societies
  • Bioethics & Society, BA (p. 68)
  • Disease & Society, BA (p. 69)
  • Environment & Health, BA (p. 69)
  • Gender & Health, BA (p. 70)
  • Global Health, BA (p. 71)
  • Health Care Markets & Finance, BA (p. 71)
  • Health Policy & Law, BA (p. 72)
  • History of Medicine, BA (p. 73)
  • Public Health, BA (p. 74)

• Hispanic Studies, BA (p. 74)
• History of Art, BA (p. 75)
• History
  • American History, BA (p. 76)
  • Diplomatic History, BA (p. 76)
  • Economic History, BA (p. 77)
  • European History, BA (p. 78)
  • Gender History, BA (p. 78)
  • General History, BA (p. 79)
  • Intellectual History, BA (p. 80)
  • Jewish History, BA (p. 80)
  • World History, BA (p. 81)

• Individualized Major, BA (p. 82)
• International Relations, BA (p. 82)
• Italian Studies
  • Italian Culture, BA (p. 83)
### Africana Studies: African American Studies, BA

Africana Studies is an interdisciplinary field of study devoted to the critical and systematic examination of the cultural, political, social, economic, and historical experiences of African Americans, Africans, and peoples of African descent around the world. Our course of study is designed to provide students with an integrated understanding and appreciation for a new global black studies. An undergraduate degree in Africana Studies prepares students for graduate work in the humanities, social sciences, and professional schools, as well as a range of careers in teaching, business, public service, and the arts, among others.

The minimum total course units [here](https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

African Language courses do not count toward the Major Requirements.

**For more information:** [https://africana.sas.upenn.edu/department/undergraduate](https://africana.sas.upenn.edu/department/undergraduate)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum [here](https://www.college.upenn.edu/curriculum) page.

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- Jewish Studies, BA (p. 84)
- Latin American & Latino Studies, BA (p. 85)
- Linguistics, BA (p. 85)
- Logic, Information, & Computation, BA (p. 86)
- Mathematical Economics, BA (p. 86)
- Mathematics
  - Biological Mathematics, BA (p. 87)
  - General Mathematics, BA (p. 89)
- Modern Middle Eastern Studies, BA (p. 89)
- Music, BA (p. 90)
- Near Eastern Languages & Civilizations
  - Ancient Near East, BA (p. 90)
  - Arabic & Hebrew Studies, BA (p. 91)
  - Arabic & Islamic Studies, BA (p. 92)
  - Hebrew & Judaica, BA (p. 92)
  - Persian Language & Literature, BA (p. 132)
- Nutrition Science, BA (p. 135)
- Philosophy, Politics and Economics
  - Choice & Behavior, BA (p. 93)
  - Distributive Justice, BA (p. 93)
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  - General Philosophy, BA (p. 96)
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- Physics
  - Astrophysics, BA (p. 99)
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- Political Science
  - American Politics, BA (p. 104)
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  - General Political Science, BA (p. 105)
  - Individualized, BA (p. 106)
  - International Relations, BA (p. 107)
  - Political Economy, BA (p. 108)
  - Political Theory, BA (p. 108)
- Psychology, BA (p. 109)
- Religious Studies, BA (p. 110)
- Romance Languages
  - French and Italian, BA (p. 111)
  - French and Spanish, BA (p. 111)
  - Italian and Spanish, BA (p. 112)
- Russian and East European Studies
  - Cinema, Arts and Letters, BA (p. 134)
  - History, Politics and Society, BA (p. 133)
  - Language, Literature and Culture, BA (p. 132)
- Science, Technology and Society
  - Biotechnology & Biomedicine, BA (p. 113)
  - Energy and Environment, BA (p. 113)
  - Global Science and Technology, BA (p. 114)
  - Information and Organizations, BA (p. 115)
  - Science/Nature/Culture, BA (p. 115)
- Sociology
  - Global and International Studies, BA (p. 116)
  - Law and Society, BA (p. 117)
  - Quantitative Methods, BA (p. 117)
  - Sociology of Culture, BA (p. 118)
  - Sociology of Families and Populations, BA (p. 119)
  - Sociology of Health and Medicine, BA (p. 120)
  - Structures of Opportunity and Inequality, BA (p. 120)
  - Urban Sociology, BA (p. 121)
- South Asia Studies, BA (p. 122)
- Theatre Arts, BA (p. 122)
- Urban Studies, BA (p. 123)
- Visual Studies
  - Architecture Practice and Technology, BA (p. 124)
  - Art and Culture of Seeing, BA (p. 125)
  - Art, Practice and Technology, BA (p. 126)
  - Philosophy and Science of Seeing, BA (p. 127)
## College General Education Requirements and Free Electives

### Foundational Approaches + Sectors + Free Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td></td>
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### Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>AFRC 001</td>
<td>Introduction to Africana Studies</td>
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</tr>
<tr>
<td>AFST 190</td>
<td>Introduction to Africa</td>
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### Category Requirements

#### Humanities Course

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<tr>
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<tbody>
<tr>
<td>AFRC 325</td>
<td>Performance in the African Diaspora</td>
<td>1</td>
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<tr>
<td>or AFRC 176</td>
<td>Afro-American History 1550-1876</td>
<td></td>
</tr>
<tr>
<td>or AFRC 177</td>
<td>Afro-American History 1876 to Present</td>
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#### Social Science Course

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>AFRC 006</td>
<td>Race and Ethnic Relations</td>
<td>1</td>
</tr>
<tr>
<td>or AFRC 307</td>
<td>Race, Science and Justice</td>
<td></td>
</tr>
<tr>
<td>or SOCI 006</td>
<td>Race and Ethnic Relations</td>
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<tr>
<td>or SOCI 307</td>
<td>Race, Science &amp; Justice</td>
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#### Methodology Course

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<tr>
<th>Code</th>
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<tr>
<td>AFRC 120</td>
<td>Social Statistics</td>
<td>1</td>
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<tr>
<td>or SOCI 120</td>
<td>Social Statistics</td>
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#### Research Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>AFRC 322</td>
<td>American Slavery and the Law (or similar)</td>
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### Electives

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### Capstone

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<tr>
<td>AFRC 399</td>
<td>Independent Study</td>
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</table>

### Total Course Units

- 32

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### Honors

A minimum GPA of 3.3 is required. Please consult with the Program Director for further details of requirements.

<table>
<thead>
<tr>
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<tr>
<td>AFRC 499</td>
<td>Honors Course</td>
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---

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

### Ancient History, BA

The major in Ancient History coordinates a curriculum encompassing the whole of the ancient history of the Near East and the Mediterranean Basin.

---

## Anthropology: Archaeology, BA

Anthropology is the global social science. It is the study of the human condition everywhere; its cultural, linguistic, and biological diversity; and how it evolved and developed from the prehistoric past into the globalizing present. Anthropology is an interdisciplinary 14 credit major
that intersects with programs and departments across the University. Students may major in anthropology as a whole (General Anthropology), or choose to concentrate in Biological Anthropology, Archaeology, Cultural and Linguistic Anthropology, or Medical Anthropology.

Archaeology is the study of past societies through the excavation of material culture, from the Paleolithic into the early Historical periods. Students study excavation methods and techniques of analysis, and have opportunities to work with collections in the Penn Museum and its Center for the Analysis of Archaeological Materials (CAAM). Archaeology majors take introductory courses in all sub-fields of Anthropology, and complete the remainder of their coursework primarily in Archaeology.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/anthropology/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Major Requirements</td>
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<tr>
<td></td>
<td>Block I: Introductory courses</td>
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<tr>
<td></td>
<td>ANTH 001 Anthropology: Window to the Human Past</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or ANTH 005 Great Transformations</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ANTH 002 Introduction to Cultural Anthropology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or ANTH 004 The Modern World and Its Cultural Background</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ANTH 003 Introduction to Human Evolution</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Block II</td>
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</tr>
<tr>
<td></td>
<td>Select 1 course unit in Biological Anthropology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Cultural and Linguistic Anthropology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Block III</td>
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<tr>
<td></td>
<td>Select 8 course units in Archaeology</td>
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<tr>
<td></td>
<td>Capstone Seminar</td>
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<tr>
<td></td>
<td>ANTH 300 Research Seminar in Anthropology</td>
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<tr>
<td></td>
<td>Total Course Units</td>
<td>34</td>
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</table>

You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

For up to three of these, non-ANTH courses with anthropological content may be requested. All non-ANTH courses must be approved by the Undergraduate Program Coordinator.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
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<tr>
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<td>Major Requirements</td>
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<td></td>
<td>Block I: Introductory Courses</td>
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<tr>
<td></td>
<td>ANTH 001 Anthropology: Window to the Human Past</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or ANTH 005 Great Transformations</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ANTH 002 Introduction to Cultural Anthropology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or ANTH 004 The Modern World and Its Cultural Background</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ANTH 003 Introduction to Human Evolution</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Block II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Archaeology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Cultural and Linguistic Anthropology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Block III</td>
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<tr>
<td></td>
<td>ANTH 143 Being Human: Biology, Culture &amp; Human Diversity</td>
<td>1</td>
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<tr>
<td></td>
<td>ANTH 244 Disease and Human Evolution</td>
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<tr>
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<td>Select 6 course units in Biological Anthropology</td>
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<tr>
<td></td>
<td>Capstone Seminar</td>
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<tr>
<td></td>
<td>ANTH 300 Research Seminar in Anthropology</td>
<td>1</td>
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<tr>
<td></td>
<td>Total Course Units</td>
<td>34</td>
</tr>
</tbody>
</table>

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Anthropology: Human Biology, BA

Anthropology is the global social science. It is the study of the human condition everywhere; its cultural, linguistic, and biological diversity; and how it evolved and developed from the prehistoric past into the globalizing present. Anthropology is an interdisciplinary 14 credit major that intersects with programs and departments across the University. Students may major in anthropology as a whole (General Anthropology), or choose to concentrate in Biological Anthropology, Archaeology, Cultural and Linguistic Anthropology, or Medical Anthropology.

Biological Anthropology is the study of human evolution and the biology of modern populations. Areas of study include genetics, osteology, and forensics. Students have the opportunity to work in laboratory settings, as well as in the Penn Museum’s Physical Anthropology section or its Center for the Analysis of Archaeological Materials (CAAM). Biological Anthropology majors take introductory courses in all sub-fields of Anthropology, and complete the remainder of their coursework primarily in Biological Anthropology.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/anthropology/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
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</tr>
<tr>
<td></td>
<td>Major Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Block I: Introductory Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANTH 001 Anthropology: Window to the Human Past</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or ANTH 005 Great Transformations</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ANTH 002 Introduction to Cultural Anthropology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or ANTH 004 The Modern World and Its Cultural Background</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ANTH 003 Introduction to Human Evolution</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Block II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Archaeology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Cultural and Linguistic Anthropology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Block III</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANTH 300 Research Seminar in Anthropology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>34</td>
</tr>
</tbody>
</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 For up to three of these, non-ANTH courses with anthropological content may be requested. All non-ANTH courses must be approved by the Undergraduate Program Coordinator.

Honors

Applicants must have a minimum GPA of 3.5 in the major and write a senior thesis.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Anthropology: Cultural and Linguistic Anthropology, BA

Anthropology is the global social science. It is the study of the human condition everywhere; its cultural, linguistic, and biological diversity; and how it evolved and developed from the prehistoric past into the globalizing present. Anthropology is an interdisciplinary 14 credit major that intersects with programs and departments across the University. Students may major in anthropology as a whole (General Anthropology), or choose to concentrate in Biological Anthropology, Archaeology, Cultural and Linguistic Anthropology, or Medical Anthropology.

Cultural and Linguistic Anthropology is the study of cultural, social, and semiotic variation in the modern world since the development of the ethnographic method in the late 19th century. Areas of study include comparisons of different cultural communities and their relationship to social and demographic factors, as well as communication and media. Cultural and Linguistic Anthropology majors take introductory courses in all sub-fields of Anthropology, and complete the remainder of their coursework primarily in Cultural and Linguistic Anthropology.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

**Honors**

Applicants must have a minimum GPA of 3.5 in the Major and write a senior thesis.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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<tbody>
<tr>
<td>ANTH 001</td>
<td>Archaeology: Window to the Human Past</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 002</td>
<td>Introduction to Cultural Anthropology</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 003</td>
<td>Introduction to Human Evolution</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 005</td>
<td>Great Transformations</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 004</td>
<td>The Modern World and Its Cultural Background</td>
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**Honors**

Applicants must have a minimum GPA of 3.5 in the Major and write a senior thesis.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ANTH 001</td>
<td>Archaeology: Window to the Human Past</td>
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<tr>
<td>ANTH 002</td>
<td>Introduction to Cultural Anthropology</td>
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<td>ANTH 003</td>
<td>Introduction to Human Evolution</td>
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<td>ANTH 005</td>
<td>Great Transformations</td>
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<tr>
<td>ANTH 004</td>
<td>The Modern World and Its Cultural Background</td>
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</table>

Anthropology: General Anthropology, BA

Anthropology is the global social science. It is the study of the human condition everywhere; its cultural, linguistic, and biological diversity; and how it evolved and developed from the prehistoric past into the globalizing present. Anthropology is an interdisciplinary 14 credit major that intersects with programs and departments across the University. Students may major in anthropology as a whole (General Anthropology), or choose to concentrate in Biological Anthropology, Archaeology, Cultural and Linguistic Anthropology, or Medical Anthropology.

General Anthropology majors study all four anthropology sub-fields, acquiring an introduction to the full range of anthropological research. Students are required to take courses in Biological Anthropology, Archaeology, Cultural and Linguistic Anthropology, and Medical Anthropology.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

**Honors**

Applicants must have a minimum GPA of 3.5 in the Major and write a senior thesis.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ANTH 001</td>
<td>Archaeology: Window to the Human Past</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 002</td>
<td>Introduction to Cultural Anthropology</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 003</td>
<td>Introduction to Human Evolution</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 005</td>
<td>Great Transformations</td>
<td>1</td>
</tr>
<tr>
<td>ANTH 004</td>
<td>The Modern World and Its Cultural Background</td>
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</tbody>
</table>
ANTH 001  Archaeology: Window to the Human Past 1
or ANTH 005  Great Transformations

ANTH 002  Introduction to Cultural Anthropology 1
or ANTH 004  The Modern World and Its Cultural Background

ANTH 003  Introduction to Human Evolution 1

Block II
Select 10 course units with at least two each from Archaeology, Biological Anthropology, and Cultural and Linguistic Anthropology 2

Capstone Seminar

ANTH 300  Research Seminar in Anthropology 1

Total Course Units 34

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2 Up to three non-ANTH courses with anthropological content may be requested. All non-ANTH courses must be approved by the Undergraduate Program Coordinator.

Honors
Applicants must have a minimum GPA of 3.5 in the Major and write a senior thesis.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Anthropology: Medical Anthropology & Global Health, BA

Anthropology is the global social science. It is the study of the human condition everywhere; its cultural, linguistic, and biological diversity; and how it evolved and developed from the prehistoric past into the globalizing present. Anthropology is an interdisciplinary 14 credit major that intersects with programs and departments across the University. Students may major in anthropology as a whole (General Anthropology), or choose to concentrate in Biological Anthropology, Archaeology, Cultural and Linguistic Anthropology, or Medical Anthropology.

Medical Anthropology applies anthropological methods to the study of global health, well-being, and disease. The concentration provides students with a theoretical and methodological foundation to address problems of global health inequality. Medical Anthropology majors take introductory courses in all sub-fields of Anthropology, and complete the remainder of their coursework primarily in Medical Anthropology.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/anthropology/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
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<th>Course Units</th>
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<tr>
<td></td>
<td>College General Education Requirements and Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors 1 + Free Electives</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Block I: Introductory Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 001  Archaeology: Window to the Human Past</td>
</tr>
<tr>
<td>or ANTH 005  Great Transformations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Block II: Fundamentals</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 238  Introduction to Medical Anthropology</td>
</tr>
<tr>
<td>ANTH 273  Global Health: Anthropological Perspectives</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Block III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 8 course units from approved list 2</td>
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<tr>
<td>Capstone Seminar</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>ANTH 300  Research Seminar in Anthropology</td>
<td>1</td>
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<td></td>
<td>Total Course Units</td>
<td>34</td>
</tr>
</tbody>
</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 For up to three of these, non-ANTH courses with anthropological content may be requested. All non-ANTH courses must be approved by the Undergraduate Program Coordinator.

Honors
Applicants must have a minimum GPA of 3.5 in the Major and write a senior thesis.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Architecture: Design (Intensive), BA

The Intensive Major in Architecture is for students in the Design Concentration who intend to pursue a graduate professional degree in architecture. Students in the Intensive Major enroll in their senior year in the technology courses offered in the first year of the Master of Architecture Professional Degree Program. Those accepted into the School of Design’s Master of Architecture Professional Degree Program are qualified to be admitted with advanced placement into the second year of the graduate program, reducing the length of study from three to two years.
The minimum total course units for graduation in this major is 36. Double majors may entail more course units.

**Application requirements:** At least Sophomore Standing. Please consult with the Undergraduate Chair for other important criteria.

**For more information:** [www.architecture.sas.upenn.edu](https://www.architecture.sas.upenn.edu)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors ¹ + Free Electives</td>
<td>17</td>
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<td><strong>Major Requirements</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Architecture Requirements</strong></td>
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<tr>
<td></td>
<td>Architecture courses must be taken in the following sequence:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ARCH 102 Introduction to Design</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- ARCH 201 Design Fundamentals I</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>- ARCH 202 Design Fundamentals II</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>- ARCH 301 Design I</td>
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<td></td>
<td>- ARCH 302 Design II</td>
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<tr>
<td></td>
<td>- ARCH 312 Topics in Theory I</td>
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<tr>
<td></td>
<td>- ARCH 401 Advanced Design</td>
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<tr>
<td></td>
<td>- ARCH 411 Theory II</td>
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<tr>
<td></td>
<td><strong>Art History Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ARTH 102 Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- ARTH 106 Architect and History</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- ARTH 281 Modern Architecture, 1900-Present</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- Select 1 course unit in Art History (ARTH) (200 to 500-level)</td>
<td>1</td>
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<tr>
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<td><strong>Additional Required Courses</strong></td>
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<tr>
<td></td>
<td>- ARCH 431 Construction I</td>
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<td></td>
<td>- ARCH 432 Construction II</td>
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<td></td>
<td>- ARCH 433 Building Systems Integration</td>
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<tr>
<td></td>
<td>- ARCH 435 Structures I</td>
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<tr>
<td></td>
<td>- ARCH 436 Structures II</td>
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<table>
<thead>
<tr>
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<th>Title</th>
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<tbody>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>36</td>
</tr>
</tbody>
</table>

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Architecture: Design, BA

The Major in Architecture is for students who intend to pursue a career in architecture or a related design discipline (e.g., landscape architecture, urban design, product design, etc.). The Major is a studio-based liberal arts program offering two concentrations.

The History and Theory Concentration includes a four-semester sequence of design studios and courses in the history and theory of
art, architecture, and landscape architecture followed by additional coursework and a written thesis in the history and theory of architecture.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

**For more information:** www.architecture.sas.upenn.edu

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
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<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

### Biochemistry, BA

Contemporary biological sciences are based on principles of chemistry and physics. The importance of this relationship is the basis of the Penn biochemistry major, which prepares students for advanced study in areas as diverse as biophysics, biotechnology, cell biology, genetic engineering, genomics, molecular biology, molecular genetics, nanotechnology, neurobiology, structural biology, systems biology, and biochemistry. It provides the basic science background for graduate and health professional schools and for prospective science teachers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

**For more information:** http://www.sas.upenn.edu/biochem/biochem.html

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

### Code Title Course Units

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<th>College General Education Requirements and Free Electives</th>
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</thead>
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<tr>
<td>Foundational Approaches + Sectors + Free Electives</td>
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**Architecture Requirements**

Architecture courses must be taken in the following sequence:

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<tr>
<th>Code</th>
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<th>Course Units</th>
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<tr>
<td>ARCH 102</td>
<td>Introduction to Design</td>
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<tr>
<td>ARCH 201</td>
<td>Design Fundamentals I</td>
<td>1.5</td>
</tr>
<tr>
<td>ARCH 202</td>
<td>Design Fundamentals II</td>
<td>1.5</td>
</tr>
<tr>
<td>ARCH 301</td>
<td>Design I</td>
<td>2</td>
</tr>
<tr>
<td>ARCH 312</td>
<td>Topics in Theory I</td>
<td>1</td>
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<tr>
<td>ARCH 411</td>
<td>Theory II</td>
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</table>

**Art History Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ARTH 102</td>
<td>Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present</td>
<td>1</td>
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<tr>
<td>ARTH 106</td>
<td>Architect and History</td>
<td>1</td>
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<td>ARTH 281</td>
<td>Modern Architecture, 1900-Present</td>
<td>1</td>
</tr>
<tr>
<td>ARTH 398</td>
<td>Senior Thesis</td>
<td>2</td>
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</tbody>
</table>

Select 1 course unit in Art History (ARTH) (300 or 500-level) 1

**Total Course Units** 34

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

**Calculus Requirement**

<table>
<thead>
<tr>
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<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
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**Chemistry Requirement**

General Chemistry:

<table>
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<tr>
<th>Code</th>
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<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
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<td>or CHEM 001</td>
<td>General Chemistry I</td>
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General Chemistry Laboratories:

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>CHEM 053</td>
<td>General Chemistry Laboratory I</td>
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<tr>
<td>&amp; CHEM 054</td>
<td>General Chemistry Laboratory II</td>
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Other Chemistry Requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>CHEM 241</td>
<td>Principles of Organic Chemistry</td>
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<tr>
<td>CHEM 242</td>
<td>Principles of Organic Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 221</td>
<td>Physical Chemistry I (Fall Only)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 222</td>
<td>Physical Chemistry II (Spring Only)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 251</td>
<td>Principles of Biological Chemistry</td>
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</tr>
<tr>
<td>CHEM 451</td>
<td>Biological Chemistry I (Fall Only)</td>
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</tr>
<tr>
<td>CHEM 452</td>
<td>Biological Chemistry II (Spring Only)</td>
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</tr>
<tr>
<td>CHEM 245</td>
<td>Experimental Organic Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>or CHEM 223</td>
<td>Experimental Physical Chemistry I</td>
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**Physics Requirement**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>PHYS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
<td>1.5</td>
</tr>
<tr>
<td>or PHYS 170</td>
<td>Honors Physics I: Mechanics and Wave Motion</td>
<td>1.5</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>Principles of Physics II: Electromagnetism and Radiation</td>
<td>1.5</td>
</tr>
<tr>
<td>or PHYS 171</td>
<td>Honors Physics II: Electromagnetism and Radiation</td>
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</table>

**Research Requirement**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>BCHE 404</td>
<td>Biochemistry Laboratory (Fall semester)</td>
<td>1</td>
</tr>
<tr>
<td>BCHE 404</td>
<td>Biochemistry Laboratory (Spring after Fall semester)</td>
<td>1</td>
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</tbody>
</table>

**Total Course Units** 36

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Take concurrently with or after CHEM 241 Principles of Organic Chemistry but BEFORE CHEM 451 Biological Chemistry I.
Honors
Requirements: GPA of 3.2 in courses required for the major, taken at Penn, and not including BCHE 404 Biochemistry Laboratory.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Biological Basis of Behavior, BA
Biological Basis of Behavior is an interdisciplinary program in which students explore the relationship between behavior (both human and animal) and its organic bases. The Program offers courses in virtually all areas of neuroscience ranging from cellular neurobiology to cognitive neuropsychology and integrates these basic interdisciplinary courses with basic science requirements in biology, chemistry and psychology. Students also engaged in supervised research in areas as diverse as molecular neurobiology, chemical neuroanatomy, visual sciences and behavioral ecology.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/bbb/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
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<th>Course Units</th>
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<tbody>
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</tbody>
</table>

College General Education Requirements and Free Electives
Foundational Approaches + Sectors\(^1\) + Free Electives 17.5

Major Requirements

Core Requirements

Introductory Chemistry:
- CHEM 101 General Chemistry I 1
- CHEM 102 General Chemistry II 1

Introductory Biology:
Select one of the following Options: 3

Option 1:
- BIOL 101 Introduction to Biology A
- BIOL 102 Introduction to Biology B

Option 2:
- BIOL 121 Introduction to Biology - The Molecular Biology of Life
- BIOL 123 Introductory Molecular Biology Laboratory
- BIOL 124 Introductory Organismal Biology Lab

200-Level BIOL Course

Introduction to Brain & Behavior:
Select one of the following: 1

- BIBB 109 Introduction to Brain and Behavior
- BIOL 109 Introduction to Brain and Behavior

PSYC 109 Introduction to Brain and Behavior

Behavioral Neuroscience:
Select one of the following 200-level BIBB courses: 1

- BIBB 227 Physiology of Motivated Behaviors
- BIBB 233 Neuroethology
- BIBB 269 Autonomic Physiology

Cognitive Neuroscience:
Select one of the following 200-level BIBB courses: 1

- BIBB 249 Cognitive Neuroscience
- BIBB 270 Drugs, Brain and Mind

Neurobiology:

- BIBB 251 Molecular and Cellular Neurobiology 1.5
  or BIOL 251 Molecular and Cellular Neurobiology

Statistics:
Select one of the following: 1

- BIOL 446 Statistics for Biologists
- STAT 101 Introductory Business Statistics
- STAT 111 Introductory Statistics

Additional BIBB Major Elective Courses
Students may pick any 8 courses from the approved electives for the BIBB major\(^2,3\) 8

Total Course Units 36

\(^{1}\) You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

\(^{2}\) See the BBB web site for approved courses in areas of specialized study. Students are encouraged to take a research course or do sponsored research in their junior or senior year.

\(^{3}\) BIBB 399 Independent Research, BIBB 499 Senior Honors Thesis or a 400-level BIBB course are three of the options.

Honors Option

BIBB Honors Complete

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Biology: Computational Biology, BA
Computational and Mathematical Biology are important new areas in the biological sciences. Many areas in genetics, ecology, and evolution depend on sophisticated quantitative analyses. For example, the advent of data from the human genome project (and similar data from other species) has shown the need for computer, statistical and mathematical methods to store, retrieve and analyze massive data sets. Recognizing the growing importance of these quantitative techniques and skills, we have developed undergraduate concentrations in both Computational and Mathematical Biology. These Concentrations are designed to prepare students for the world of data-driven science.
The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

With permission of the Undergraduate Chair, two course units away or LPS courses may count toward the Biology major. This limit does not apply to Study Abroad.

For more information: http://www.bio.upenn.edu/undergraduate/concentrations/computational-and-mathematical-biology

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Foundational Approaches + Sectors + Free Electives</td>
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<td></td>
<td>Major Requirements</td>
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</tr>
<tr>
<td></td>
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<td>Select one of the following tracks:</td>
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</tr>
<tr>
<td></td>
<td>Track 1:</td>
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<tr>
<td></td>
<td>BIOL 121 Introduction to Biology - The Molecular Biology of Life</td>
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<td></td>
<td>BIOL 123 Introductory Molecular Biology Laboratory</td>
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<td></td>
<td>BIOL 124 Introductory Organismal Biology Lab</td>
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<td></td>
<td>Track 2:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 101 Introduction to Biology A</td>
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<td></td>
<td>BIOL 102 Introduction to Biology B</td>
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<td></td>
<td>Intermediate Biology</td>
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<td>BIOL 221 Molecular Biology and Genetics</td>
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<td>BIOL 230 Evolutionary Biology</td>
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<tr>
<td></td>
<td>Introductory Chemistry or Physics</td>
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<tr>
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<tr>
<td></td>
<td>CHEM 101 General Chemistry I</td>
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<tr>
<td></td>
<td>&amp; CHEM 053 General Chemistry Laboratory I</td>
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<tr>
<td></td>
<td>PHYS 101 General Physics: Mechanics, Heat and Sound</td>
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<td>PHYS 150 Principles of Physics I: Mechanics and Wave Motion</td>
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<td>PHYS 170 Honors Physics I: Mechanics and Wave Motion</td>
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<td></td>
<td>Introductory Math &amp; Statistics</td>
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<td>MATH 104 Calculus, Part I</td>
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<td></td>
<td>BIOL 446 Statistics for Biologists</td>
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<td>STAT 102 Introductory Business Statistics</td>
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<td>STAT 111 Introductory Statistics</td>
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<td></td>
<td>STAT 431 Statistical Inference</td>
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<td></td>
<td>Computer Science</td>
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<td></td>
<td>CIS 120 Programming Languages and Techniques I</td>
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<td></td>
<td>CIS 121 Programming Languages and Techniques II</td>
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<tr>
<td></td>
<td>CIS 160 Mathematical Foundations of Computer Science</td>
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</tr>
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<td></td>
<td>Capstone Courses</td>
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<tr>
<td></td>
<td>BIOL 437 Introduction to Computational Biology &amp; Biological Modeling</td>
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<tr>
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<td>BIOL 399 Independent Study</td>
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<td></td>
<td>Additional Biology Major Courses</td>
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<td>Select 2 course units of Additional Biology Major courses</td>
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<tr>
<td></td>
<td>Computational Biology-Related Courses</td>
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<tr>
<td></td>
<td>Select 3 course units of Computational Biology-Related courses</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>36-37</td>
</tr>
</tbody>
</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

**Honors**

Applicants must have a minimum GPA of 3.25 in the major and the thesis must be approved by the departmental honors committee.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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**Biology: Ecology & Evolutionary Biology, BA**

Ecology and evolutionary biology are among the most exciting and challenging fields in biology today. The Concentration in Ecology and Evolutionary Biology provides intensive training in both areas, along with essential background in the statistical and mathematical methods essential for understanding Ecological and Evolutionary research and field practices.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

With permission from the Undergraduate Chair, two course units away or LPS courses may count toward the Biology major. This limit does not apply to Study Abroad.

For more information: http://www.bio.upenn.edu/undergraduate/concentrations/ecology-and-evolutionary-biology

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
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<td>College General Education Requirements and Free Electives</td>
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<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td>Major Requirements</td>
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</tr>
<tr>
<td></td>
<td>Introductory Biology</td>
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</tr>
<tr>
<td></td>
<td>Select one of the following tracks:</td>
<td>3</td>
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<tr>
<td></td>
<td>Track 1:</td>
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<td></td>
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</table>

2018-19 Catalog | Generated 08/30/18
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Biology: General Biology, BA**

Studies in biology can serve as preparation for graduate study in the biological sciences, graduate training in health-related professions, teaching, or employment in a laboratory or conservation-related job. The Biology Department offers courses in many areas of biology, ranging from the workings of cells and cellular components to species interactions and ecosystem function. Penn’s curriculum keeps pace with recent developments in molecular biology and the study of evolutionary processes, including proteomics, computational genomics, molecular evolution, and epigenetics. The General Biology Major allows students to explore the wide range of topics in biology, while also providing a strong foundation in core subject areas such as cell and molecular biology, genetics, physiology, and ecology and evolution.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

With permission from the Undergraduate Chair, two course units away or LPS courses may count toward the Biology major. This limit does not apply to Study Abroad.

For more information: http://www.bio.upenn.edu/undergraduate/current-students/major-requirements

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
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<td>BIOL 121</td>
<td>Introduction to Biology - The Molecular Biology of Life</td>
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<td>BIOL 123</td>
<td>Introductory Molecular Biology Laboratory</td>
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<td>BIOL 124</td>
<td>Introductory Organismal Biology Lab</td>
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<td>BIOL 215</td>
<td>Vertebrate Physiology</td>
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<td>or BIOL 231</td>
<td>The Evolution of Animal Behavior</td>
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<td>Principles of Physics I: Mechanics and Wave Motion</td>
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<td>Principles of Physics II: Electromagnetism and Radiation</td>
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<td>MATH 114</td>
<td>Calculus, Part II</td>
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<tr>
<td>or MATH 115</td>
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<td>STAT 102</td>
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<td>STAT 111</td>
<td>Introductory Statistics</td>
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<td>Intermediate Biology</td>
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<td>BIOL 221</td>
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<tr>
<td>BIOL 230</td>
<td>Evolutionary Biology</td>
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<tr>
<td>BIOL 240</td>
<td>Ecology: From individuals to ecosystems</td>
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<tr>
<td>Ecology &amp; Evolutionary Biology Electives</td>
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<td>Thesis</td>
<td></td>
<td>1</td>
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<td>SURB 2</td>
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You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Students are required to present their research at the annual Symposium on Undergraduate Research in Biology (SURB) poster session, held at the end of the Spring Term.

**Honors**

Applicants must have a minimum GPA of 3.25 in the Major and the Thesis must be approved by the departmental honors committee.
Track 1: Select four courses from four different groups (4 course units):

- **Group 1:**
  - BIOL 204: Biochemistry
  - or BIOL 205: Cell Biology

- **Group 2:**
  - BIOL 221: Molecular Biology and Genetics

- **Group 3:**
  - BIOL 215: Vertebrate Physiology
  - BIOL 231: The Evolution of Animal Behavior
  - BIOL 251: Molecular and Cellular Neurobiology

- **Group 4:**
  - BIOL 230: Evolutionary Biology
  - BIOL 240: Ecology: From individuals to ecosystems

**Additional Biology/Biology-Related Requirement**

Select 4 course units of Biology (Two of them may be Biology related courses)

**Total Course Units:** 36

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. A third course is needed if the additional CHEM or PHYS courses total less than 2 course units.

**Honors**

Applicants must have a minimum GPA of 3.25 in the major and the thesis must be approved by the departmental honors committee.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Biology: Mathematical Biology, BA**

Computational and Mathematical Biology are important new areas in the biological sciences. Many areas in genetics, ecology, and evolution depend on sophisticated quantitative analyses. For example, the advent of data from the human genome project (and similar data from other species) has shown the need for computer, statistical and mathematical methods to store, retrieve and analyze massive data sets. Recognizing the growing importance of these quantitative techniques and skills, we have developed undergraduate concentrations in both Computational and Mathematical Biology. These Concentrations are designed to prepare students for the world of data-driven science.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.
Biology: Mechanisms of Disease, BA

Among the most important and interesting areas of scientific investigation are the mechanisms that underlie disease. The study of this topic can be of great interest to those pursuing fundamental research, as well as to those drawn to medicine, biotechnology, law, and public health. The introductory and intermediate level course offerings of the Biology Department provide a foundation in understanding the fundamental principles underlying the mechanisms of disease. Advanced electives are selected from the fields of Microbes and Infectious Disease, Genetic Disease, Molecular Genetics and Genomics, and Biochemistry.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

With permission from the Undergraduate Chair, two course units away or LPS courses may count toward the Biology major. This limit does not apply to Study Abroad.

For more information: http://www.bio.upenn.edu/undergraduate/concentrations/mechanisms-disease

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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### Honors

Applicants must have a minimum GPA of 3.25 in the major and the thesis must be approved by the departmental honors committee.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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Biology: Molecular & Cell Biology, BA

The concentration in Molecular and Cell Biology explores how the techniques of molecular biology and genetics are used to understand cell function. As with the previous Molecular Biology Concentration (https://www.bio.upenn.edu/undergraduate/concentrations/molecular-biology), this concentration allows Biology majors to focus on a molecular approach to biological problems by combining lecture and seminar coursework with training in laboratory research. The list of course electives is organized into two categories: Molecular and Cell Biology and Genetics and Genomics. Advanced Experimental Research is required for the concentration.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

With permission from the Undergraduate Chair, two course units away or LPS courses may count toward the Biology major. This limit does not apply to Study Abroad.

For more information: http://www.bio.upenn.edu/undergraduate/concentrations/molecular-and-cell-biology
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### Biology: Neurobiology, BA

Neurobiology is one of the most exciting fields within biology today. The basis of neurological disease, molecular mechanisms of brain function, and behavior are major foci of research in medicine, biotechnology, and academia. The Neurobiology Concentration provides fundamental training in brain physiology, coupled with a background in molecular genetics that is essential for understanding the molecular mechanisms of brain function at the gene and protein levels.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

With permission from the Undergraduate Chair, two course units away or LPS courses may count toward the Biology major. This limit does not apply to Study Abroad.

For more information: http://www.bio.upenn.edu/undergraduate/concentrations/neurobiology

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>BIOL 123 Introductory Molecular Biology Laboratory</td>
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<td></td>
<td>or CHEM 251 Principles of Biological Chemistry</td>
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<td>BIOL 205 Cell Biology</td>
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<td><strong>Intermediate and Advanced Biology Electives²</strong></td>
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<td></td>
<td>Select 2 course units of Genetics/Genomics electives</td>
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<td>Select 1 course unit of an additional elective</td>
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<td></td>
<td>BIOL 499 Advanced Independent Study</td>
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<td></td>
<td>BIOL 376 Microbial Diversity and Pathogenesis Lab</td>
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<td>BIOL 425 Biochemistry and Molecular Genetics Superlab</td>
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¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

² Students in Track 2 need only 4 electives.

### Honors

Applicants must have a minimum GPA of 3.25 in the major and have taken BIOL 399 Independent Study. Thesis must be approved by the departmental honors committee.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Required Biology Courses

Select 2 course units of Cell/Molec/Develop Neurobiology courses 2
Select 1 course unit of Systems & Integrative Neurobiology courses 1

Research Requirement

BIOL 399 Independent Study 1
BIOL 499 Advanced Independent Study 1

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Biophysics, BA

Bridging the biological sciences and the physical sciences, Biophysics is concerned with physical and chemical explanations of living processes, especially at the cellular and molecular levels. Detailed molecular descriptions are emerging for genetic elements and the mechanisms that control their propagation and expression. Biophysical studies include the investigation of protein structure, nucleic acid structure, enzyme mechanisms, the phenomena underlying cellular behavior, excitable phenomena in nerve, muscle and visual cells, and integrative neural phenomena.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

Note: Though not a requirement of the major, participation in an independent research project is strongly encouraged.

For more information: http://www.sas.upenn.edu/biophysics/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
Chemistry, BA

The different disciplines of modern physical and biological sciences have much to offer each other through advances in technology. Aside from basic research, society continually generates fundamental scientific and technological challenges such as the need for new sources of energy, new synthetic and biotechnologies; new materials exhibiting unusual catalytic, metallic, or electrolytic properties; and developments in laser, computer, and communications technology. We consider these within the province of a unified field of molecular sciences, in which chemistry plays the central role.

Chemistry is concerned with the study of matter and the changes matter can undergo. The chemistry program provides a basic foundation for career opportunities in chemical research and teaching, in scientific communication and information transfer, and in the health professions. Students who want to prepare for advanced study in chemistry or allied fields where research experience is advantageous should complete the chemistry honors program.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

Those considering the Chemistry major should consult with the undergraduate chairman as soon as possible, preferably in the freshman year, especially if you have AP credit in Science and Mathematics from high school.

For more information: http://www.chem.upenn.edu/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

Honors

Applicant must have a minimum GPA of 3.3 in the major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Honors Applicants must have a minimum GPA of 3.3 in all Math and Science courses.
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Cinema and Media Studies, BA

The Penn Cinema and Media Studies major and minor are traditional humanities programs involving the critical study of film and media history, theory, and aesthetics. Reflecting the hybrid nature of the field of Cinema and Media Studies, our faculty members are housed in departments across SAS and the university, and we cross-list courses with various departments and schools, including Africana Studies, Anthropology, Communications, East Asian Language and Civilizations, English, Fine Arts, German, History, History of Art, Near Eastern Languages and Civilizations, Romance Languages, Slavic Languages and Literatures, and Women's Studies. This truly interdisciplinary program will introduce students to the wide range of methodologies used to study film and media, and this intersection with other disciplines makes Cinema and Media Studies an ideal component of a double major.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://cinemastudies.sas.upenn.edu/undergraduate/major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>CIMS 498</td>
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Honors

Applicants must have a minimum GPA of 3.5 in the major.

Classical Studies: Classical Civilizations, BA

Classical Studies encompasses the civilization of the ancient Greeks and Romans from prehistory to the Middle Ages, with emphasis on the literature, philosophy, and history of the classical Greek and Roman periods. It includes economic, political, social, and intellectual history as well as philosophy, archaeology, religion, and myth. Students may choose a track that emphasizes the study of texts in Greek and/or Latin or opt for a program of courses that do not require any knowledge of the ancient languages. The Classical Studies Department provides extensive training at the Undergraduate level and graduate training in both Classical Studies and Ancient History. We also offer a special Post-Baccalaureate Program for students who wish to continue the study of Greek and Latin but who do not yet meet the requirements of a conventional graduate program.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: http://www.classics.upenn.edu/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>ANCH 027</td>
<td>Ancient Rome</td>
<td>1</td>
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</table>

Cluster 2: Fields of Classical Studies

Select 4 course units at the 100 level (ANCH, CLST, GREK, LATN) 4

Cluster 3

Select 4 course units at or above the 200 level (in ANCH, CLST, GREK, or LATN) 4
Select 2 course units at or above the 300 level (in ANCH, CLST, GREK, or LATN) 2

Total Course Units 32

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
Classical Studies: Classical Languages and Literature, BA

Classical Studies encompasses the civilization of the ancient Greeks and Romans from prehistory to the Middle Ages, with emphasis on the literature, philosophy, and history of the classical Greek and Roman periods. It includes economic, political, social, and intellectual history as well as philosophy, archaeology, religion, and myth. Students may choose a track that emphasizes the study of texts in Greek and/or Latin or opt for a program of courses that do not require any knowledge of the ancient languages. The Classical Studies Department provides extensive training at the Undergraduate level and graduate training in both Classical Studies and Ancient History. We also offer a special Post-Baccalaureate Program for students who wish to continue the study of Greek and Latin but who do not yet meet the requirements of a conventional graduate program.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: http://www.classics.upenn.edu/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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**Major Requirements**

**Cluster 1: Core Introductory Courses**

- ANCH 026 Ancient Greece 1
- ANCH 027 Ancient Rome 1

**Cluster 2: Fields of Classical Studies**

Select 4 course units at the 100 Level (ANCH, CLST, GREK, LATN) 4

**Cluster 3**

Select 2 course units at or above the 200 level (ANCH, CLST, GREK, LATN) 2

Select 1 course unit at or above the 300 level (ANCH, CLST, GREK, LATN) 1

Select 3 course units at or above the 300 level (GREK, LATN) 3

Total Course Units 32

Honors

Honors Thesis

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Classical Studies: Mediterranean Archaeology, BA

Classical Studies encompasses the civilization of the ancient Greeks and Romans from prehistory to the Middle Ages, with emphasis on the literature, philosophy, and history of the classical Greek and Roman periods. It includes economic, political, social, and intellectual history as well as philosophy, archaeology, religion, and myth. Students may choose a track that emphasizes the study of texts in Greek and/or Latin, or they may opt for a program of courses that do not require any knowledge of the ancient languages. The Classical Studies Department provides extensive training at the Undergraduate level and graduate training in both Classical Studies and Ancient History. The department also offers a special Post-Baccalaureate Program for students who wish to continue the study of Greek and Latin but do not yet meet the requirements of a conventional graduate program.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: http://www.classics.upenn.edu/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
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<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
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</table>

**Major Requirements**

**Cluster 1: Core Introductory Courses (Required)**

- ANCH 026 Ancient Greece 1
- ANCH 027 Ancient Rome 1

**Cluster 2: Introductory/Fundamentals**

Select 4 course units of Introductory/Fundamentals courses 4

**Cluster 3: Advanced Courses**

Select 6 course units with 4 course units 300 level or above 6

Total Course Units 32

You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Honors Thesis
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Cognitive Science: Cognitive Neuroscience, BA**

Cognitive science is the empirical study of intelligent systems, including the human mind. An interdisciplinary science, it combines results from biology, computer science, linguistics, mathematics, neuroscience, philosophy and psychology to the study of language processing, perception, action, learning, concept formation, inference and other activities of the mind, with applications for information technology and the study of artificial intelligence.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: https://web.sas.upenn.edu/cogsci/program/major/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
<td></td>
<td>or PSYC 151 Language and Thought</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Computation:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- CIS 110 Introduction to Computer Programming</td>
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<tr>
<td></td>
<td>- CIS 120 Programming Languages and Techniques I</td>
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<tr>
<td></td>
<td>- PHIL 005 Formal Logic I</td>
<td></td>
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<tr>
<td></td>
<td>Language:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LING 001 Introduction to Linguistics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or LING 106 Introduction to Formal Linguistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Philosophy:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- PHIL 004 History of Modern Philosophy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- PHIL 244 Introduction to Philosophy of Mind</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- PHIL 405 Philosophy of Language</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- PHIL 426 Philosophy of Psychology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neuroscience:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIBB 249/ PSYC 149 Cognitive Neuroscience</td>
<td>1</td>
</tr>
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</table>

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
3. See COGS website for lists of approved courses.
4. NOTE: You must take BIBB 109 Introduction to Brain and Behavior/PSYC 109 Introduction to Brain and Behavior or BIBB/BIOL/PSYC 109 Introduction to Brain and Behavior either in Breadth or as a Concentration Elective.

**Honors**

Required: A Minimum Overall GPA of 3.0 and 3.5 in Major Related Courses

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Cognitive Science: Computation and Cognition, BA**

Cognitive science is the empirical study of intelligent systems, including the human mind. An interdisciplinary science, it combines results from biology, computer science, linguistics, mathematics, neuroscience, philosophy and psychology to the study of language processing, perception, action, learning, concept formation, inference and other activities of the mind, with applications for information technology and the study of artificial intelligence.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: https://web.sas.upenn.edu/cogsci/program/major/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Cognitive Science: Individualized, BA

Cognitive science is the empirical study of intelligent systems, including the human mind. An interdisciplinary science, it combines results from biology, computer science, linguistics, mathematics, neuroscience, philosophy and psychology to the study of language processing, perception, action, learning, concept formation, inference and other activities of the mind, with applications for information technology and the study of artificial intelligence.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: [https://web.sas.upenn.edu/cogsci/program/major/](https://web.sas.upenn.edu/cogsci/program/major/)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### Code | Title | Course Units
---|---|---
COGS 001 | Introduction to Cognitive Science | 2

### Breadth Requirement

Psychology:

- PSYC 001 | Introduction to Experimental Psychology | 1
- or PSYC 151 | Language and Thought | 1

Computation:

Select one of the following:

- CIS 110 | Introduction to Computer Programming | 1
- CIS 120 | Programming Languages and Techniques I | 1
- LGIC 010 | Ideas in Logic and Computation | 1
- PHIL 005 | Formal Logic I | 1

Language:

- LING 001 | Introduction to Linguistics | 1
- or LING 106 | Introduction to Formal Linguistics | 1

Philosophy:

Select one of the following:

- PHIL 004 | History of Modern Philosophy | 1
- PHIL 244 | Introduction to Philosophy of Mind | 1
- PHIL 405 | Philosophy of Language | 1
- PHIL 426 | Philosophy of Psychology | 1

### Concentration Requirement

Select 9 course units of Concentration Electives | 9

Total Course Units | 36

---

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).


3 See COGS website for lists of approved courses.

### Honors

Required: A Minimum Overall GPA of 3.0 and 3.5 in Major Related Courses

---

2018-19 Catalog | Generated 08/30/18
or BIBB/BIOL/ PSYC 109

Mathematics:

<table>
<thead>
<tr>
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<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>STAT 111</td>
<td>Introductory Statistics</td>
<td>1</td>
</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus, Part II with Probability and Matrices</td>
<td>1</td>
</tr>
</tbody>
</table>

Concentration Requirement

Select 9 course units of Concentration Electives 3,4 9

Total Course Units 36

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
3. ALL Courses must be approved by your advisor.
4. See COGS website for lists of approved courses.

Honors

Required: A minimum overall GPA of 3.0 and 3.5 in major related courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Cognitive Science: Language & Mind, BA

Cognitive science is the empirical study of intelligent systems, including the human mind. An interdisciplinary science, it combines results from biology, computer science, linguistics, mathematics, neuroscience, philosophy and psychology to the study of language processing, perception, action, learning, concept formation, inference and other activities of the mind, with applications for information technology and the study of artificial intelligence.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: https://web.sas.upenn.edu/cogsci/program/major/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
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<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 111</td>
<td>Introductory Statistics</td>
<td>1</td>
</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 115</td>
<td>Calculus, Part II with Probability and Matrices</td>
<td>1</td>
</tr>
</tbody>
</table>

Concentration Requirement

Select 9 course units of Concentration Electives 3 9

Total Course Units 36

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
3. See COGS website for lists of approved courses.

Honors

Required: A Minimum Overall GPA of 3.0 and 3.5 in Major Related Courses

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Communication: Communication & Public Service, BA

A Communication major with a concentration in Communication and Public Service (ComPS) offers students a special program that combines individual research opportunities with hands-on experience in the public arena. Classes, seminars, internships, field experiences, and individual research projects provide students with opportunities to meet and learn from current and former officeholders, journalists, and public servants who have been leaders in government and civil society. The program is closely matched to the undergraduate Communication major, and like the Communication major, ComPS students must complete 14 courses.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

Students must meet the following minimum requirements as a condition of application to the major. Meeting these prerequisites is NOT a guarantee of admission to the major:

1. Completion of at least two of the following introductory courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 125</td>
<td>Introduction to Communication Behavior</td>
<td>1</td>
</tr>
<tr>
<td>COMM 130</td>
<td>Media Industries and Society</td>
<td>1</td>
</tr>
<tr>
<td>COMM 123</td>
<td>Critical Approaches to Popular Culture</td>
<td>1</td>
</tr>
</tbody>
</table>

2. Completion of a third Communication course.

3. Cumulative GPA at time of application should be at least 2.0.

For more information: https://www.asc.upenn.edu/communication-and-public-service

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>College General Education Requirements and Free Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Survey Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select two of the following:</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>COMM 123</td>
<td>Critical Approaches to Popular Culture</td>
<td></td>
</tr>
<tr>
<td>COMM 125</td>
<td>Introduction to Communication Behavior</td>
<td></td>
</tr>
<tr>
<td>COMM 130</td>
<td>Media Industries and Society</td>
<td></td>
</tr>
<tr>
<td>Core COMPS Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMM 323</td>
<td>Contemporary Politics, Policy and Journalism</td>
<td>1</td>
</tr>
<tr>
<td>or COMM 395</td>
<td>Communication and the Presidency</td>
<td></td>
</tr>
</tbody>
</table>

| Additional COMPS Courses | | |
| Select 2 course units of COMPS courses | 2 |

| Methods Course | |
| Select one of the following: | 1 |

COMM 210 | Quantitative Research Methods in Communication |
or COMM 333 | Survey Research and Design |
or COMM 499 | Experimental Design |

Intermediate Level Courses
Select 2 course units of Intermediate Level courses | 2 |

Upper Level Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 494</td>
<td>Honors &amp; Capstone Thesis</td>
<td>1</td>
</tr>
<tr>
<td>COMM 495</td>
<td>COMPS Capstone Thesis</td>
<td>1</td>
</tr>
</tbody>
</table>

Major Cluster
Select 3 course units in up to three departments. Only 1 course unit may be an introductory class.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Course Units</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. Course not used for the Core may count toward the Intermediate requirement.


4. Approved methods courses may be found here (https://www.asc.upenn.edu/academics/undergraduate-program/curriculum-and-major-requirements/course-requirements).

5. Intermediate Level Courses are those courses numbered between 100 and 299.

6. Upper level courses are those numbered 300 through 499.

7. Must be approved by the Director of Student Services.

Honors

A capstone thesis project is completed over two semesters during the senior year. Students choose the topic of the capstone thesis from a range of public policy or public service issues. During the year they work with a thesis advisor and are enrolled in a thesis seminar to complete their project. A credit is earned in both semesters. Students who achieve a cumulative grade point average of 3.5 or higher and earn an A- or higher on their project will graduate with honors.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Communication: General Communication, BA

The Communication Program, housed at Penn’s Annenberg School for Communication, offers a dynamic environment where students and faculty explore a wide range of communication-centered questions using a variety of methods and theories from the humanities and social
Undergraduates (who major in Communication through the School of Arts and Sciences) explore how messages are created and adapted to audiences and examine the implications of those messages for individuals and society.

Areas of concentration include critical, cultural, and historical media studies; research on children, family, and media; health communication; the media business; and political communication. The curriculum also offers opportunities for independent study, internship experience, study abroad, and putting communication to work in the service of community (through the Communication and Public Service Program).

The minimum total course units for graduation in this major is 34. Double majors may entail more course units.

Students must meet the following minimum requirements prior to acceptance into the major.

1. Completion of at least two of the following introductory courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 125</td>
<td>Introduction to Communication Behavior</td>
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<td>COMM 130</td>
<td>Media Industries and Society</td>
<td>1</td>
</tr>
<tr>
<td>COMM 123</td>
<td>Critical Approaches to Popular Culture</td>
<td>1</td>
</tr>
</tbody>
</table>

2. Completion of a third Communication course.

3. Cumulative GPA of 2.0 or higher in all University of Pennsylvania courses.

For more information: https://www.asc.upenn.edu/academics/undergraduate-program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
</tbody>
</table>

**Major Requirements**

**Core Survey Courses**

Select two of the following:

- COMM 123 Critical Approaches to Popular Culture
- COMM 125 Introduction to Communication Behavior
- COMM 130 Media Industries and Society

**Methods Course**

Select one of the following:

- COMM 210 Quantitative Research Methods in Communication
- COMM 332 Survey Research and Design
- COMM 499 Experimental Design

**Intermediate Level Courses**

Select 4 course units of Intermediate Level courses

**Advanced Level Courses**

Select 4 course units of Advanced Level courses

*Cognate Courses*  
Select 3 course units of Cognate courses

Total Course Units 34

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. Course not used for the Core may count toward the Intermediate requirement.

3. Please visit the website (https://www.asc.upenn.edu/academics/undergraduate-program/curriculum-and-major-requirements/course-requirements) for a listing of approved Method Courses.

4. Intermediate Level Courses are those courses numbered between 100 and 299.

5. Advanced Level courses are those course numbered 300 through 499.

6. Only 1 course unit may be an introductory class. Must be approved by the Director of Student Services.

**Honors**

A thesis project is completed over two semesters during the senior year. A credit is earned in both semesters. Students who achieve a cumulative grade point average of 3.5 or higher and earn an A- or higher on their project will graduate with honors.

**Optional Concentrations**

Concentrations give our majors an opportunity to pursue their personal interests within the diverse field of Communication. In some cases, these concentrations can also help students market themselves for employment or graduate school in a related field. The concentration utilizes five of the fourteen courses listed below (three of which are COMM courses, two of which are cognate courses). No course can be used more than once toward concentration requirements. A list of approved concentration courses can be found here (https://www.asc.upenn.edu/academics/undergraduate-program/curriculum-and-major-requirements/concentrations). Cognate courses are to be approved by Annenberg’s Director of Student Services.

Students may only complete one concentration.

Concentration

- Political Communication
- Critical Journalism
- Global Communication
- Culture & Communication
- Visual Communication
- Media Effects
- Media Institutions & Policy
- Health Communication
- Race, Gender & Identity
- Civic Communication
- Messaging and Marketing
- Individualized
Comparative Literature: Globalization, BA

The undergraduate program in Comparative Literature welcomes students interested in the study of literature from theoretical, interdisciplinary, cross-cultural, and global perspectives. The core courses train students to appreciate the variety of meanings that texts acquire in different institutional and philosophical contexts and different socio-political frameworks. There are three concentrations within the major: National and Transnational Literatures (four courses in each of two languages), Theory, and Globalization.

Comparative Literature is a flexible program, allowing students to take courses in a variety of departments in the College. Students with interests in more than one national literature and in fields such as philosophy and political theory, art and aesthetics, and film and music will find the requirements congenial. The program provides students with a cosmopolitan intellectual background that is increasingly in demand today.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://ccat.sas.upenn.edu/Complit/undergraduate.htm

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

Criminology, BA

The major in Criminology enables students to acquire a theoretical and methodological framework for generating and assessing knowledge about crime and social control. The program draws upon disciplines from statistics to neuroscience to develop a liberal arts approach to the subject of crime.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://crim.sas.upenn.edu/
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
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<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
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<tr>
<td>CRIM 100</td>
<td>Criminology</td>
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<tr>
<td>CRIM 200</td>
<td>Criminal Justice</td>
<td>1</td>
</tr>
<tr>
<td>CRIM 410</td>
<td>Research Seminar in Experiments in Crime and Justice</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Socio-Political Context of Crime</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 Socio-Political Context of Crime courses</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Bio-Psychological-Social Analysis of Crime</strong></td>
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<tr>
<td></td>
<td>Select 3 Bio-Psychological-Social Analysis of Crime courses</td>
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</tr>
<tr>
<td></td>
<td><strong>Criminal Justice Research</strong></td>
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<td>Select 2 Criminal Justice Research courses</td>
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<td><strong>Electives</strong></td>
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<td>Select 3 Criminology electives</td>
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<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>34</td>
</tr>
</tbody>
</table>

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. Students completing a minor elective track are exempt from the 2 course units of Criminology electives.

**Honors**

Applicants must have a minimum GPA of 3.4 in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 450</td>
<td>Senior Research Thesis</td>
<td>1</td>
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</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Earth Science: Environmental Science, BA**

The Earth Science major provides graduates with a broad understanding of the physical and chemical processes that operate in and on the planet and how direct and indirect methods are used to examine and understand the structure, composition, and dynamics of the Earth. Graduates appreciate how humans and ecosystems interact with the dynamic Earth, and they have an in-depth knowledge of the atmosphere and climate change, the rock cycle, natural hazards, and the hydrologic and biogeochemical cycles. Additionally, they understand how to measure and use the structure, sequence, and properties of rocks, sediments, and fossils to reconstruct events in Earth's history and identify potential natural hazards or earth resources.

The Environmental Science concentration within the Earth Science major integrates geology, biology, chemistry, and physics in an effort to have students undertake a scientific study of the environment and the effects of humans on Earth systems.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

**For more information:** http://www.sas.upenn.edu/earth/earth-science/environmental-science-concentration

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
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</thead>
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<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
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<td></td>
<td><strong>Major Requirements</strong></td>
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<tr>
<td></td>
<td><strong>Core Requirement</strong></td>
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<td>ENVS 100</td>
<td>Introduction to Environmental Science</td>
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<td>GEOL 100</td>
<td>Introduction to Geology (if not taken)</td>
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<tr>
<td>GEOL 103</td>
<td>Natural Disturbances and Human Disasters</td>
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</tr>
<tr>
<td>GEOL 125</td>
<td>Earth and Life Through Time</td>
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<tr>
<td>GEOL 130</td>
<td>Oceanography</td>
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<tr>
<td>GEOL 204</td>
<td>Global Climate Change</td>
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<tr>
<td></td>
<td><strong>Math, Physics &amp; Chemistry Requirement</strong></td>
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<td></td>
<td>Select 3 course units of Math, Physics and Chemistry courses with at least one course from two different disciplines.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Mathematics:</strong></td>
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</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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</tr>
<tr>
<td>or MATH 114</td>
<td>Calculus, Part II</td>
<td></td>
</tr>
<tr>
<td>or MATH 115</td>
<td>Calculus, Part II, with Probability and Matrices</td>
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<tr>
<td>or STAT 111</td>
<td>Introductory Statistics</td>
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<tr>
<td></td>
<td><strong>Physics:</strong></td>
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<tr>
<td>PHYS 101</td>
<td>General Physics: Mechanics, Heat and Sound</td>
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<tr>
<td>or PHYS 150</td>
<td>Principles of Physics I, Mechanics and Wave Motion</td>
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<tr>
<td>or PHYS 170Honors Physics I: Mechanics and Wave Motion</td>
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<td>General Physics: Electromagnetism, Optics, and Modern Physics</td>
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<tr>
<td>or PHYS 151</td>
<td>Principles of Physics II: Electromagnetism and Radiation</td>
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<tr>
<td>or PHYS 171Honors Physics II: Electromagnetism and Radiation</td>
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<tr>
<td>GEOL 420</td>
<td>Introduction to Geophysics</td>
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<tr>
<td></td>
<td><strong>Chemistry:</strong></td>
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</tr>
<tr>
<td>CHEM 101</td>
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<tr>
<td>&amp; CHEM 053</td>
<td>and General Chemistry Laboratory I</td>
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<tr>
<td>CHEM 102</td>
<td>General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 054</td>
<td>and General Chemistry Laboratory II</td>
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<tr>
<td>GEOL 418</td>
<td>Geochemistry</td>
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</table>
Earth Science: Geology, BA

The Earth Science major provides graduates with a broad understanding of the physical and chemical processes that operate in and on the planet and how direct and indirect methods are used to examine and understand the structure, composition, and dynamics of the Earth. Graduates appreciate how humans and ecosystems interact with the dynamic Earth, and they have an in-depth knowledge of the atmosphere and climate change, the rock cycle, natural hazards, and the hydrologic and biogeochemical cycles. Additionally, they understand how to measure and use the structure, sequence, and properties of rocks, sediments, and fossils to reconstruct events in Earth’s history and identify potential natural hazards or earth resources.

Students in the Geology concentration learn the various processes at work within the planet and on its surface. Students gain hands-on experience with fossils, rocks, minerals, maps, aerial photographs, and satellite images in the laboratory and on field trips.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/earth/earth-science/geology-concentration

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
<td>BIOL 101</td>
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<td>BIOL 102</td>
<td>Introduction to Biology B (and AP Credit)</td>
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<tr>
<td>BIOL 121</td>
<td>Introduction to Biology - The Molecular Biology of Life (+ AP Credit)</td>
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<tr>
<td>BIOL 240</td>
<td>Ecology: From individuals to ecosystems</td>
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Honors

Applicants must have a 3.25 GPA in the major and complete a Senior Thesis with a B+ or above.

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<td>GEOL 201</td>
<td>Mineralogy</td>
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<td>GEOL 205</td>
<td>Paleontology</td>
<td>1</td>
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<tr>
<td>GEOL 206</td>
<td>Stratigraphy</td>
<td>1</td>
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<tr>
<td>GEOL 208</td>
<td>Structural Geology</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 317</td>
<td>Petrology and Petrography</td>
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<td>MATH 104</td>
<td>Calculus, Part I</td>
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<td>PHYS 101</td>
<td>General Physics: Mechanics, Heat and Sound</td>
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<tr>
<td>CHEM 101 &amp; CHEM 053</td>
<td>General Chemistry I and General Chemistry Laboratory I</td>
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Related Disciplines

Select 2 course units with one course from each of two disciplines

Mathematics:

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Chemistry:

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<td>GEOL 418</td>
<td>Geochemistry</td>
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Physics:

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<tbody>
<tr>
<td>GEOL 420</td>
<td>Introduction to Geophysics</td>
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</table>

Advanced Courses

Select 2 course units of 400 or 500 level Advanced courses

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<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
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<tr>
<td>GEOL 414</td>
<td>Calculus, Part II</td>
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<tr>
<td>MATH 115</td>
<td>Calculus, Part II with Probability and Matrices</td>
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</tr>
</tbody>
</table>

Total Course Units

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Equivalents may be substituted with prior approval from the Earth Sciences advisor.

Honors

Applicants must have a 3.25 GPA in the major and complete a Senior Thesis with a B+ or above.
Select 2 course units of courses from the approved list on EESC website

GEOL 399  Geology Research Seminar for Juniors  1
GEOL 420  Introduction to Geophysics  1

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Earth Science: Paleobiology, BA**

The Earth Science major provides graduates with a broad understanding of the physical and chemical processes that operate in and on the planet and how direct and indirect methods are used to examine and understand the structure, composition, and dynamics of the Earth. Graduates appreciate how humans and ecosystems interact with the dynamic Earth, and they have an in-depth knowledge of the atmosphere and climate change, the rock cycle, natural hazards, and the hydrologic and biogeochemical cycles. Additionally, they understand how to measure and use the structure, sequence, and properties of rocks, sediments, and fossils to reconstruct events in Earth’s history and identify potential natural hazards or earth resources.

Students in the Paleobiology concentration learn how the biological and physical conditions in deep time shaped the current conditions on Earth. Paleobiologists use image analysis and evolutionary theory to deduce the patterns of change in the biosphere.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/earth/earth-science/paleobiology-concentration

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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</tr>
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<td>GEOL 498</td>
<td>Senior Thesis</td>
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<table>
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<td>BIOL 101</td>
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<td>BIOL 102</td>
<td>Introduction to Biology B</td>
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<tr>
<td>BIOL 230</td>
<td>Evolutionary Biology</td>
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</tr>
<tr>
<td>GEOL 100</td>
<td>Introduction to Geology</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 125</td>
<td>Earth and Life Through Time</td>
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<tr>
<td>GEOL 111</td>
<td>Geology Laboratory</td>
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<td>GEOL 205</td>
<td>Paleontology</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 206</td>
<td>Stratigraphy</td>
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</table>

**Individual Research**

Select 1 Geology course unit at or above the 400 level  1
Select 1 Biology course unit at or above the 200 level  1

- **CHEM 101**  General Chemistry I  1.5
- **CHEM 053**  General Chemistry Laboratory I  1.5
- **CHEM 102**  General Chemistry II  1.5
- **CHEM 054**  General Chemistry Laboratory II  1.5

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>PhD 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
<td>1.5</td>
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<tr>
<td>PhD 170</td>
<td>Honors Physics I: Mechanics and Wave Motion</td>
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</table>

Select 1 course unit of the following:

- **MATH 115**  Calculus, Part II with Probability and Matrices  1
- **MATH 114**  Calculus, Part II  1
- **BIOL 446**  Statistics for Biologists  1
- **STAT 111**  Introductory Statistics  1
- **STAT 112**  Introductory Statistics  1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tr>
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<td>Geology Research Seminar for Juniors</td>
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</tr>
<tr>
<td>GEOL 498</td>
<td>Senior Thesis</td>
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</table>

Total Course Units  36

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Two semester course; 2 course units granted only upon completion of second semester.

**Honors**

Applicants must have a minimum GPA of 3.25 overall and a GPA of 3.25 in the major.

<table>
<thead>
<tr>
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<td>GEOL 498</td>
<td>Senior Thesis</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**East Asian Languages and Civilizations: Chinese and Japanese, BA**

The undergraduate program in EALC offers language training and courses in the culture, history, literature, and archaeology of East Asia. The graduate program in EALC deals with two major areas, China and Japan (a graduate program in Korean is planned for the future), and all of its programs focus mainly upon language, philology, and the study...
of civilization and culture. Each provides training for the Ph.D. and A.M. degrees.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/ealc/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
<td></td>
<td>CHIN 111 Beginning Chinese III (Non-Intensive)</td>
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<td>CHIN 112 Beginning Chinese IV</td>
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<td>CHIN 021 Intensive Beginning Modern Chinese I &amp; II</td>
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<td>JPAN 111 Beginning Japanese III</td>
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<td>Introductory Courses - China and Japan</td>
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<tr>
<td></td>
<td>EALC 001 Introduction to Chinese Civilization</td>
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<td>EALC 301 Major Seminar on China</td>
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**East Asian Languages and Civilizations: Chinese, BA**

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The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/ealc/

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</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

**Honors**

**Additional Electives & Thesis**

<table>
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</table>

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**East Asian Languages and Civilizations: Chinese, BA**

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2018-19 Catalog | Generated 08/30/18
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### East Asian Languages and Civilizations: Japanese, BA

The undergraduate program in EALC offers language training and courses in the culture, history, literature, and archaeology of East Asia. The graduate program in EALC deals with two major areas, China and Japan (a graduate program in Korean is planned for the future), and all of its programs focus mainly upon language, philology, and the study of civilization and culture. Each provides training for the Ph.D. and A.M. degrees.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: [http://www.sas.upenn.edu/ealc/](http://www.sas.upenn.edu/ealc/)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### Economics, BA

Economics is a social science and, as such, an important component of the liberal arts curriculum. At the core of economics are theories of how...
individuals, firms, and other organizations make choices and interact, taking into account constraints on their behaviors. Among the topics studied in economics are the determination of prices and quantities in various types of markets (from perfectly competitive commodity markets to highly regulated utility markets and internet auctions); the effects of taxes, subsidies, and regulations; the determination of aggregate economic activity (e.g., GDP, unemployment); inflation, monetary policy, and financial intermediation; economic growth and income distribution; and international trade and international finance (e.g., exchange rates).

The Economics Major provides training in economic principles and provides a useful background for students preparing for a career in public policy, business, or finance.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

**10 course units Economics** - 6 course units must be taken in the Economics Department at the University of Pennsylvania.

**The Calculus Requirement is:** MATH 104 Calculus, Part I and MATH 114 Calculus, Part II or MATH 115 Calculus, Part II with Probability and Matrices.

**Economics Core Requirement** (Micro, Macro, and Statistics)

**Note:** LPS academic year courses ECON 001 Introduction to Micro Economics, ECON 002 Introductory Economics: Macro, ECON 101 Intermediate Microeconomics, ECON 102 Intermediate Macroeconomics, or ECON 103 Statistics for Economists ONLY may be used for the Major.

For more information: http://economics.sas.upenn.edu/undergraduate-program/economics-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### Code  Title  Course Units

#### College General Education Requirements and Free Electives

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
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#### Major Requirements

**Introduction to Micro and Macro Economics**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ECON 001</td>
<td>Introduction to Micro Economics</td>
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</tr>
<tr>
<td>ECON 002</td>
<td>Introductory Economics: Macro</td>
<td></td>
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</tbody>
</table>

Or Waiver Conversion Complete

**Intro Micro/Macro - For WHARTON Students Only**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business</td>
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Select an additional 200-level ECON course

**Intermediate Level Micro and Macro Economics**

<table>
<thead>
<tr>
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<tr>
<td>ECON 101</td>
<td>Intermediate Microeconomics</td>
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<td>ECON 102</td>
<td>Intermediate Macroeconomics</td>
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**Statistics**

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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<tbody>
<tr>
<td>ECON 103</td>
<td>Statistics for Economists</td>
<td>1</td>
</tr>
<tr>
<td>or STAT 430</td>
<td>Probability</td>
<td></td>
</tr>
<tr>
<td>or STAT 431</td>
<td>Statistical Inference</td>
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</tr>
<tr>
<td>STAT 430</td>
<td>Probability (and one additional ECON course)</td>
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### Econometrics

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>ECON 104</td>
<td>Econometrics</td>
<td>1</td>
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### Four Major Courses

Select 4 course units of Major Courses from all 200 Level with 2 course units in Econ Dept at U of P

**Mathematics Requirement**

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<thead>
<tr>
<th>Code</th>
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<td>MATH 114</td>
<td>Calculus, Part II</td>
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<tr>
<td>or MATH 115</td>
<td>Calculus, Part II with Probability and Matrices</td>
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</table>

Total Course Units 32

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro are prerequisites for all economics courses. ECON 001 Introduction to Micro Economics is the prerequisite for ECON 002 Introductory Economics: Macro.
3. ECON Course Required if ECON 010 Introduction to Economics for Business is taken.
4. ECON 101 Intermediate Microeconomics is a prerequisite for all 200-level economics courses & ECON 102 Intermediate Macroeconomics for many.
5. ECON Course required if STAT 430 Probability or STAT 430 Probability/STAT 431 Statistical Inference are taken.

**Honors**

Applicants must have a minimum GPA of 3.5 in Economics.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>ECON 001</td>
<td>Introduction to Micro Economics</td>
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<td>ECON 002</td>
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</tr>
<tr>
<td>ECON 101</td>
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<td>Intermediate Macroeconomics</td>
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<td>ECON 103</td>
<td>Statistics for Economists</td>
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<td>ECON 104</td>
<td>Econometrics</td>
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### Pre-Requisites

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ECON 300</td>
<td>Honors Seminar</td>
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</tbody>
</table>

#### Year Long Course

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**English: 18th/19th Centuries, BA**

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core;
majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td></td>
<td>College General Education Requirements and Free Electives</td>
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<td></td>
<td>Foundational Approaches + Sectors$^1$ + Free Electives</td>
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<td></td>
<td>Sector 1 - Theory &amp; Poetics</td>
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<td></td>
<td>Sector 2 - Difference and Diaspora</td>
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<tr>
<td></td>
<td>The Junior Seminar</td>
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</tr>
<tr>
<td>ENGL 200</td>
<td>Junior Research Seminar (Seminar 1) (may be double-counted in the core)</td>
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<td>Seminars</td>
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<td></td>
<td>Select one seminar in each area from ENGL 110-ENGL 599:</td>
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</tr>
<tr>
<td></td>
<td>Sem 1: Literature Before 1700</td>
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</tr>
<tr>
<td></td>
<td>Sem 2: Literature Before 1900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sem 3: ENGL (may be double-counted in the core)</td>
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</tr>
<tr>
<td></td>
<td>Sem 4: ENGL or Related (may be double-counted in the core)</td>
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<td></td>
<td>Electives</td>
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<tr>
<td></td>
<td>Select 2-5 course units from ENGL 016-ENGL 599</td>
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<tr>
<td></td>
<td>Concentration Requirements</td>
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<tr>
<td></td>
<td>Select 4 course units of 18th &amp; 19th Century Literature and Culture courses with 2 course units 200-level seminar or higher</td>
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<tr>
<td></td>
<td>The Junior Seminar</td>
<td></td>
</tr>
<tr>
<td>ENGL 200</td>
<td>Junior Research Seminar (Seminar 1) (may be double-counted in the core)</td>
<td>1</td>
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</table>

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. For up to three sectors, a seminar may be double-counted in the core.
3. Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.
4. Concentration may be comprised from the 13 course units of the major, or other courses.

**Honors**

Applicants must have a 3.6 GPA in the major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**English: 20th/21st Centuries, BA**

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td></td>
<td>Foundational Approaches + Sectors$^1$ + Free Electives</td>
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<td>Core Requirement</td>
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<td></td>
<td>Select one course in each sector from ENGL 015-ENGL 099:</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Sector 1 - Theory &amp; Poetics</td>
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<td>Junior Research Seminar (Seminar 1) (may be double-counted in the core)</td>
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<td></td>
<td>Seminars</td>
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<tr>
<td></td>
<td>Select one seminar in each area from ENGL 110-ENGL 599:</td>
<td>4</td>
</tr>
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<td>Concentration Requirements</td>
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<tr>
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<td>Select 4 course units of 20th &amp; 21st Century Literature and Culture courses with 2 course units 200-level seminar or higher</td>
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1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. For up to three sectors, a seminar may be double-counted in the core.
3. Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.
4. Concentration may be comprised from the 13 course units of the major, or other courses.

Total Course Units 33
1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 For up to three sectors, a seminar may be double-counted in the core.

3 Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.

4 Concentration may be comprised from the 13 course units of the major, or other courses.

Honors
Applicants must have a 3.6 GPA in the major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**English: Africana Literatures & Culture, BA**

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinctive concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

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<td></td>
<td><strong>Core Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one course in each sector from ENGL 015-ENGL 099:</td>
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</tr>
<tr>
<td></td>
<td>Sector 1 - Theory &amp; Poetics</td>
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<td>ENGL 200</td>
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<td></td>
<td><strong>Seminars</strong></td>
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</tr>
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<td></td>
<td>Select one seminar in each area from ENGL 110-ENGL 599:</td>
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</tbody>
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**Honors**

Applicants must have a 3.6 GPA in the major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**English: American Literature & Culture, BA**

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinctive concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

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<td><strong>Core Requirement</strong></td>
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<td></td>
<td><strong>Seminars</strong></td>
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</tr>
<tr>
<td></td>
<td>Select one seminar in each area from ENGL 110-ENGL 599:</td>
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</tbody>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**English: Celtic Literature & Culture, BA**

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

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</table>

## Seminars

Select one seminar in each area from ENGL 110-ENGL 599: 4

- **Sem 1:** Literature Before 1700
- **Sem 2:** Literature Before 1900
- **Sem 3:** ENGL (may be double-counted in the core)
- **Sem 4:** ENGL or Related (may be double-counted in the core)

## Electives

Select 2-5 course units from ENGL 015-ENGL 599 3

Select 4 course units of American Literature and Culture courses with 2 course units 200-level seminar or higher 4

Total Course Units 33

---

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. For up to three sectors, a seminar may be double-counted in the core.
3. Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.
4. Concentration may be comprised from the 13 course units of the major, or other courses.

---

### Honors

Applicants must have a 3.6 GPA in the major. Thesis required.

---

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

**For more information:** http://www.english.upenn.edu/Undergrad/

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### Code Title Course Units

**College General Education Requirements and Free Electives**

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<tr>
<th>Foundational Approaches + Sectors 1 + Free Electives</th>
<th>20</th>
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</table>

### Major Requirements

#### Core Requirement

Select one course in each sector from ENGL 015-ENGL 099: 6

- **Sector 1:** Theory & Poetics
- **Sector 2:** Difference and Diaspora
- **Sector 3:** Medieval/Renaissance
- **Sector 4:** Lit of the Long 18th C (ca. 1660-1832)
- **Sector 5:** 19th Century Literature
- **Sector 6:** 20th Century Literature

### Seminars

Select one seminar in each area from ENGL 110-ENGL 599: 4

- **Sem 1:** Literature Before 1700
- **Sem 2:** Literature Before 1900
- **Sem 3:** ENGL (may be double-counted in the core)
- **Sem 4:** ENGL or Related (may be double-counted in the core)

### Electives

Select 2-5 course units from ENGL 015-ENGL 599 3

Select 4 course units of Celtic Literature and Culture courses with 2 course units 200-level seminar or higher 4

Total Course Units 33

---

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. For up to three sectors, a seminar may be double-counted in the core.
3. Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.
4. Concentration may be comprised from the 13 course units of the major, or other courses.

---

**Honors**

Applicants must have a 3.6 GPA in the major. Thesis required.

---

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should
consult with their academic program regarding final certifications and requirements for graduation.

---

### English: Cinema & Media Studies, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

**For more information:** [http://www.english.upenn.edu/Undergrad/](http://www.english.upenn.edu/Undergrad/)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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### Cinema & Media Studies Core

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<td>World Film History 1945-Present</td>
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### The Junior Seminar

<table>
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<td>ENGL 200</td>
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### English: Colonial & Postcolonial, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

**For more information:** [http://www.english.upenn.edu/Undergrad/](http://www.english.upenn.edu/Undergrad/)

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1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. For up to three sectors, a seminar may be double-counted in the core.
3. Take additional course unit if ENGL 200 Junior Research Seminar is double counted in core.

### Honors

Applicants must have a 3.6 GPA in the major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Sem 4: ENGL or Related (may be double-counted in the core)

Electives
Select 2-5 course units from ENGL 015-ENGL 599

Concentration Requirements
Select 4 course units of Colonial and Postcolonial Literatures courses with 2 course units 200-level seminar or higher

Total Course Units
33

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. For up to three sectors, a seminar may be double-counted in the core.
3. Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.
4. Concentration may be comprised from the 13 course units of the major, or other courses.

Honors
Applicants must have a 3.6 GPA in the major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

English: Creative Writing, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td></td>
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1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. For up to two sectors, a literature seminar may be double-counted in the core.
3. Take additional 2 course units if Seminars 1 and 2 are double-counted in core.

Honors
Applicants must have a 3.6 GPA in the major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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English: Drama, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
English: Gender/Sexuality, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

Applicants must have a 3.6 GPA in the major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

### English: Gender/Sexuality, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

Applicants must have a 3.6 GPA in the major. Thesis required.

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### College General Education Requirements and Free Electives

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<td>Foundational Approaches + Sectors</td>
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### Major Requirements

#### Core Requirement

Select one course in each sector from ENGL 015-ENGL 099: 6

**Sector 1 - Theory & Poetics**

**Sector 2 - Difference and Diaspora**

**Sector 3 - Medieval/Renaissance**

**Sector 4 - Lit of the Long 18th C (ca. 1660-1832)**

**Sector 5 - 19th Century Literature**

**Sector 6 - 20th Century Literature**

#### The Junior Seminar

ENGL 200 Junior Research Seminar (Seminars 1) (may be double-counted in the core)

#### Seminars

Select one seminar in each area from ENGL 110-ENGL 599: 4

**Sem 1: Literature Before 1700**

**Sem 2: Literature Before 1900**

**Sem 3: ENGL (may be double-counted in the core)**

**Sem 4: ENGL or Related (may be double-counted in the core)**

#### Electives

Select 2-5 course units from ENGL 015-ENGL 599 2

#### Concentration Requirements

Select 4 course units of Drama courses with 2 course units 200-level seminar or higher 4

#### Total Course Units

33

---

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 For up to three sectors, a seminar may be double-counted in the core.

3 Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.

4 Concentration may be comprised from the 13 course units of the major, or other courses.

---

### Honors

Applicants must have a 3.6 GPA in the major. Thesis required.
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### English: General English, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Sem 3: ENGL (may be double-counted in the core)</td>
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1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. For up to three sectors, a seminar may be double-counted in the core.

3. Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.

### Honors

Applicants must have a 3.6 GPA in the Major. Thesis required.

### English: Historical, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

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### English: Individualized, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units for graduation in this major is 33. Double majors may entail more course units.

**For more information:** [http://www.english.upenn.edu/Undergrad/](http://www.english.upenn.edu/Undergrad/)

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<td>Sem 3: ENGL (may be double-counted in the core)</td>
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**Honors**

Applicants must have a 3.6 GPA in the Major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### English: Law and Literature, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units for graduation in this major is 33. Double majors may entail more course units.

**For more information:** [http://www.english.upenn.edu/Undergrad/](http://www.english.upenn.edu/Undergrad/)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum page.

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<td>Sector 3 - Medieval/Renaissance</td>
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**Honors**

Applicants must have a 3.6 GPA in the Major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
English: Literary Theory & Cultural Studies, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/
English: Literature, Journalism and Print Culture, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Foundational Approaches + Sectors + Free Electives</td>
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<td>Sector 2 - Difference and Diaspora</td>
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<td>Sector 3 - Medieval/Renaissance</td>
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<td>Sector 4 - Literature of the Long 18th C (ca. 1660-1832)</td>
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<td>Sector 5 - 19th Century Literature</td>
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<td>Sector 6 - 20th Century Literature</td>
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<td>Sem 1: Literature Before 1700</td>
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<tr>
<td></td>
<td>Sem 2: Literature Before 1900</td>
<td></td>
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<tr>
<td></td>
<td>Sem 3: ENGL (may be double-counted in the core)</td>
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<td></td>
<td>Sem 4: ENGL or Related (may be double-counted in the core)</td>
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<td>Electives</td>
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<td>Select 2-5 course units from ENGL 015-ENGL 599</td>
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<td></td>
<td>Concentration Requirements</td>
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<td></td>
<td>Select 4 course units of Literature, Journalism &amp; Print Culture</td>
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<tr>
<td></td>
<td>courses with 2 course units 200-level seminar or higher</td>
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1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 For up to three sectors, a seminar may be double-counted in the core.

3 Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.

4 Concentration may be comprised from the 13 course units of the major, or other courses.

Honors

Applicants must have a 3.6 GPA in the Major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

English: Medieval/Renaissance, BA

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.english.upenn.edu/Undergrad/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td></td>
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<tr>
<td></td>
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<tr>
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<td>Select one seminar in each area from ENGL 110-ENGL 599:</td>
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</tr>
<tr>
<td></td>
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<td></td>
<td>Sem 3: ENGL (may be double-counted in the core)</td>
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<tr>
<td></td>
<td>Sem 4: ENGL or Related (may be double-counted in the core)</td>
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<td></td>
<td>Electives</td>
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<tr>
<td></td>
<td>Select 2-5 course units from ENGL 015-ENGL 599</td>
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1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 For up to three sectors, a seminar may be double-counted in the core.

3 Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.

4 Concentration may be comprised from the 13 course units of the major, or other courses.
**Concentration Requirements**
Select 4 course units of Medieval/Renaissance courses with 2 course units 200-level seminar or higher.

Total Course Units: 33

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement ([http://www.college.upenn.edu/sectors-policy](http://www.college.upenn.edu/sectors-policy)).
2. For up to three sectors, a seminar may be double-counted in the core.
3. Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.
4. Concentration may be comprised from the 13 course units of the major, or other courses.

**Honors**
Applicants must have a 3.6 GPA in the Major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**English: Poetry and Poetics, BA**
Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 33. Double majors may entail more course units.

For more information: [http://www.english.upenn.edu/Undergrad/](http://www.english.upenn.edu/Undergrad/)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

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<tbody>
<tr>
<td>ENGL 200</td>
<td>Junior Research Seminar (Seminar 1) (may be double-counted in the core)</td>
<td>1</td>
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</table>

**Seminars**
Select one seminar in each area from ENGL 110-ENGL 599:

1. Sem 1: Literature Before 1700
2. Sem 2: Literature Before 1900
3. Sem 3: ENGL (may be double-counted in the core)
4. Sem 4: ENGL or Related (may be double-counted in the core)

**Electives**
Select 2-5 course units from ENGL 015-ENGL 599

3.2-5

**Concentration Requirements**
Select 4 course units of Poetry and Poetics courses with 2 course units 200-level seminar or higher.

Total Course Units: 33

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement ([http://www.college.upenn.edu/sectors-policy](http://www.college.upenn.edu/sectors-policy)).
2. For up to three sectors, a seminar may be double-counted in the core.
3. Take additional 3 course units if Seminars 1, 2 and 3 are double-counted in core.
4. Concentration may be comprised from the 13 course units of the major, or other courses.

**Honors**
Applicants must have a 3.6 GPA in the Major. Thesis required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**English: The Novel, BA**
Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical "core," majors also pursue their own special literary interests in six-course concentrations of their own choosing. English offers more than twenty distinct concentrations, including several options for creative writers.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 33. Double majors may entail more course units.

For more information: [http://www.english.upenn.edu/Undergrad/](http://www.english.upenn.edu/Undergrad/)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

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<tr>
<td>ENGL 015-ENGL 599</td>
<td>Poetry and Poetics courses with 2 course units 200-level seminar or higher</td>
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**College General Education Requirements and Free Electives**
Foundational Approaches + Sectors 1 + Free Electives

20
Environmental Studies: Environmental History and Regional Studies, BA

The Environmental Studies major provides graduates with the necessary skills to contribute to society and effectively work on challenging problems that face humanity. Students acquire knowledge in environmental economics, environmental health, sustainability, renewable resources, and environmental management. In addition, they have an in-depth understanding of the human-environment interconnection, knowledge of international and domestic environmental issues, and are well-versed in environmental policies and how these policies are set and changed.

Students in the Environmental History and Regional Studies concentration learn a temporal and spatial perspective to the study of the Environment.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

This concentration is for students with a background in the Arts or Social Sciences.

For more information: http://www.sas.upenn.edu/earth/environmental-studies/environmental-history-regional-studies-concentration

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors
Applicants must have a 3.25 GPA in the major

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<td>ENVS 498</td>
<td>Senior Thesis (B+ or above)</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Environmental Studies: Environmental Policy and Application, BA
The Environmental Studies major provides graduates with the necessary skills to contribute to society and effectively work on challenging problems that face humanity. Students acquire knowledge in environmental economics, environmental health, sustainability, renewable resources, and environmental management. In addition, they have an in-depth understanding of the human-environment interconnection, knowledge of international and domestic environmental issues, and are well-versed in environmental policies and how these policies are set and changed.

Students in the Environmental Policy and Application concentration acquire a background in the social and management aspects of environmental problems.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

This concentration is for students who have a second major in a Natural Science.

For more information: http://www.sas.upenn.edu/earth/environmental-studies/environmental-policy-application-concentration

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors
Applicants must have a 3.25 GPA in the major

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Environmental Studies: General Environmental Studies, BA
The Environmental Studies major provides graduates with the necessary skills to contribute to society and effectively work on challenging problems that face humanity. Students acquire knowledge in environmental economics, environmental health, sustainability, renewable resources, and environmental management. In addition, they have an in-depth understanding of the human-environment interconnection, knowledge of international and domestic environmental issues, and are well-versed in environmental policies and how these policies are set and changed.

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</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
This is an individualized, specialized concentration designed for students who want to concentrate in an area not represented by the other concentrations. Formal proposals for this concentration must be developed and submitted for review and approved by both the EES program director and undergraduate chair before admittance into this concentration.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/earth/environmental-studies/individualized-concentration

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Environmental Studies: Global Environmental Systems, BA

The Environmental Studies major provides graduates with the necessary skills to contribute to society and effectively work on challenging problems that face humanity. Students acquire knowledge in environmental economics, environmental health, sustainability, renewable resources, and environmental management. In addition, they have an in-depth understanding of the human-environment interconnection, knowledge of international and domestic environmental issues, and are well-versed in environmental policies and how these policies are set and changed.

Students in the Global Environmental Systems concentration will focus their coursework on understanding global environmental systems.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

This concentration is for students who have a background in either the Natural or the Social Sciences.

For more information: http://www.sas.upenn.edu/earth/environmental-studies/global-environmental-systems-concentration

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>GEOL 204</td>
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<td>GEOL 100</td>
<td>Introduction to Geology</td>
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</tr>
<tr>
<td>GEOL 103</td>
<td>Natural Disturbances and Human Disasters</td>
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</tr>
<tr>
<td>GEOL 125</td>
<td>Earth and Life Through Time</td>
<td>1</td>
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<td>GEOL 130</td>
<td>Oceanography</td>
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<tr>
<td>Select 1 course unit of Data Analysis &amp; Statistics</td>
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<tr>
<td>Select 1 course unit of Economics &amp; Policy</td>
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<tr>
<td>ENVS 301</td>
<td>Environmental Case Studies</td>
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<td>or ENVS 400</td>
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<tr>
<td>Select 1 course unit of Geographical or Environmental Modeling</td>
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<td>Select 1 course unit of Environmental Research - Junior Seminar</td>
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<td>ENVS 498</td>
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<tr>
<td>ENVS 498</td>
<td>Senior Thesis (Semester II)</td>
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Environmental Studies

Select 7 course units of Environmental Studies courses with 3 course units at the 400 or 500 level

Curriculum-Related Practical Experience

Field course or equivalent experience

Total Course Units 35

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants must have a 3.25 GPA in the major
Select 1 course unit of Geographical or Environmental Modeling
Select 1 course unit of Environmental Research - Junior Seminar
ENVS 498 Senior Thesis (Semester I) 0.5
ENVS 498 Senior Thesis (Semester II) 0.5

Global Environmental Systems
Select 1 course unit of Earth Systems
Select 1 course unit of Biotic History
Select 1 course unit of Geochemical Dynamics
Select 1 course unit of Global Politics & International Relations
Select 1 course unit of International Environmental Issues
Select 2 course units of 400 or 500 level Concentration Electives

Curriculum-Related Practical Experience
Field course or equivalent experience

Total Course Units 35

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors
Applicants must have a 3.25 GPA in the major

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The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

This concentration is for students who have a background in either the Natural or the Social Sciences.

For more information: http://www.sas.upenn.edu/earth/environmental-studies/sustainability-and-environmental-management-concentration

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
<td>ENVS 301</td>
<td>Environmental Case Studies</td>
<td>1</td>
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<tr>
<td>or ENVS 400 Environmental Studies Seminar</td>
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<tr>
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<tr>
<td>Select 1 Data Analysis &amp; Statistics course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 Economics &amp; Policy course</td>
<td></td>
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<tr>
<td>ENVS 301</td>
<td>Environmental Case Studies</td>
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</tr>
<tr>
<td>or ENVS 400 Environmental Studies Seminar</td>
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<td></td>
</tr>
<tr>
<td>Select 1 Geographical or Environmental Modeling course</td>
<td>1</td>
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<tr>
<td>Select 1 Environmental Research - Junior Seminar</td>
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<tr>
<td>ENVS 498</td>
<td>Senior Thesis (Semester I)</td>
<td>0.5</td>
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<tr>
<td>ENVS 498</td>
<td>Senior Thesis (Semester II)</td>
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Sustainability & Environmental Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
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<tbody>
<tr>
<td>EAS 401</td>
<td>Energy and Its Impacts: Technology, Environment, Economics, Sustainability or EAS 402 Renewable Energy and Its Impacts: Technology, Environment, Economics, Sustainability</td>
<td>1</td>
</tr>
<tr>
<td>Select 1 Environmental Economics course</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 1 Environmental Policy course</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 2 Management courses</td>
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<td></td>
</tr>
<tr>
<td>Select 2 400 or 500-level Concentration Electives</td>
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</table>

Curriculum-Related Practical Experience
Field course or equivalent experience

Total Course Units 35

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors
Applicants must have a 3.25 GPA in the major

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Environmental Studies: Sustainability and Environmental Management, BA

The Environmental Studies major provides graduates with the necessary skills to contribute to society and effectively work on challenging problems that face humanity. Students acquire knowledge in environmental economics, environmental health, sustainability, renewable resources, and environmental management. In addition, they have an in-depth understanding of the human-environment interconnection, knowledge of international and domestic environmental issues, and are well-versed in environmental policies and how these policies are set and changed.

The Sustainability and Environmental Management concentration is designed to help students understand the nature of environmental constraints which face organizations and individuals in the modern world, and to understand how these constraints can be effectively considered as part of the decision-making process in for-profit and non-profit organizations.
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Fine Arts, BA**

The Undergraduate Fine Arts Program combines studio practices, seminar courses, and interactions with visiting artists and professionals to provide an open intellectual framework in order to foster critical awareness and independent methods of artistic research and learning. The Fine Arts Department offers a diverse range of studio courses in the areas of animation and 3D modeling, ceramics, design, drawing and painting, photography, printmaking, sculpture, and video. The dynamic curriculum also provides students with the opportunity to thoroughly examine contemporary art, creative research, interactive design, and public art through seminar-based instruction.

A goal of the Undergraduate Fine Arts program is to facilitate an environment where the potentialities of art are considered in relation to the real life conditions of our students. Encouraged to test themselves against the rigors of divergent artistic approaches and their histories, our students develop a more complex set of skills to creatively and critically negotiate the turbulent shifts taking place globally in terms of human experiences.

The Fine Arts major is available for students in the College of Arts and Sciences and the School of Engineering, and the minor is available for undergraduate students across the university. The Fine Arts program works in conjunction with three interdisciplinary degree programs in Cinema Studies, Digital Media Design, and Visual Studies.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.design.upenn.edu/fine-arts/undergraduate/program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
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<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>ENVS 498</td>
<td>Senior Thesis (B+ or above)</td>
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</table>

Select 3 course units of Art History courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>FNAR 488</td>
<td>Senior Seminar and Project (Fall Semester)</td>
<td>1</td>
</tr>
<tr>
<td>FNAR 489</td>
<td>Senior Seminar Project (Spring Semester)</td>
<td>1</td>
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**Art History Requirement**

Select 3 course units of Art History courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 course units of Art History courses</td>
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</table>

**Studio Electives**

Select 6 course units of Fine Arts Studio Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 6 course units of Fine Arts Studio Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Course Units 36

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. Core studio requirements may be taken as early as freshman year and in any order as long as prerequisites are met.
3. Majors must take the Senior Seminar Project in consecutive semesters of their senior year.
4. Studio electives can be taken in any order as long as prerequisites are met.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**French and Francophone Studies, BA**

French and Francophone Studies introduces students to the full span of historical and cultural traditions from France and the French-speaking world. Languages courses - from introductory to advanced - promote linguistic fluency, building on the skills students have acquired in high school or at Penn. Upper-level seminars explore a range of topics pertaining to literature, history, visual arts, and/or the media, and they offer majors and minors the opportunity to engage in research on French and global Francophone cultures across periods into contemporary times.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

At least half of all courses for the major must be taken in the Department at Penn. ALL courses must be taken in French, with the possible exception of Major-related courses.

For more information: http://www.sas.upenn.edu/french/undergraduate/requirements-majors-and-minors/major-french-francophone-studies

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 course units of Art History courses</td>
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</table>

**College General Education Requirements and Free Electives**

FoundationAl Approaches + Sectors + Free Electives 20

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>FNAR 123</td>
<td>Drawing I</td>
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<tr>
<td>FNAR 145</td>
<td>Sculpture Practices</td>
<td>1</td>
</tr>
<tr>
<td>FNAR 150</td>
<td>Photography Practices</td>
<td>1</td>
</tr>
<tr>
<td>FNAR 231</td>
<td>Painting Practices</td>
<td>1</td>
</tr>
<tr>
<td>FNAR 264</td>
<td>Art, Design and Digital Culture</td>
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</table>

Senior Seminar Project

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Senior Seminar Project (Fall Semester)</td>
<td>1</td>
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</tbody>
</table>

**College General Education Requirements and Free Electives**

FoundationAl Approaches + Sectors + Free Electives 20

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 course units of Art History courses</td>
<td>3</td>
</tr>
</tbody>
</table>

**Studio Electives**

Select 6 course units of Fine Arts Studio Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 6 course units of Fine Arts Studio Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Course Units 36

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. Core studio requirements may be taken as early as freshman year and in any order as long as prerequisites are met.
3. Majors must take the Senior Seminar Project in consecutive semesters of their senior year.
4. Studio electives can be taken in any order as long as prerequisites are met.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
or FREN 214  Advanced French Composition and Conversation

**History & Culture**
Select 2 course units of the following:  
- FREN 226  French History and Culture until 1789  2
- FREN 227  French History and Culture 1789-1945
- FREN 228  Contemporary France
- FREN 229  French in the World

**Literature & Arts**
Select 2 of the following:  
- FREN 230  Masterpieces of French Cinema  2
- FREN 231  Perspectives in French Literature: Love and Passion
- FREN 232  Perspectives in French Literature: The Individual and Society
- FREN 233  Francophone Literature and Film

**Electives**
Select a minimum of 5 course units of 300-level courses with  
- 2 in the Department at Penn  5

**Additional French or Major-related Courses**
Select 2 course units of French courses at the 200 or 300 level  
- 2

**Research Requirement**
Must be completed in the Department at Penn

---

**Total Course Units**  32

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You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement ([http://www.college.upenn.edu/sectors-policy](http://www.college.upenn.edu/sectors-policy)).

At least one course must be taken in the Department at Penn.

Major-related courses need approval from the Undergraduate Chair.

---

**Honors**
Applicants must have a minimum GPA of 3.4 in the Major.

**Code**  **Title**  **Course Units**
FREN 398  Honors Thesis  1

---

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 33. Double majors may entail more course units.

For more information: [http://www.sas.upenn.edu/gsws/](http://www.sas.upenn.edu/gsws/)

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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**Gender, Sexuality, & Women's Studies, BA**
The Gender, Sexuality, and Women's Studies Program (GSWS) is an interdisciplinary program that provides exciting intellectual opportunities to explore the role of gender in human affairs. The program offers over 50 courses each year, many cross-listed with other departments, as well as a major, a minor, and a graduate certificate.

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For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

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**Honors**
Students with an overall GPA of 3.4 and 3.6 or better in the major are eligible for honors.

**Concentrations**
Students may select one of five concentrations ([https://www.sas.upenn.edu/gsws/content/concentrations](https://www.sas.upenn.edu/gsws/content/concentrations)):

- Feminist Studies
- Global Gender and Sexuality Studies
- Health and Disability
- LGBTQ Studies
- Self-designed

---

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
German, BA

The major and minor programs in the Department of Germanic Languages and Literatures provide deep understandings of language and cultures. Building from basic language competency to synthesizing significant literary works, historical context and current media and politics, the program offers a comprehensive education through engaged, active learning in a combination of core courses with a wide range of electives. Your learning experiences can be broadened and applied in study abroad as well as internship programs.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32.5. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/germanic/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors1 + Free Electives</td>
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<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
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<tr>
<td></td>
<td>Core Courses</td>
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<tr>
<td>GRMN 203</td>
<td>Texts and Contexts</td>
<td>1</td>
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<tr>
<td>GRMN 301</td>
<td>Handschrift-Hypertext: Deutsche Medien</td>
<td>1</td>
</tr>
<tr>
<td>GRMN 302</td>
<td>Places of Memory. Lieux de memoire. Erinnerungsorte.</td>
<td>1</td>
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<tr>
<td>GRMN 401</td>
<td>Trans(l)its</td>
<td>1</td>
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<tr>
<td>GRMN 402</td>
<td>Independent Study-Senior.</td>
<td>1</td>
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<tr>
<td>GRMN 403</td>
<td>Senior Colloquium.</td>
<td>0.5</td>
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<tr>
<td></td>
<td>Electives</td>
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<tr>
<td></td>
<td>Select 2 course units of electives at GRMN 300 or above</td>
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<tr>
<td></td>
<td>Select 5 course units of electives with no more than 3 course units taught in English</td>
<td>5</td>
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<tr>
<td></td>
<td><strong>Target Language Requirement</strong></td>
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<td></td>
<td>Target Language Requirement Satisfied</td>
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<td></td>
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</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants are required to have a minimum overall GPA of 3.0 in the College and in the major.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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Health and Societies: Bioethics & Society, BA

The Health and Societies (HSOC) major examines health and medicine in social context, equipping students with the critical faculties and multidisciplinary skills that will prepare them for careers in public health, health services, and a variety of other arenas. The program is built on the foundation of three core disciplines: anthropology, history, and sociology. Methods and courses from other disciplines and fields—including epidemiology, political science, business/economics, law, environmental studies, and bioethics—supplement the core disciplines and provide majors with the variety of skills necessary to grasp the forces that have shaped our contemporary health landscapes. The Health and Societies graduate is a "multilingual" scholar and citizen, fluent in the methods and perspectives of several social science disciplines— theoretically informed but practically minded, with a global outlook and local experience.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
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<th>Title</th>
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<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors1 + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundation Requirement</td>
<td></td>
</tr>
<tr>
<td>HSOC 010</td>
<td>Health and Societies</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td>HSOC 145</td>
<td>Comparative Medicine</td>
</tr>
<tr>
<td></td>
<td>Quantitative Methods</td>
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</tr>
<tr>
<td>HSOC/SOCI 100</td>
<td>Introduction to Sociological Research 2</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td>HSOC/SOCI 111</td>
<td>Health of Populations.</td>
</tr>
<tr>
<td>HSOC 002</td>
<td>Medicine in History</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td>HSOC 150</td>
<td>American Health Policy</td>
</tr>
<tr>
<td>HSOC 238</td>
<td>Introduction to Medical Anthropology</td>
<td>1</td>
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<tr>
<td>or</td>
<td>HSOC 275</td>
<td>Medical Sociology</td>
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<tr>
<td>HSOC or STSC Electives</td>
<td>Select 3 HSOC or STSC Electives</td>
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<tr>
<td></td>
<td><strong>Bioethics &amp; Society Concentration</strong></td>
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<tr>
<td></td>
<td>Select 1 Core Discipline course</td>
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<tr>
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<td>Select 1 Core Course</td>
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<tr>
<td></td>
<td>Select 1 Philosophical &amp; Religious Foundations course</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 Social &amp; Institutional Contexts course</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 Technologies, Practices &amp; Practitioners course</td>
<td>1</td>
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<tr>
<td></td>
<td>Select 1 Law, Politics &amp; Public Policy course</td>
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<tr>
<td></td>
<td><strong>Capstone Research Requirement</strong></td>
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2018-19 Catalog | Generated 08/30/18
Health and Societies: Disease & Society, BA

The Health and Societies (HSOC) major examines health and medicine in social context, equipping students with the critical faculties and multidisciplinary skills that will prepare them for careers in public health, health services, and a variety of other arenas. The program is built on the foundation of three core disciplines: anthropology, history, and sociology. Methods and courses from other disciplines and fields—including epidemiology, political science, business/economics, law, environmental studies, and bioethics—supplement the core disciplines and provide majors with the variety of skills necessary to grasp the forces that have shaped our contemporary health landscapes. The Health and Societies graduate is a "multilingual" scholar and citizen, fluent in the methods and perspectives of several social science disciplines - theoretically informed but practically minded, with a global outlook and local experience.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>HSOC 420</td>
<td>Research Seminar Health and Society</td>
<td>1</td>
</tr>
<tr>
<td>HSOC 498</td>
<td>Honors Thesis</td>
<td>1</td>
</tr>
</tbody>
</table>

Honors

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
majors with the variety of skills necessary to grasp the forces that have shaped our contemporary health landscapes. The Health and Societies graduate is a "multilingual" scholar and citizen, fluent in the methods and perspectives of several social science disciplines - theoretically informed but practically minded, with a global outlook and local experience.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### Code Title Course Units

**College General Education Requirements and Free Electives**

**Foundational Approaches + Sectors**¹ + Free Electives 20

**Major Requirements**

**Foundation Requirement**

HSOC 010 Health and Societies 1

or HSOC 145 Comparative Medicine 1

**Quantitative Methods**

HSOC/SOCI 100 Introduction to Sociological Research 1

or HSOC/SOCI 111 Health of Populations 1

**Core Discipline**

HSOC 002 Medicine in History 1

or HSOC 150 American Health Policy 1

HSOC 238 Introduction to Medical Anthropology 1

or HSOC 275 Medical Sociology 1

**HSOC or STSC Electives**

Select 3 HSOC or STSC Electives 3

**Gender & Health Concentration**

Select 1 Core Course - Environment & Health 1

Select 5 Concentration electives 5

Select 1 400-level HSOC or STSC Research Seminar 1

Total Course Units 34

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

² HSOC 100 Introduction to Sociological Research is cross listed with SOCI 100 Introduction to Sociological Research and HSOC 111 Health of Populations. is cross listed with SOCI 111 Health of Populations.

### Honors

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>HSOC 420</td>
<td>Research Seminar Health and Society</td>
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</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Health and Societies: Gender & Health, BA

The Health and Societies (HSOC) major examines health and medicine in social context, equipping students with the critical faculties and multidisciplinary skills that will prepare them for careers in public health, health services, and a variety of other arenas. The program is built on the foundation of three core disciplines: anthropology, history, and sociology. Methods and courses from other disciplines and fields—including epidemiology, political science, business/economics, law, environmental studies, and bioethics—supplement the core disciplines and provide majors with the variety of skills necessary to grasp the forces that have shaped our contemporary health landscapes. The Health and Societies graduate is a "multilingual" scholar and citizen, fluent in the methods and perspectives of several social science disciplines - theoretically informed but practically minded, with a global outlook and local experience.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### Code Title Course Units

**College General Education Requirements and Free Electives**

**Foundational Approaches + Sectors**¹ + Free Electives 20

**Major Requirements**

**Foundation Requirement**²

HSOC 010 Health and Societies 1

or HSOC 145 Comparative Medicine 1

**Quantitative Methods**

HSOC/SOCI 100 Introduction to Sociological Research 1

or HSOC/SOCI 111 Health of Populations 1

**Core Discipline**

HSOC 002 Medicine in History 1

or HSOC 150 American Health Policy 1

HSOC 238 Introduction to Medical Anthropology 1

or HSOC 275 Medical Sociology 1

**HSOC or STSC Electives**

Select 3 HSOC or STSC Electives 3

**Gender & Health Concentration**

Select 1 Theory Course 1

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

² HSOC 100 Introduction to Sociological Research is cross listed with SOCI 100 Introduction to Sociological Research and HSOC 111 Health of Populations. is cross listed with SOCI 111 Health of Populations.
**Health and Societies: Global Health, BA**

The Health and Societies (HSOC) major examines health and medicine in social context, equipping students with the critical faculties and multidisciplinary skills that will prepare them for careers in public health, health services, and a variety of other arenas. The program is built on the foundation of three core disciplines: anthropology, history, and sociology. Methods and courses from other disciplines and fields—including epidemiology, political science, business/economics, law, environmental studies, and bioethics—supplement the core disciplines and provide majors with the variety of skills necessary to grasp the forces that have shaped our contemporary health landscapes. The Health and Societies graduate is a "multilingual" scholar and citizen, fluent in the methods and perspectives of several social science disciplines - theoretically informed but practically minded, with a global outlook and local experience.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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**Honors**

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSOC 420</td>
<td>Research Seminar Health and Society</td>
<td>1</td>
</tr>
<tr>
<td>HSOC 498</td>
<td>Honors Thesis</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**Health and Societies: Health Care Markets & Finance, BA**

The Health and Societies (HSOC) major examines health and medicine in social context, equipping students with the critical faculties and multidisciplinary skills that will prepare them for careers in public health, health services, and a variety of other arenas. The program is built on the foundation of three core disciplines: anthropology, history, and sociology. Methods and courses from other disciplines and fields—including

---

**Honors**

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.

<table>
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<tr>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**Foundational Approaches + Sectors + Free Electives**

**Total Course Units**

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. HSOC 100 Introduction to Sociological Research is cross listed with SOCI 100 Introduction to Sociological Research and HSOC 111 Health of Populations. is cross listed with SOCI 111 Health of Populations.

**Honors**

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.

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<tr>
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<th>Course Units</th>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
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The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

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<tr>
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<th>Title</th>
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<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
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</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td>HSOC 010</td>
<td>Health and Societies</td>
<td>1</td>
</tr>
<tr>
<td>or HSOC 145</td>
<td>Comparative Medicine</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Quantitative Methods</strong></td>
<td></td>
</tr>
<tr>
<td>HSOC/STSC 100</td>
<td>Introduction to Sociological Research 2</td>
<td>1</td>
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<tr>
<td>or HSOC/STSC 111</td>
<td>Health of Populations.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core Discipline</strong></td>
<td></td>
</tr>
<tr>
<td>HSOC 002</td>
<td>Medicine in History</td>
<td>1</td>
</tr>
<tr>
<td>or HSOC 150</td>
<td>American Health Policy</td>
<td></td>
</tr>
<tr>
<td>HSOC 238</td>
<td>Introduction to Medical Anthropology</td>
<td>1</td>
</tr>
<tr>
<td>or HSOC 275</td>
<td>Medical Sociology</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Health Care Markets &amp; Finance Concentration</strong></td>
<td></td>
</tr>
<tr>
<td>Select 3 HSOC or STSC Electives</td>
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</tr>
<tr>
<td>Select 1 Core Course</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 5 Concentration courses</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Capstone Research Requirement</strong></td>
<td></td>
</tr>
<tr>
<td>Select 1 400-level HSOC or STSC Research Seminar</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>34</td>
</tr>
</tbody>
</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 HSOC 100 Introduction to Sociological Research is cross listed with STSC 100 Introduction to Sociological Research and HSOC 111 Health of Populations. is cross listed with STSC 111 Health of Populations.

Honors

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.
Select 3 HSOC or STSC Electives 3

**Health Policy & Law Concentration**

Select 1 Political Economy course 1
Select 1 Health Policy course 1
Select 1 Law & Society course 1
Select 1 Philosophical/ethical course 1
Select 2 Concentration Electives 2

**Capstone Research Requirement**

Select 1 400-level HSOC or STSC Research Seminar 1

Total Course Units 34

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. HSOC 100 Introduction to Sociological Research is cross listed with SOCI 100 Introduction to Sociological Research and HSOC 111 Health of Populations. is cross listed with SOCI 111 Health of Populations.

**Honors**

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.

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</tr>
</tbody>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Health and Societies: History of Medicine, BA

The Health and Societies (HSOC) major examines health and medicine in social context, equipping students with the critical faculties and multidisciplinary skills that will prepare them for careers in public health, health services, and a variety of other arenas. The program is built on the foundation of three core disciplines: anthropology, history, and sociology. Methods and courses from other disciplines and fields—including epidemiology, political science, business/economics, law, environmental studies, and bioethics—supplement the core disciplines and provide majors with the variety of skills necessary to grasp the forces that have shaped our contemporary health landscapes. The Health and Societies graduate is a "multilingual" scholar and citizen, fluent in the methods and perspectives of several social science disciplines - theoretically informed but practically minded, with a global outlook and local experience.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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</tr>
<tr>
<td>or HSOC/SOCI 111</td>
<td>Health of Populations.</td>
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</table>

**Quantitative Methods**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
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<td>HSOC 238</td>
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<td></td>
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</table>
| HSOC or STSC Electives
| Select 3 HSOC or STSC Electives 3         | 3            |

**History of Medicine Concentration**

Select one of the following Core Courses: 1

<table>
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Select 5 Concentration courses 5

**Capstone Research Requirement**

Select 1 400-level HSOC or STSC Research Seminar 1

Total Course Units 34

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. HSOC 100 Introduction to Sociological Research is cross listed with SOCI 100 Introduction to Sociological Research and HSOC 111 Health of Populations. is cross listed with SOCI 111 Health of Populations.

3. Refer to the HSOC website for a list of "Department Courses".

**Honors**

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Health and Societies: Public Health, BA

The Health and Societies (HSOC) major examines health and medicine in social context, equipping students with the critical faculties and multidisciplinary skills that will prepare them for careers in public health, health services, and a variety of other arenas. The program is built on the foundation of three core disciplines: anthropology, history, and sociology. Methods and courses from other disciplines and fields—including epidemiology, political science, business/economics, law, environmental studies, and bioethics—supplement the core disciplines and provide majors with the variety of skills necessary to grasp the forces that have shaped our contemporary health landscapes. The Health and Societies graduate is a "multilingual" scholar and citizen, fluent in the methods and perspectives of several social science disciplines - theoretically informed but practically minded, with a global outlook and local experience.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/health-societies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 HSOC 100 Introduction to Sociological Research is cross listed with SOCI 100 Introduction to Sociological Research and HSOC 111 Health of Populations. is cross listed with SOCI 111 Health of Populations.

Honors

Applicants must have a minimum GPA of 3.6 in the major and 3.3 overall.

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<td>Honors Thesis</td>
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Hispanic Studies, BA

The demographic, economic and political realities of the United States, the articulation of a mainstream English culture with an ever-increasing diversity of Hispanic and Latino cultures, and the ongoing forging of strong cultural and economic ties throughout the Americas, have moved Spanish out of the bounds of the category of "foreign" language and culture in the United States. Culture is the controlling category in this field; the program is orientated to the knowledge generated by new disciplines such as cultural studies, new historicism, ethics and postcolonial studies. The major in Hispanic Studies orients itself to the types of knowledge generated by new disciplines such as cultural studies, new historicism, ethics, and postcolonial studies. In order to reflect these changing realities, the Department of Romance Languages has changed the name of its Spanish concentration from "Spanish" to "Hispanic Studies."

Hence, the knowledge of Spanish culture gives students much more than the ability to communicate in the third-most-spoken language of the world. It prepares them to account for an entirely different national, continental and global reality in all its complexity.

Majors in Hispanic Studies are overwhelmingly double majors. This means that they bring to their classes a dialogic perspective that engages in the study of Hispanic cultures informed by interest in other fields such as history, government, sociology, economics, medicine, and law. The richness and depth of these interests make for lively and intellectually rewarding classroom discussions.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

All courses must be at or above the 200 level.

For more information: https://www.sas.upenn.edu/hispanic-portuguese-studies/undergraduate/hispanic-studies/requirements-majors-minors/major-hispanic-studies
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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</thead>
<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
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</table>

### Major Requirements

**Core Requirement**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
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<tbody>
<tr>
<td>SPAN 212</td>
<td>Advanced Spanish II: Grammar and Composition</td>
<td>1</td>
</tr>
<tr>
<td>SPAN 219</td>
<td>Hispanic Texts and Contexts</td>
<td>1</td>
</tr>
<tr>
<td>or SPAN 223</td>
<td>Introduction to Literary Analysis</td>
<td>1</td>
</tr>
</tbody>
</table>

**200 or 300 Level Courses**

Select three 200 or 300 Level courses  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ARTH 101</td>
<td>Prehistory to Renaissance: Introduction to Western Art from its Beginning to 1400</td>
<td>2</td>
</tr>
<tr>
<td>ARTH 102</td>
<td>Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present</td>
<td>2</td>
</tr>
<tr>
<td>ARTH 103</td>
<td>Art and Civilization in East Asia</td>
<td>2</td>
</tr>
<tr>
<td>ARTH 104</td>
<td>Introduction to Art in South Asia</td>
<td>2</td>
</tr>
<tr>
<td>ARTH 106</td>
<td>Architect and History</td>
<td>2</td>
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</table>

**300 Level Courses**

Select seven 300 Level courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>ARTH 300</td>
<td>Undergraduate Methods Seminar</td>
<td>1</td>
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**Honors**

Must have minimum 3.5 GPA in the major and a GPA of 3.3 overall.

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<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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<tbody>
<tr>
<td>SPAN 398</td>
<td>Honors Thesis</td>
<td>1</td>
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**Research Requirement**

Research Requirement must be completed in the Department at Penn

| Total Course Units | 32 |

1  You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2  Must be taken in the Department at Penn.

3  At least 3 course units must be taken in the Department at Penn.

### History of Art, BA

The Major in the History of Art seeks to deepen students’ knowledge of artistic production and practice over the scope of human history, as well as to broaden awareness of the critical and interpretive aims of the discipline itself. Students develop skills in the analysis of works of art, sharpen their understanding of the social, cultural, and personal values embodied by works, and explore the relation of art history to other disciplines. The Department particularly encourages a broad geographic understanding of art production and encourages students to consider the relations and distinctions among different visual cultures.

Students are strongly advised to make an appointment each semester to discuss their progress through the major with the undergraduate chair. Majors are also encouraged to achieve an advanced level of French, German, or other languages as relevant to their subject interests. During their senior year majors may pursue independent research by writing an honors thesis and are invited to become regular participants in the department colloquium series.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/arthistory/undergraduate/major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Undergraduate Methods Seminar</td>
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**Seminars**

Select 2 course units of the following:

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<tr>
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</thead>
<tbody>
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<td>ARTH 103</td>
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<td>2</td>
</tr>
<tr>
<td>ARTH 106</td>
<td>Architect and History</td>
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</tbody>
</table>

**Chronological Distribution**

Select one 200-level or higher course from each time period

<table>
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<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ARTH 300</td>
<td>Undergraduate Methods Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

**Methods Seminar**

Select 2 course units of any 300 or 500-Level Seminar

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>ARTH 300</td>
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</table>

**Geographic Distribution Areas**

Select 1 course unit of Islamic, South Asian, East Asian, African, Native American, Oceanic Geographic Area course at 200-level or higher

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</thead>
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<tr>
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**Additional Courses in History of Art**

Select 4 course units of Electives

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1  You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2  Double counting between geographic and chronological requirements is not allowed.
History: American History, BA

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, and Africa, from the early medieval period to the present. The department seeks to give undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. In the last twenty years, faculty members of the departments in American, European, and World history have assumed a leading role in introducing and promoting new varieties of historical research and writing. Today, no other institution surpasses the Penn history department's coverage of social history or equals the distinction of its faculty in that field.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: https://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

Honors

Required: A minimum overall GPA of 3.0 and a GPA of 3.5 in Major related courses.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>HIST 398</td>
<td>Junior Honors in History</td>
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<tr>
<td>HIST 400</td>
<td>Senior Honors in History I</td>
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</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

History: Diplomatic History, BA

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, and Africa, from the early medieval period to the present. The department seeks to give undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. In the last twenty years, faculty members of the departments in American, European, and World history have assumed a leading role in introducing and promoting new varieties of historical research and writing. Today, no other institution surpasses the Penn history department's coverage of social history or equals the distinction of its faculty in that field.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

Chronological Distribution

Select 2 Pre-1800 courses

Seminars

Select 2 Penn History Seminars at 200-Level or Above

Research Requirement

Research requirement fulfilled

American History Concentration

Select 1 Seminar

Select 3 courses at 200-Level or Above

Select 2 Concentration electives

Other Courses for the Major

Select 4 Other courses

Total Course Units 32

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 May be taken abroad. No Major-related courses.
8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Coll. General Ed. &amp; Free Electives</td>
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<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
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<td></td>
<td>Major Requirements</td>
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<td></td>
<td>Geographic Distribution</td>
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<td>Select one distinct course in four of the five geographic regions</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>United States &amp; Canada</td>
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<td>Europe and Australia</td>
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<td>Select 2 Pre-1800 courses</td>
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<tr>
<td></td>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 Penn History Seminars at 200-Level or Above</td>
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<td>Research Requirement</td>
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<td>Research requirement fulfilled</td>
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<td></td>
<td>Diplomatic History Concentration</td>
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<td>Select 1 Seminar</td>
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<td></td>
<td>Select 3 courses at 200-Level or Above</td>
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<td></td>
<td>Select 2 Concentration electives</td>
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<td>Other Courses for the Major</td>
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<td></td>
<td>Select 4 Other courses</td>
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<td>Total Course Units</td>
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1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 May be taken abroad. No Major-related courses.

**Honors**

Required: A minimum overall GPA of 3.0 and a GPA of 3.5 in Major related courses.

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<td>Select one distinct course in four of the five geographic regions</td>
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<tr>
<td></td>
<td>Select 2 Pre-1800 courses</td>
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<td>Seminars</td>
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<td></td>
<td>Economic History Concentration</td>
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<td></td>
<td>Select 5 core courses</td>
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<td></td>
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<tr>
<td></td>
<td>ECON 002 Introductory Economics: Macro</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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**History: Economic History, BA**

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, and Africa, from the early medieval period to the present. The department seeks to give undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. In the last twenty years, faculty members of the departments in American, European, and World history have assumed a leading role in introducing and promoting new varieties of historical research and writing. Today, no other institution surpasses the Penn history department’s coverage of social history or equals the distinction of its faculty in that field.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td></td>
<td>Seminars</td>
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<td>Select 2 Penn History Seminars at 200-Level or Above</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.
Select 4 Other courses

Total Course Units 32

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 May be taken abroad. No Major-related courses.

Honors

Required: A minimum overall GPA of 3.0 and a GPA of 3.5 in Major related courses.

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

History: European History, BA

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, and Africa, from the early medieval period to the present. The department seeks to give undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. In the last twenty years, faculty members of the departments in American, European, and World history have assumed a leading role in introducing and promoting new varieties of historical research and writing. Today, no other institution surpasses the Penn history department’s coverage of social history or equals the distinction of its faculty in that field.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

History: Gender History, BA

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, and Africa, from the early medieval period to the present. The department seeks to give undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. In the last twenty years, faculty members of the departments in American, European, and World history...
have assumed a leading role in introducing and promoting new varieties of historical research and writing. Today, no other institution surpasses the Penn history department’s coverage of social history or equals the distinction of its faculty in that field.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**History: General History, BA**

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, Africa, and the Middle East, from the early medieval period to the present. The History Major gives undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction, both in its scholarship and in its undergraduate teaching. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. History faculty have assumed a leading role in introducing and promoting new varieties of historical research and writing.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tbody>
<tr>
<td>HIST 398</td>
<td>Junior Honors in History</td>
<td>1</td>
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</tbody>
</table>
Select 2 Upper Level Electives at 200-Level or Above

Other Courses for the Major
Select 8 General Elective courses

| Total Course Units | 32 |

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. May be taken abroad. No Major-related courses.

Honors

Required: A minimum overall GPA of 3.0 and a GPA of 3.5 in Major related courses.

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

History: Intellectual History, BA

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, and Africa, from the early medieval period to the present. The department seeks to give undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. In the last twenty years, faculty members of the departments in American, European, and World history have assumed a leading role in introducing and promoting new varieties of historical research and writing. Today, no other institution surpasses the Penn history department’s coverage of social history or equals the distinction of its faculty in that field.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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Honors

Required: A minimum overall GPA of 3.0 and a GPA of 3.5 in Major related courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

History: Jewish History, BA

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, and Africa, from the early medieval period to the present. The department seeks to give undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. In the last twenty years, faculty members of the departments in American, European, and World history have assumed a leading role in introducing and promoting new varieties of historical research and writing. Today, no other institution surpasses the Penn history department’s coverage of social history or equals the distinction of its faculty in that field.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
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The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### History: World History, BA

The Department of History offers a variety of courses dealing with the political, social, diplomatic, intellectual, economic, and cultural history of the Americas, Europe, Asia, and Africa, from the early medieval period to the present. The department seeks to give undergraduates both specific mastery of particular times, places, and aspects of the human condition and the critical skills to think historically about both long-term and modern phenomena, emphasizing the dynamics of change and continuity over time. The History Department at the University of Pennsylvania has a long tradition of distinction. Beginning as one of the first programs in the United States to offer doctoral study in history, the department continues to pioneer new areas of scholarship. In the last twenty years, faculty members of the departments in American, European, and World history have assumed a leading role in introducing and promoting new varieties of historical research and writing. Today, no other institution surpasses the Penn history department's coverage of social history or equals the distinction of its faculty in that field.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

8 courses must be taken in History at the University of Pennsylvania.

For more information: http://www.history.upenn.edu/undergraduate/history-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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</table>

### Honors

**Required:** A minimum overall GPA of 3.0 and a GPA of 3.5 in major related courses.

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1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. May be taken abroad. No Major-related courses.
Individualized Major, BA

The College recognizes that there are students who find that the standard majors do not satisfy their academic goals and interests. Thus, the individualized major offers an opportunity for exceptional, creative, self motivated students to explore innovative and multidisciplinary fields of knowledge.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

Applicants must earn a minimum GPA of 3.5.

For more information: https://www.college.upenn.edu/individualized-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>College General Education Requirements and Free Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors^1 + Free Electives</td>
<td>20</td>
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</tbody>
</table>

**Major Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Theory and Method</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Theory:</td>
<td></td>
</tr>
<tr>
<td>PSCI 150</td>
<td>Introduction to International Relations</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Method:</td>
<td></td>
</tr>
<tr>
<td>INTR 350</td>
<td>Research Methods/Practice in IR</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>International History:</td>
<td></td>
</tr>
<tr>
<td>Select 2 course units of International History courses</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Political Economy:</td>
<td></td>
</tr>
<tr>
<td>PSCI 152</td>
<td>International Political Economy</td>
<td>1</td>
</tr>
<tr>
<td>or ECON 050</td>
<td>International Economics</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of Elective in International Political Economy</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>International Electives:</td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of Electives comprising a thematic or regional area of concentration</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of Elective in Non-Western</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of Elective in International Security/Foreign Policy</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of Elective</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

International Relations, BA

International Relations addresses the ways in which governments, private groups, and individuals relate to each other in the global political and economic systems. The program provides a solid grounding in the methodologies of political science, history, and economics. The curriculum draws on the best courses relevant to world politics, offers a well-rounded liberal arts education, and helps prepare students for law or business school, Ph.D. programs, and international careers.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/irp/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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</thead>
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<tr>
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<td>College General Education Requirements and Free Electives</td>
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<tr>
<td></td>
<td>Foundational Approaches + Sectors^1 + Free Electives</td>
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</tr>
</tbody>
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**Major Requirements**

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</tr>
</thead>
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<td></td>
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<tr>
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<td>Research Methods/Practice in IR</td>
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</tr>
<tr>
<td></td>
<td>International History:</td>
<td></td>
</tr>
<tr>
<td>Select 2 course units of International History courses</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Political Economy:</td>
<td></td>
</tr>
<tr>
<td>PSCI 152</td>
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</tr>
<tr>
<td>or ECON 050</td>
<td>International Economics</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of Elective in International Political Economy</td>
<td>1</td>
<td></td>
</tr>
</tbody>
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<table>
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<tr>
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<tbody>
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<td>International Electives:</td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of Electives comprising a thematic or regional area of concentration</td>
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<td></td>
</tr>
<tr>
<td>Select 1 course unit of Elective in Non-Western</td>
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<td></td>
</tr>
<tr>
<td>Select 1 course unit of Elective in International Security/Foreign Policy</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of Elective</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### Italian Studies: Italian Culture, BA

The Italian Studies section of the Romance Languages Department offers programs in language, literature, film, linguistics, cultural studies and civilization for students with or without a background in Italian. At the core of this program is the study of the Italian language, understood both in the narrow sense of verbal communication, but also in the larger sense of textual messages: literary, cinematic, historical, art-historical, and mass-cultural.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 32. Double majors may entail more course units.

For more information: [http://www.sas.upenn.edu/italians/undergraduate/requirements](http://www.sas.upenn.edu/italians/undergraduate/requirements)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 201</td>
<td>Advanced Italian I</td>
<td>1</td>
</tr>
<tr>
<td>ITAL 202</td>
<td>Advanced Italian II</td>
<td>1</td>
</tr>
<tr>
<td>ITAL 203</td>
<td>Masterpieces-Italian Literature</td>
<td></td>
</tr>
<tr>
<td>ITAL 204</td>
<td>Italian History on Screen: How Movies Tell the Story of Italy</td>
<td></td>
</tr>
</tbody>
</table>

### Italian Studies: Italian Literature, BA

The Italian Studies section of the Romance Languages Department offers programs in language, literature, film, linguistics, cultural studies and civilization for students with or without a background in Italian. At the core of this program is the study of the Italian language, understood both in the narrow sense of verbal communication, but also in the larger sense of textual messages: literary, cinematic, historical, art-historical, and mass-cultural.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 32. Double majors may entail more course units.

For more information: [http://www.sas.upenn.edu/italians/undergraduate/requirements](http://www.sas.upenn.edu/italians/undergraduate/requirements)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 201</td>
<td>Advanced Italian I</td>
<td>1</td>
</tr>
</tbody>
</table>
ITAL 202  Advanced Italian II  1
or ITAL 203  Masterpieces-Italian Literature

Electives
Select 10 course units of Electives 2  10

Research Requirement
Must be taken in the Department at Penn

Total Course Units  32

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2 At least 6 courses in Italian literature or civilization in the Department of Romance Languages; at least 3 of these must be completed at the 300-level at Penn. Up to 4 courses may be chosen from Italian Studies offerings outside Romance Languages. No more than 6 elective courses may be taken abroad.

No more than 2 courses taught in English may count for the major in Italian Literature. For at least 1 English-taught course, students should arrange an Italian component with the professor (e.g., extra class sessions, research, written assignments, or term paper in Italian).

Honors
Must have a minimum 3.5 GPA in the Major and a GPA of 3.3 overall.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 398</td>
<td>Honors Thesis 1</td>
<td>1</td>
</tr>
</tbody>
</table>

1 Must be completed in the Department at Penn.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Jewish Studies, BA

The Jewish Studies Program provides an opportunity for students to study the Jewish experience from several perspectives including: language (Hebrew, Yiddish, and Ladino), literature in the original languages and in translation, the history and culture of the Jewish people from Biblical Israel to 21st-century America and modern Israel, the exploration of Jewish law, and the roles of gender and sex in Judaism. Students may specialize in Jewish Studies through a major or a minor, or though one of the following concentrations: Jewish History within the History Department, Hebraica/Judaica within the Department of Near Eastern Languages & Civilizations, and Judaism within the Department of Religious Studies.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://ccat.sas.upenn.edu/jwst/undergraduate

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>JWST 399</td>
<td>Senior Honors Thesis</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Latin American & Latino Studies, BA

The Latin American and Latino Studies (LALS) Program offers an interdisciplinary major and minor to study the history, arts, languages, cultures, societies, politics, and/or regional organizations of Latin American and Caribbean countries as well as Latino communities and individuals in the United States. With courses offered across many departments in the School of Arts and Sciences, in study abroad programs taught throughout Latin American cities, and with academically based community service courses with Latino organizations in the Greater Philadelphia area, the LALS major and minor afford our students a very comprehensive approach to Latin American and Latino Studies as well as the possibility of a flexible curriculum, where students can pursue and combine their academic interests.

The minimum total course units (https://www.college.upenn.edu/credits-fee-electives) for graduation in this major is 32. Double majors may entail more course units.

Students must satisfy the Language Requirement in Spanish or Portuguese. Language courses under 219 may not be counted.

For more information: https://lals.sas.upenn.edu/undergraduate/major-requirements

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<thead>
<tr>
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<tbody>
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</tr>
<tr>
<td></td>
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<td>20</td>
</tr>
<tr>
<td></td>
<td>Major Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Cluster Requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Social Science</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in History</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Criticism</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Regional Experience Prior to 1820</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units in Regional Experience Prior to 1820</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Experiences in the Latino Diaspora</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit of Experiences in the Latino Diaspora</td>
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</tr>
<tr>
<td></td>
<td>Electives</td>
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</tr>
<tr>
<td></td>
<td>Select 6 course units of Electives</td>
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</tr>
<tr>
<td></td>
<td>Research Requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LALS 399 Independent Study (or approved alternative)</td>
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</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>32</td>
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</tbody>
</table>

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Linguistics, BA

The Linguistics Program is intended to acquaint students with the methods and findings of the scientific study of human language and its relationships to cognition, society, and history. It serves as a preparation for graduate training in linguistics or related areas, and as part of a rigorous general education. Linguistic training is relevant to work in anthropology, philosophy, psychology, and language and literature, as well as to careers in such fields as education, computer science, and law. Founded by Zellig Harris in 1947, the Penn Linguistics Department is the oldest modern linguistics department in the United States. We have outstanding programs in the core disciplines of syntax and phonology, as well as in sociolinguistics, semantics, discourse, historical linguistics, phonetics, and psycholinguistics. Penn is also the home of the Linguistic Data Consortium (LDC), a compiler and distributor of linguistic materials for language engineering research. The graduate group in Linguistics at the University of Pennsylvania is an interdisciplinary team of faculty from the Department of Linguistics and related departments. Our program has strong concentrations in several areas and a tradition of collaboration among its faculty.

The minimum total course units (https://www.college.upenn.edu/credits-free-electives) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://www.ling.upenn.edu/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>College General Education Requirements and Free Electives</td>
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</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Major Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LING 102 Introduction to Sociolinguistics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LING 230 Sound Structure of Language</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LING 250 Introduction to Syntax</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LING 300 Tutorial in Linguistics</td>
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</tr>
<tr>
<td></td>
<td>Linguistics Courses</td>
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</tr>
<tr>
<td></td>
<td>Select 6 course units of Linguistics courses with 3 courses at 200-level or higher</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Related Courses</td>
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<tr>
<td></td>
<td>Select 4 course units of Related courses ²</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>34</td>
</tr>
</tbody>
</table>

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
² May be satisfied by any Linguistics courses or relevant courses from other departments with approval from the Undergraduate Chair.

Honors

Required: A minimum overall GPA of 3.0 and 3.5 in Major-related courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should
consult with their academic program regarding final certifications and requirements for graduation.

Logic, Information, & Computation, BA

Modern mathematical logic began with work by Cantor, Frege, and other mathematicians during the last three decades of the nineteenth century who were concerned with providing a sound basis for the development of mathematical analysis. In the wake of "the crisis in the foundations of mathematics" precipitated by the discovery of various logical paradoxes at the turn of the twentieth century, mathematicians and philosophers such as Hilbert and Russell intensively pursued investigations into the logical foundations of mathematics. Connections between logic and the foundations of mathematics remained an important source for scientific developments in logic through the epochal results of Gödel in 1930 and 1931, which indicated both the scope and limits of the mechanization of mathematical reasoning. The great burst of scientific activity occasioned by Gödel's results led directly to Turing's mathematical characterization of mechanical computation in terms of simple devices, now known as Turing machines. The work of Gödel, Turing, and other logicians during the 1930s laid the scientific foundations for the revolution in computer and information technology that began in the last half of the twentieth century and continues today.

The Logic, Information, and Computation Program offers students the opportunity to engage in a systematic, integrative program of study within the School of Arts and Sciences. Logic remains one of the core disciplines in investigations of information and computation. Indeed, logic is playing a major role in advances in computer security, database technology, networking, and software engineering. Moreover, logic has expanded its role within mathematics beyond foundational studies and now enjoys rich connections with areas as diverse as algebra, analysis, and combinatorics. In light of the current importance of the investigation of computation and information from both a scientific and technological point of view, the Major and Minor in Logic, Information, and Computation will provide students with a strong background to pursue computational aspects of the natural, biological, and social sciences and prepare them for careers in information technology.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://logic.sas.upenn.edu/program.html

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 370</td>
<td>Algebra</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 502</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 371</td>
<td>Algebra</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 503</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Programming Languages and Techniques II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 320</td>
<td>Introduction to Algorithms</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
<td>1.5</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>Principles of Physics II: Electromagnetism and Radiation</td>
<td>1.5</td>
</tr>
<tr>
<td>LGIC 210/ MATH 340</td>
<td>Applied Mathematics of Information and Computation I</td>
<td>1</td>
</tr>
<tr>
<td>LGIC 310/ PHIL 006/ MATH 570</td>
<td>Logic I</td>
<td>1</td>
</tr>
<tr>
<td>LGIC 220/ MATH 341</td>
<td>Applied Mathematics of Information and Computation II</td>
<td>1</td>
</tr>
<tr>
<td>LGIC 320/ PHIL 412/ MATH 571</td>
<td>Logic II</td>
<td>1</td>
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<tr>
<td>Elective</td>
<td>Select 1 course unit of Elective $^2$</td>
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<tr>
<td>LGIC 499</td>
<td>Topics in Logic</td>
<td>1</td>
</tr>
<tr>
<td>Total Course Units</td>
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<td>36</td>
</tr>
</tbody>
</table>

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. Check: http://logic.sas.upenn.edu for pre-approved courses.

Honors

Applicants must have an overall GPA of 3.0 and a GPA of 3.5 in the Major. Senior research project required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Mathematical Economics, BA

Economics is a social science and, as such, an important component of the liberal arts curriculum. At the core of economics are theories of how individuals, firms, and other organizations make choices and interact, taking into account constraints on their behaviors. Among the topics studied in economics are the following:

- The determination of prices and quantities in various types of markets, from perfectly competitive commodity markets to highly regulated utility markets and internet auctions.
The Mathematical Economics Major is intended for students with a strong intellectual interest in both mathematics and economics and, in particular, for students who may pursue a graduate degree in economics. Advanced economics makes extensive use of formal mathematical models. The major introduces undergraduate students to rigorous theoretical-quantitative and empirical-quantitative approaches to the analysis of economic problems. In comparison to the Economics Major, the Mathematical Economics Major emphasizes a more formal mathematical analysis, preparing students for academic-style research in economics.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://economics.sas.upenn.edu/undergraduate-program/mathematical-economics-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### College General Education Requirements and Free Electives

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors</td>
<td>20</td>
</tr>
</tbody>
</table>

### Major Requirements

#### MATH Core Requirements

- Select 1 course unit of Calculus II | 1 |
- Select 1 course unit of Calculus III | 1 |
- Select 1 course unit of Algebra | 1 |
- MATH 360 Advanced Calculus | 2 |
- MATH 361 Advanced Calculus | 2 |
- MATH 509 Advanced Analysis | 2 |

#### STAT Core Requirements

- Select 1 or 2 course units of the following: 1-2
- STAT 430 Probability
- & STAT 431 and Statistical Inference
- ESE 301 Engineering Probability
- & ESE 302 and Engineering Applications of Statistics
- ECON 103 Statistics for Economists

### MATH Electives

- Select 2 course units of MATH Electives | 2 |

### ECON Electives

- Select 3 course units of ECON Electives | 3 |

### Total Course Units

| 36-37 |

---

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. Students intending to major in Mathematical Economics are encouraged to take MATH 116 Honors Calculus and to consider MATH 260 Honors Calculus, Part II.
3. NOTE: These MATH and ECON courses count toward the MATH and ECON electives.
4. If ECON 103 Statistics for Economists is taken, one additional ECON or MATH course from the following: MATH 546 Advanced Probability, MATH 547 Stochastic Processes, ECON 104 Econometrics, ECON 221 Econometric Forecasting, or ECON 222 Advanced Econometric Techniques and Applications.
5. LPS academic year courses require approval of Undergraduate Chair EXCEPT for ECON 001 Introduction to Micro Economics & ECON 002 Introductory Economics: Macro.
6. ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro are prerequisites for all economics courses. ECON 001 Introduction to Micro Economics is the prerequisite for ECON 002 Introductory Economics: Macro.
7. ECON Course Required if ECON 010 Introduction to Economics for Business is taken.

### Honors

Applicants must have a minimum GPA of 3.5 and an A- or better in 3 graduate level courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESE 605</td>
<td>Modern Convex Optimization</td>
<td>One 600 level Econ course</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One 500 level Math course</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Mathematics: Biological Mathematics, BA

At the core of modern theoretical science, mathematics has historically provided an expressive language and a theoretical framework for advances in the physical sciences. It has since become central in the life and social sciences and in computer science. Mathematics at Penn embraces traditional core areas of mathematics and developing areas

---

1. Advanced economics makes extensive use of formal mathematical models.
2. The major introduces undergraduate students to rigorous theoretical-quantitative and empirical-quantitative approaches to the analysis of economic problems.
3. In comparison to the Economics Major, the Mathematical Economics Major emphasizes a more formal mathematical analysis, preparing students for academic-style research in economics.
4. The minimum total course units for graduation in this major is 36. Double majors may entail more course units.
5. For more information: http://economics.sas.upenn.edu/undergraduate-program/mathematical-economics-major
6. For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum page.
7. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
8. Students intending to major in Mathematical Economics are encouraged to take MATH 116 Honors Calculus and to consider MATH 260 Honors Calculus, Part II.
9. NOTE: These MATH and ECON courses count toward the MATH and ECON electives.
10. If ECON 103 Statistics for Economists is taken, one additional ECON or MATH course from the following: MATH 546 Advanced Probability, MATH 547 Stochastic Processes, ECON 104 Econometrics, ECON 221 Econometric Forecasting, or ECON 222 Advanced Econometric Techniques and Applications.
11. LPS academic year courses require approval of Undergraduate Chair EXCEPT for ECON 001 Introduction to Micro Economics & ECON 002 Introductory Economics: Macro.
12. ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro are prerequisites for all economics courses. ECON 001 Introduction to Micro Economics is the prerequisite for ECON 002 Introductory Economics: Macro.
13. ECON Course Required if ECON 010 Introduction to Economics for Business is taken.
(Penn is one of the world’s leading centers in the application of logic to theoretical computer science). The goals of the major program are to assist students in acquiring both an understanding of mathematics and the ability to use it. The mathematics major provides a solid foundation for graduate study in mathematics and a background for study in economics, the biological sciences, the physical sciences, and engineering, as well as many non-traditional areas.

The minimum total course units for graduation in this major is 36. Double majors may entail more course units.

Majors and prospective majors: Please email majoradvisor@math.upenn.edu. You will be assigned to one of the Math Major Advisors who will discuss your current and future plans with you. It is important that you see this advisor at least once per semester thereafter.

Below is a planning tool that is meant to help you but does not replace the web and advisor visit requirements.

For more information: https://www.math.upenn.edu/undergraduate/math-majors-and-minors/biological-mathematics-concentration-mathematics-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
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</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>17.5-18.5</td>
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<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Mathematics Requirement</strong></td>
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</tr>
<tr>
<td></td>
<td>Calculus Requirement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 104 Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MATH 114 Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or MATH 116 Honors Calculus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 240 Calculus, Part III</td>
<td>1</td>
</tr>
<tr>
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<td>or MATH 260 Honors Calculus, Part II</td>
<td></td>
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<tr>
<td></td>
<td>MATH 361 Advanced Calculus</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or MATH 509 Advanced Analysis</td>
<td></td>
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<tr>
<td></td>
<td>MATH 360 Advanced Calculus</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or MATH 508 Advanced Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Algebra Requirement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 370 Algebra</td>
<td>1</td>
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<tr>
<td></td>
<td>or MATH 502 Abstract Algebra</td>
<td></td>
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<tr>
<td></td>
<td>MATH 371 Algebra</td>
<td>1</td>
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<td></td>
<td>or MATH 503 Abstract Algebra</td>
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<tr>
<td></td>
<td>Statistics Requirement:</td>
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<tr>
<td></td>
<td>MATH 320 Computer Methods in Mathematical Science I</td>
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<td>STAT 431 Statistical Inference</td>
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<td><strong>Upper Level Math Course:</strong></td>
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<td>Select one of the following:</td>
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<tr>
<td></td>
<td>MATH 241 Calculus, Part IV</td>
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<tr>
<td></td>
<td>MATH 420 Ordinary Differential Equations</td>
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<tr>
<td></td>
<td>MATH 425 Partial Differential Equations</td>
<td></td>
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<tr>
<td></td>
<td>MATH 480 Topics in Modern Math (only if Life Science related)</td>
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</tr>
<tr>
<td></td>
<td><strong>Other</strong></td>
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<tr>
<td></td>
<td><strong>Biology Requirement</strong></td>
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<tr>
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</tr>
<tr>
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<td><strong>Track 1:</strong></td>
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<tr>
<td></td>
<td>BIOL 121 Introduction to Biology - The Molecular Biology of Life</td>
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<tr>
<td></td>
<td>BIOL 124 Introductory Organismal Biology Lab</td>
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</tr>
<tr>
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<td>Select two of the following:</td>
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<tr>
<td></td>
<td>BIOL 221 Molecular Biology and Genetics</td>
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<tr>
<td></td>
<td>BIOL 230 Evolutionary Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 240 Ecology: From individuals to ecosystems</td>
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</tr>
<tr>
<td></td>
<td>Select three of the following:</td>
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<tr>
<td></td>
<td>BIOL 410 Advanced Evolution</td>
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<tr>
<td></td>
<td>BIOL 537 Advanced Computational Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 451 Neural Systems and Behavior</td>
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</tr>
<tr>
<td></td>
<td>Select one of the following additional science courses:</td>
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</tr>
<tr>
<td></td>
<td>CHEM 101 General Chemistry I &amp; CHEM 053 General Chemistry Laboratory I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 101 General Chemistry I &amp; CHEM 054 General Chemistry Laboratory II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 151 Principles of Physics II: Electromagnetism and Radiation</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Track 2:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 101 Introduction to Biology A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 102 Introduction to Biology B</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select two of the following:</td>
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</tr>
<tr>
<td></td>
<td>BIOL 221 Molecular Biology and Genetics</td>
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</tr>
<tr>
<td></td>
<td>BIOL 230 Evolutionary Biology</td>
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</tr>
<tr>
<td></td>
<td>BIOL 240 Ecology: From individuals to ecosystems</td>
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</tr>
<tr>
<td></td>
<td>Select two of the following:</td>
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</tr>
<tr>
<td></td>
<td>BIOL 410 Advanced Evolution</td>
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<tr>
<td></td>
<td>BIOL 537 Advanced Computational Biology</td>
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<tr>
<td></td>
<td>BIOL 451 Neural Systems and Behavior</td>
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<tr>
<td></td>
<td>BIOL 421 Molecular Genetics</td>
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<td></td>
<td>Select one of the following additional science courses:</td>
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<tr>
<td></td>
<td>CHEM 101 General Chemistry I &amp; CHEM 053 General Chemistry Laboratory I</td>
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<tr>
<td></td>
<td>CHEM 101 General Chemistry I &amp; CHEM 054 General Chemistry Laboratory II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 151 Principles of Physics II: Electromagnetism and Radiation</td>
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</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>36-37</td>
</tr>
</tbody>
</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 MATH 116 Honors Calculus is a Honors Course.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should
consult with their academic program regarding final certifications and requirements for graduation.

Mathematics: General Mathematics, BA

At the core of modern theoretical science, mathematics has historically provided an expressive language and a theoretical framework for advances in the physical sciences. It has since become central in the life and social sciences and in computer science. Mathematics at Penn embraces traditional core areas of mathematics as well as developing areas (Penn is one of the world’s leading centers in the application of logic to theoretical computer science). The goals of the major program are to assist students in acquiring both an understanding of mathematics and the ability to use it. The mathematics major provides a solid foundation for graduate study in mathematics and a background for study in economics, the biological sciences, the physical sciences, and engineering, as well as many non-traditional areas.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

Majors and prospective majors: Please email majoradvisor@math.upenn.edu. You will be assigned to one of the Math Major Advisors who will discuss your current and future plans with you. It is important that you see this advisor at least once per semester thereafter.

Below is a planning tool that is meant to help you but does not replace the web and advisor visit requirements.

For more information: https://www.math.upenn.edu/undergraduate/math-majors-and-minors/mathematics-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
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</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors (^1) + Free Electives</td>
<td>20</td>
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<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
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<tr>
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<td><strong>Calculus Requirement</strong></td>
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<tr>
<td></td>
<td>Select one of the following Options:</td>
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<tr>
<td></td>
<td>Option 1:</td>
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<tr>
<td></td>
<td>MATH 104 Calculus, Part I</td>
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<tr>
<td></td>
<td>MATH 114/115 Calculus, Part II</td>
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</tr>
<tr>
<td></td>
<td>MATH 240 Calculus, Part III</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option 2:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 116 Honors Calculus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 260 Honors Calculus, Part II</td>
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<tr>
<td></td>
<td><strong>Complex Analysis Requirement</strong></td>
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<td></td>
<td>MATH 410 Complex Analysis</td>
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<tr>
<td></td>
<td><strong>Advanced Linear Algebra Requirement</strong></td>
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<tr>
<td></td>
<td>MATH 314 Advanced Linear Algebra</td>
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<td></td>
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<tr>
<td></td>
<td><strong>Differential Equations Requirement</strong></td>
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</tr>
<tr>
<td></td>
<td>MATH 241 Calculus, Part IV</td>
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<tr>
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<tr>
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<tr>
<td></td>
<td><strong>Seminar Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 202 Proving Things: Analysis</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or MATH 203 Proving things: Algebra</td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Algebra Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 370 Algebra</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>&amp; MATH 371 and Algebra</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or MATH 502 Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&amp; MATH 503 Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Analysis Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 360 Advanced Calculus</td>
<td>2</td>
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<tr>
<td></td>
<td>&amp; MATH 361 and Advanced Calculus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or MATH 508 Advanced Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&amp; MATH 509 and Advanced Analysis</td>
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<tr>
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</tr>
<tr>
<td></td>
<td><strong>Mathematics Electives (^2)</strong></td>
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<tr>
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<td>Select 5 course units in Math</td>
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</tr>
<tr>
<td></td>
<td>Select 2 course units in Cognate</td>
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</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>33</td>
</tr>
</tbody>
</table>

\(^1\) You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

\(^2\) Number of elective course units will vary based on the manner in which other requirements are fulfilled. Please consult your math major adviser when choosing math electives and cognates.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Modern Middle Eastern Studies, BA

The interdisciplinary Modern Middle Eastern Studies degree is designed to allow students to specialize in the Middle East as a region of the world and human experience by combining course work using both social scientific and humanistic approaches, underpinned by relevant language skills. Students will work with faculty committed to supporting interdisciplinary, applied, research-oriented advanced study. The major gives students opportunities to work on problems of politics, policy, history, ideology, social thought, economic development, and international relations.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/mec/programs/mmes

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
Music, BA

The music major is founded on a balance in the core training between the fields of music history, ethnomusicology, theory, and composition. Through a series of requirements, you will acquire a foundation that introduces you to the sheer range of musical traditions available for study and to a series of specialist skills and tools that facilitate and deepen that study.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35.5. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/music/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

Near Eastern Languages & Civilizations: Ancient Near East, BA

The major in Ancient Near East examines the languages, history, cultures, and archaeology of the Ancient Near East: from Prehistory through the early complex of civilizations in Mesopotamia, Egypt, and Levant. Because of the interdependence of language and culture an emphasis of the major is gaining facility of one or more ancient languages, alongside courses in history, religion, and archaeology.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_major.html
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
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</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Language Requirement</strong></td>
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<td><strong>Breadth Requirement</strong></td>
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<td>NELC 102</td>
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<td><strong>Concentration Requirements</strong></td>
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<td><strong>Total Course Units</strong></td>
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</table>

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. This requirement may be fulfilled by taking at least 4 course units of Egyptian or Biblical Hebrew or West Semitic languages or Cuneiform (Akkadian/Sumarian) and no more than 2 course units of appropriate literature in translation.
3. May focus on at least two ancient civilizations. To be chosen in consultation with the major advisor.

**Honors**

Requirements: A minimum overall GPA of 3.0 and a GPA of 3.5 in major related courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>NELC 395</td>
<td>Senior Conference</td>
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<tr>
<td>NELC 399</td>
<td>Independent Study</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Near Eastern Languages & Civilizations: Arabic & Hebrew Studies, BA**

The major in Arabic and Hebrew Studies explores the interrelationships between Arab and Hebrew cultures in the context of the modern and medieval Middle East. Emphasis includes facility in Arabic and/or Hebrew language, alongside courses in history, literature, and cultures of the medieval and modern Middle East.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NELC 395</td>
<td>Senior Conference</td>
<td>1</td>
</tr>
<tr>
<td>NELC 399</td>
<td>Independent Study</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Near Eastern Languages & Civilizations: Arabic & Islamic Studies, BA

Arabic and Islamic Studies focuses on languages and cultures of the wider Middle East in the context of Islamic Civilization. Because of the interdependence of language and culture, a primary emphasis is on gaining mastery of Middle Eastern languages such as Arabic, Persian, and Turkish, alongside coursework in history, religion, and culture.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_major.html

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
<td>20</td>
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<td><strong>Major Requirements</strong></td>
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<tr>
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<td><strong>Language Requirement</strong></td>
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<tr>
<td></td>
<td>Select 6 course units of Language Requirement²</td>
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<tr>
<td></td>
<td><strong>Breadth Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NELC 101/ANCH 025/HIST 024 Introduction to the Ancient Near East</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NELC 102 Introduction to the Middle East</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Concentration Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 5 course units in Concentration Requirement</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Concentration Paper</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>34</td>
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</tbody>
</table>

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

² This requirement may be fulfilled in Arabic, Persian or Turkish.

³ May focus on either Medieval or Modern Periods, to be chosen in consultation with the major advisor. Minimum of one course each in History, Literature (original language or in translation) and Religion.

**Honors**

*Required:* A minimum overall GPA of 3.0 and a GPA of 3.5 in major related courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>NELC 395</td>
<td>Senior Conference</td>
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</tr>
<tr>
<td>NELC 399</td>
<td>Independent Study</td>
<td>1</td>
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</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Near Eastern Languages & Civilizations: Hebrew & Judaica, BA

The major concentration in Hebrew and Judaica explores the development of Hebrew culture from the Biblical through Rabbinic and Medieval Periods through modern times. Because of the interrelationship between language and culture an emphasis is placed on gaining facility in the use of Hebrew language alongside courses in history, culture, literature, and religion of Judaism.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_major.html

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Language Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select the following 6 course units if you have no knowledge of Hebrew. With prior knowledge of Hebrew (placement test required), select corresponding number of course units in electives.</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>HEBR/JWST 051 Elementary Modern Hebrew I</td>
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<tr>
<td></td>
<td>HEBR/JWST 052 Elementary Modern Hebrew II</td>
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<tr>
<td></td>
<td>HEBR/JWST 053 Intermediate Modern Hebrew III</td>
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</tr>
<tr>
<td></td>
<td>HEBR/JWST 054 Intermediate Modern Hebrew IV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEBR/JWST 059 Advanced Modern Hebrew: Conversation &amp; Writing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEBR 153/JWST 173 Intermediate Biblical Hebrew I</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Breadth Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NELC 101/ANCH 025/HIST 024 Introduction to the Ancient Near East</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NELC 102 Introduction to the Middle East</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Concentration Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit of Biblical Literature</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit of Rabbinic/Medieval Literature</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit of Modern Hebrew Literature</td>
<td>1</td>
</tr>
</tbody>
</table>
Select 2 course units of Concentration Requirements 2
Select 1 course unit of Concentration Paper Course 1
Total Course Units 34

1  You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2  May focus on either Medieval or Modern Periods, to be chosen in consultation with the major advisor.

Honors

Requirements: A minimum overall GPA of 3.0 and a GPA of 3.5 in major related courses.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>NELC 395</td>
<td>Senior Conference</td>
<td>1</td>
</tr>
<tr>
<td>NELC 399</td>
<td>Independent Study</td>
<td>1</td>
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</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Philosophy, Politics and Economics: Choice & Behavior, BA

Philosophy, Politics and Economics allows undergraduates to study a variety of comprehensive analytical frameworks that have been developed to understand and justify political and economic structures, particularly constitutional democracy and the market system. The program prepares its graduates for careers in public policy, public services, business, and law among others.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/ppe/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
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<tr>
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<td>College General Education Requirements and Free Electives</td>
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<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>PPE 498</td>
<td>Directed Honors Research</td>
<td>1</td>
</tr>
</tbody>
</table>

1  You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants must have a minimum GPA of 3.6 in the major.

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPE 498</td>
<td>Directed Honors Research</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Philosophy, Politics and Economics: Distributive Justice, BA

Philosophy, Politics and Economics allows undergraduates to study a variety of comprehensive analytical frameworks that have been developed to understand and justify political and economic structures, particularly constitutional democracy and the market system. The
Philosophy, Politics and Economics: Ethics & Professions, BA

program prepares its graduates for careers in public policy, public services, business, and law among others.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/ppe/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
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<tr>
<td></td>
<td>Major Requirements</td>
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<tr>
<td></td>
<td>Rigorous Reasoning (Pre Requirement)</td>
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</tr>
<tr>
<td></td>
<td>Common Foundations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Philosophy Foundation:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPE/PHIL 008 The Social Contract</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Philosophy Foundation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Political Science Foundation:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Political Theory</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Political Science Foundation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Economics Foundation:</td>
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</tr>
<tr>
<td></td>
<td>ECON 001 Introduction to Micro Economics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ECON 002 Introductory Economics: Macro</td>
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</tr>
<tr>
<td></td>
<td>Psychology Foundation:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPE 153/ PSYC 253 Judgment and Decisions</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or PSYC 170 Social Psychology</td>
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</tr>
<tr>
<td></td>
<td>Common Core</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPE 311 Strategic Reasoning</td>
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<td></td>
<td>PPE 312 Public Policy Process</td>
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<td></td>
<td>PPE 313 Behavioral Economics and Psychology</td>
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<td></td>
<td>Distributive Justice Theme</td>
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<td>Select 5 course units in Distributive Justice Theme</td>
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<tr>
<td></td>
<td>Capstone Seminar</td>
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<tr>
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<td>Select one of the following:</td>
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<tr>
<td></td>
<td>PPE 470 Capstone: Social Policy</td>
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<tr>
<td></td>
<td>PPE 471 Capstone: Political Economy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPE 472 Capstone: Networks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPE 473 Capstone: Modeling</td>
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<tr>
<td></td>
<td>PPE 474 Capstone: Judgment and Decision Making</td>
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<tr>
<td></td>
<td>PPE 476 Philosophy, Politics and Economics</td>
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<tr>
<td></td>
<td>PPE 477 Capstone: Social Psychology</td>
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<tr>
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<td>PPE 481 Capstone: Political Science</td>
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<tr>
<td></td>
<td>PPE 482 Capstone: Psychology</td>
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<tr>
<td></td>
<td>PPE 483 Capstone: Economics</td>
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<tr>
<td></td>
<td>PPE 484 Capstone: Philosophy</td>
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<td>Total Course Units</td>
<td>36</td>
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</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants must have a minimum GPA of 3.6 in the major.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>PPE 498</td>
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</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Philosophy, Politics and Economics: Ethics & Professions, BA

Philosophy, Politics and Economics allows undergraduates to study a variety of comprehensive analytical frameworks that have been developed to understand and justify political and economic structures, particularly constitutional democracy and the market system. The program prepares its graduates for careers in public policy, public services, business, and law among others.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/ppe/

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<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
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<tr>
<td></td>
<td>Major Requirements</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Philosophy Foundation:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PPE/PHIL 008 The Social Contract</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Philosophy Foundation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Political Science Foundation:</td>
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</tr>
<tr>
<td></td>
<td>Select 1 course unit in Political Theory</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Political Science Foundation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Economics Foundation:</td>
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<tr>
<td></td>
<td>ECON 001 Introduction to Micro Economics</td>
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<td>ECON 002 Introductory Economics: Macro</td>
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<tr>
<td></td>
<td>Psychology Foundation:</td>
<td></td>
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<td>1</td>
</tr>
<tr>
<td></td>
<td>or PSYC 170 Social Psychology</td>
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2018-19 Catalog | Generated 08/30/18
Common Core

<table>
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<tr>
<th>Code</th>
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<th>Units</th>
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<tbody>
<tr>
<td>PPE 311</td>
<td>Strategic Reasoning</td>
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<td>PPE 312</td>
<td>Public Policy Process</td>
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</tr>
<tr>
<td>PPE 313</td>
<td>Behavioral Economics and Psychology</td>
<td>1</td>
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</tbody>
</table>

Ethics & Professions Theme

Select 5 course units in Ethics & Professions Theme 5

Capstone Seminar

Select one of the following: 1

- PPE 470 Capstone: Social Policy
- PPE 471 Capstone: Political Economy
- PPE 472 Capstone: Networks
- PPE 473 Capstone: Modeling
- PPE 474 Capstone: Judgment and Decision Making
- PPE 476 Philosophy, Politics and Economics
- PPE 481 Capstone: Political Science
- PPE 482 Capstone: Psychology
- PPE 483 Capstone: Economics
- PPE 484 Capstone: Philosophy

Total Course Units 36

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants must have a minimum GPA of 3.6 in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>PPE 498</td>
<td>Directed Honors Research</td>
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</tr>
</tbody>
</table>

Philosophy, Politics and Economics: Globalization, BA

Philosophy, Politics and Economics allows undergraduates to study a variety of comprehensive analytical frameworks that have been developed to understand and justify political and economic structures, particularly constitutional democracy and the market system. The program prepares its graduates for careers in public policy, public services, business, and law among others.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/ppe/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
</tbody>
</table>

Major Requirements

Rigorous Reasoning (Pre Requirement)

Common Foundations

Philosophy Foundation:

PPE/PHIL 008 The Social Contract 1

Select 1 course unit in Philosophy Foundation 1

Political Science Foundation:

Select 1 course unit in Political Theory 1

Select 1 course unit in Political Science Foundation 1

Economics Foundation:

ECON 001 Introduction to Micro Economics 1

ECON 002 Introductory Economics: Macro 1

Psychology Foundation:

PPE 153/PSYC 253 Judgment and Decisions 1

or PSYC 170 Social Psychology

Common Core

<table>
<thead>
<tr>
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<th>Course Units</th>
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<tr>
<td>PPE 311</td>
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</tr>
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<td>PPE 312</td>
<td>Public Policy Process</td>
<td>1</td>
</tr>
<tr>
<td>PPE 313</td>
<td>Behavioral Economics and Psychology</td>
<td>1</td>
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</tbody>
</table>

Globalization Theme

Select 5 course units in Globalization Theme 5

Capstone Seminar

Select one of the following: 1

- PPE 470 Capstone: Social Policy
- PPE 471 Capstone: Political Economy
- PPE 472 Capstone: Networks
- PPE 473 Capstone: Modeling
- PPE 474 Capstone: Judgment and Decision Making
- PPE 476 Philosophy, Politics and Economics
- PPE 477 Capstone: Social Psychology
- PPE 481 Capstone: Political Science
- PPE 482 Capstone: Psychology
- PPE 483 Capstone: Economics
- PPE 484 Capstone: Philosophy

Total Course Units 36

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants must have a minimum GPA of 3.6 in the major.
Philosophy, Politics and Economics: Public Policy & Governance, BA

Philosophy, Politics, and Economics allows undergraduates to study a variety of comprehensive analytical frameworks that have been developed to understand and justify political and economic structures, particularly constitutional democracy and the market system. The program prepares its graduates for careers in public policy, public services, business, and law among others.

The minimum total course units for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/ppe/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

College General Education Requirements and Free Electives

Foundational Approaches + Sectors $^1$ + Free Electives 20

Major Requirements

Rigorous Reasoning (Pre Requirement)

Common Foundations

Philosophy Foundation:
PPE/PHIL 008 The Social Contract 1
Select 1 course unit in Philosophy Foundation 1

Political Science Foundation:
Select 1 course unit in Political Theory 1
Select 1 course unit in Political Science Foundation 1

Economics Foundation:
ECON 001 Introduction to Micro Economics 1
ECON 002 Introductory Economics: Macro 1

Psychology Foundation:
PPE 153/PSYC 253 or PSYC 170 Judgment and Decisions 1
Social Psychology 1

Common Core

PPE 311 Strategic Reasoning 1
PPE 312 Public Policy Process 1
PPE 313 Behavioral Economics and Psychology 1

Public Policy & Governance Theme
Select 5 course units in Public Policy & Governance Theme 5

Capstone Seminar

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPE 470</td>
<td>Capstone: Social Policy</td>
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</tr>
<tr>
<td>PPE 471</td>
<td>Capstone: Political Economy</td>
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<tr>
<td>PPE 472</td>
<td>Capstone: Networks</td>
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<tr>
<td>PPE 473</td>
<td>Capstone: Modeling</td>
<td></td>
</tr>
<tr>
<td>PPE 474</td>
<td>Capstone: Judgment and Decision Making</td>
<td></td>
</tr>
<tr>
<td>PPE 476</td>
<td>Philosophy, Politics and Economics</td>
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<tr>
<td>PPE 477</td>
<td>Capstone: Social Psychology</td>
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<tr>
<td>PPE 481</td>
<td>Capstone: Political Science</td>
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<tr>
<td>PPE 482</td>
<td>Capstone: Psychology</td>
<td></td>
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<tr>
<td>PPE 483</td>
<td>Capstone: Economics</td>
<td></td>
</tr>
<tr>
<td>PPE 484</td>
<td>Capstone: Philosophy</td>
<td></td>
</tr>
</tbody>
</table>

Total Course Units 36

$^1$ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants must have a minimum GPA of 3.6 in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPE 498</td>
<td>Directed Honors Research</td>
<td>1</td>
</tr>
</tbody>
</table>

Philosophy: General Philosophy, BA

Philosophy seeks to illuminate fundamental aspects of the world, of our relation to and knowledge of the world, and of our own nature as rational, purposive, and social beings. The study of philosophy aims at an appreciation of the ways this enterprise has been, is, and might be approached. It also provides a vantage point for reflecting on the nature and achievement of other disciplines, such as science, the arts, and the humanities. Philosophical topics can be divided roughly into practical (ethics, politics, aesthetics) and theoretical (epistemology, metaphysics, mind, and logic). The four concentrations available within the major allow students to emphasize different sets of questions.

The General Philosophy Concentration requires a balanced selection of coursework from within both practical and theoretical philosophy as well as the history of these enterprises.

The minimum total course units for graduation in this major is 32. Double majors may entail more course units.

For more information: http://philosophy.sas.upenn.edu/undergraduate/philosophy-majors-and-minor/philosophy-majors/major-general-philosophy
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td>PHIL 003</td>
<td>History of Ancient Philosophy</td>
<td>1</td>
</tr>
<tr>
<td>PHIL 004</td>
<td>History of Modern Philosophy</td>
<td>1</td>
</tr>
<tr>
<td>PHIL 005</td>
<td>Formal Logic I</td>
<td>1</td>
</tr>
<tr>
<td>Select 2 courses in Theoretical Philosophy</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Select 1 course in Ethics or Political Philosophy</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 4 course units of Philosophy with at least 2 course units above 200 and 2 course units at the 300 level</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Select 5 other courses in Philosophy</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Select 2 courses outside the Philosophy Department by approval of the Undergraduate Chair</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

Total Course Units 32

You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement.

**Honors**

Must be a Senior Major in Philosophy and have a minimum 3.33 GPA in the major. Applicants must have completed the distribution requirements for the major including two courses above 200 one of which must be above 301. Please consult with the Undergraduate Chair for other specific criteria.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 301</td>
<td>Directed Honors Research (or a 500-level course)</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Philosophy: Humanistic Philosophy, BA**

Philosophy seeks to illuminate fundamental aspects of the world, of our relation to and knowledge of the world, and of our own nature as rational, purposive, and social beings. The study of philosophy aims at an appreciation of the ways this enterprise has been, is, and might be approached. It also provides a vantage point for reflecting on the nature and achievement of other disciplines, such as science, the arts, and the humanities. Philosophical topics can be divided roughly into practical (ethics, politics, aesthetics) and theoretical (epistemology, metaphysics, mind, and logic). The four concentrations available within the major allow students to emphasize different sets of questions.

The Humanistic Philosophy Concentration emphasizes practical philosophy and its history, it pairs philosophy courses with courses in one or more humanistic disciplines.

The minimum total course units for graduation in this major is 36. Double majors may entail more course units.

**Required:** 8 course units in Philosophy and 8 course units in Humanities and/or Political Science (Non-Philosophy courses need permission of the Undergraduate Chair).

**For more information:** [http://philosophy.sas.upenn.edu/undergraduate/philosophy-majors-and-minor/philosophy-majors/major-humanistic-philosophy](http://philosophy.sas.upenn.edu/undergraduate/philosophy-majors-and-minor/philosophy-majors/major-humanistic-philosophy)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 003</td>
<td>History of Ancient Philosophy</td>
<td>1</td>
</tr>
<tr>
<td>PHIL 004</td>
<td>History of Modern Philosophy</td>
<td>1</td>
</tr>
<tr>
<td>PHIL 005</td>
<td>Formal Logic I</td>
<td>1</td>
</tr>
<tr>
<td>Select 1 course in Theoretical Philosophy</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 2 courses in Ethics or Political Philosophy</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 2 course units of Philosophy at 200 level or above</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Select 1 course unit of Philosophy at 300 level</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 8 courses of HUM or PSCI courses</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Other Courses in Philosophy</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

Total Course Units 36

You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement.

Minimally, 4 course units must be from one department - No Introductory or Theater Performance Courses.

**Honors**

Must be a Senior Major in Philosophy and have a minimum 3.33 GPA in the major. Applicants must have completed the distribution requirements for the major including two courses above 200 one of which must be above 301. Please consult with the Undergraduate Chair for other specific criteria.
Philosophy: Philosophy and Science, BA

Philosophy seeks to illuminate fundamental aspects of the world, of our relation to and knowledge of the world, and of our own nature as rational, purposive, and social beings. The study of philosophy aims at an appreciation of the ways this enterprise has been, is, and might be approached. It also provides a vantage point for reflecting on the nature and achievement of other disciplines, such as science, the arts, and the humanities. Philosophical topics can be divided roughly into practical (ethics, politics, aesthetics) and theoretical (epistemology, metaphysics, mind, and logic). The four concentrations available within the major allow students to emphasize different sets of questions.

The Philosophy and Science Concentration emphasizes theoretical philosophy and philosophy of science; it pairs courses in philosophy with courses in one or more scientific disciplines.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

Required: 8 course units in Philosophy and 8 course units in either Natural or Social Science, or Science, Technology, and Society (STSC, previously HSSC).

For more information: http://philosophy.sas.upenn.edu/undergraduate/philosophy-majors-and-minor/philosophy-and-science-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### Code | Title | Course Units
---|---|---
PHIL 004 | History of Modern Philosophy | 1
PHIL 005 | Formal Logic I | 1

Select 1 course in Ethics or Political Philosophy
Select 2 courses in Philosophy of Science or Philosophy of Math
Select 1 course in Theoretical Philosophy

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Honors

Must be a Senior Major in Philosophy and have a minimum 3.33 GPA in the major. Applicants must have completed the distribution requirement for the major including two courses above 200 one of which must be above 301. Please consult with the Undergraduate Chair for other specific criteria.

### Code | Title | Course Units
---|---|---
PHIL 301 | Directed Honors Research (or a 500-level course) | 1

The new Political and Moral Philosophy Concentration emphasizes the philosophical treatment of normative questions. Its coursework focuses on questions about ethics, morality, politics, and law.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://philosophy.sas.upenn.edu/undergraduate
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

For more information: http://www.physics.upenn.edu/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

**College General Education Requirements and Free Electives**

| Foundational Approaches + Sectors + Free Electives | 20 |

**Major Requirements**

**Distribution Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 002</td>
<td>Ethics</td>
<td>1</td>
</tr>
<tr>
<td>or PHIL 008</td>
<td>The Social Contract</td>
<td>1</td>
</tr>
<tr>
<td>or PHIL 077</td>
<td>Philosophy of Law</td>
<td>1</td>
</tr>
<tr>
<td>PHIL 005</td>
<td>Formal Logic I</td>
<td>1</td>
</tr>
<tr>
<td>Select 3 courses in Contemporary Value Theory</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select 2 courses in Theoretical Philosophy</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Select 2 courses in History of Philosophy</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Level Requirements**

Select 4 course units of Level Requirement courses with 2 course units at the 200 level or above and 2 course units at the 300 or 500 level.

**Courses in Related Fields**

Select 4 courses from related fields by approval.

Total Course Units: 36

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. Courses can double count across Level and Distribution Requirements.

3. No introductory level courses except ECON 001 Introduction to Microeconomics and ECON 002 Introductory Economics: Macro.

**Honors**

Must be a Senior Major in Philosophy and have a minimum 3.33 GPA in the major. Applicants must have completed the distribution requirement for the major including two courses above 200 one of which must be above 301. Please consult with the Undergraduate Chair for other specific criteria.

<table>
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<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 301</td>
<td>Directed Honors Research (or a 500-level course)</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Physics: Astrophysics, BA**

Physics and astronomy are fundamental sciences aimed at discovering the basic principles that govern our universe. Physicists study the interplay between space, time, matter, and energy. Complex behavior in nature is explained in terms of elementary relations between constituent elements and the forces that bind them, over distances ranging from subatomic to cosmic scale. Astronomy encompasses the entire physical universe beyond the earth: the solar system, stars, galaxies, galaxy clusters and superclusters, quasars, and the large-scale structure of the universe. The basic tools in physics and astronomy are mathematics and experimental investigation and observation of the world around us.

At Penn, the curriculum for undergraduate Physics majors, which includes extensive laboratory experience, is based on faculty strengths in Condensed Matter Physics, Elementary Particle Physics, and Astrophysics. Undergraduate teaching is linked to faculty research efforts in these areas, and participation by undergraduates in research is strongly encouraged.

This concentration is particularly appropriate for students planning to attend graduate school in Astrophysics. In addition to core Physics courses, students choose from a selection of courses in Astronomy and Astrophysics.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

**Concentration Requirements**

<table>
<thead>
<tr>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles of Physics II: Electromagnetism and Radiation</td>
<td>1.5</td>
</tr>
<tr>
<td>or PHYS 171</td>
<td>Honors Physics II: Electromagnetism and Radiation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>or PHYS 170</td>
<td>Honors Physics I: Mechanics and Wave Motion</td>
</tr>
</tbody>
</table>

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.physics.upenn.edu/

For more information: http://www.physics.upenn.edu/
The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

**For more information:** http://www.physics.upenn.edu/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

**Code** | **Title** | **Course Units**
---|---|---
PHYS 499 | Senior Honor Thesis (Semester 1) | 1
PHYS 499 | Senior Honor Thesis (Semester 2) | 1
Thesis Accepted

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**Physics: Biological Science, BA**

Physics and astronomy are fundamental sciences aimed at discovering the basic principles that govern our universe. Physicists study the interplay between space, time, matter, and energy. Complex behavior in nature is explained in terms of elementary relations between constituent elements and the forces that bind them, over distances ranging from subatomic to cosmic scale. Astronomy encompasses the entire physical universe beyond the earth: the solar system, stars, galaxies, galaxy clusters and superclusters, quasars, and the large-scale structure of the universe. The basic tools in physics and astronomy are mathematics and experimental investigation and observation of the world around us.

At Penn, the curriculum for undergraduate Physics majors, which includes extensive laboratory experience, is based on faculty strengths in Condensed Matter Physics, Elementary Particle Physics, and Astrophysics. Undergraduate teaching is linked to faculty research efforts in these areas, and participation by undergraduates in research is strongly encouraged.

This concentration reflects increasing contributions of physicists (including members of our faculty) to implications of Physics to Biological Sciences. Undergraduate students choosing this concentration will prepare themselves for careers in scientific research or professional Medical Physics programs that have been instituted at Penn and other universities, among other possibilities.

The proposed concentration is distinct from the existing Biophysics Major, although the two share several required courses. The Biophysics Major requires much more chemistry, making it appropriate for students interested in protein science and other topics within the well-established field of Biophysics. The Physics major with a Concentration in Biological Science targets students with interests in the emerging field of Biological Physics, where researchers directly apply physical concepts and techniques to investigate biological systems; the emphasis is on developing new insights regarding biological systems from a perspective strongly rooted in Physics.

---

**Honors**

Applicants must have a minimum GPA of 3.3 in major-related courses.

**College General Education Requirements and Free Electives**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundational Approaches + Sectors</strong> + Free Electives</td>
<td>16.5</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 240</td>
<td>Calculus, Part III</td>
<td>1</td>
</tr>
<tr>
<td>MATH 241</td>
<td>Calculus, Part IV</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 230</td>
<td>Principles of Physics III: Thermal Physics and Waves</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 240</td>
<td>Principles of Physics IV: Modern Physics (without laboratory)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 361</td>
<td>Electromagnetism I: Electricity and Potential Theory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 362</td>
<td>Electromagnetism II: Magnetism, Maxwell’s Equations, and Electromagnetic Waves</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 411</td>
<td>Introduction to Quantum Mechanics I</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
<td>1.5</td>
</tr>
<tr>
<td>or PHYS 170</td>
<td>Honors Physics I: Mechanics and Wave Motion</td>
<td></td>
</tr>
<tr>
<td>PHYS 151</td>
<td>Principles of Physics II: Electromagnetism and Radiation</td>
<td>1.5</td>
</tr>
<tr>
<td>or PHYS 171</td>
<td>Honors Physics II: Electromagnetism and Radiation</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Concentration Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 121</td>
<td>Introduction to Biology - The Molecular Biology of Life</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 123</td>
<td>Introductory Molecular Biology Laboratory</td>
<td>0.5</td>
</tr>
<tr>
<td>BIOL 204</td>
<td>Biochemistry</td>
<td>1</td>
</tr>
<tr>
<td>or BIOL 205</td>
<td>Cell Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 221</td>
<td>Molecular Biology and Genetics</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 280</td>
<td>Physical Models of Biological Systems</td>
<td>1</td>
</tr>
<tr>
<td>or PHYS 580</td>
<td>Biological Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Thermodynamics and the Introduction to Statistical Mechanics and Kinetic Theory</td>
<td>1</td>
</tr>
</tbody>
</table>

Select 2 course units of Approved Electives

| Total Course Units | 36 |

---

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 PHYS 250 Principles of Physics IV: Modern Physics recommended.
Physics and astronomy are fundamental sciences aimed at discovering the basic principles that govern our universe. Physicists study the interplay between space, time, matter, and energy. Complex behavior in nature is explained in terms of elementary relations between constituent elements and the forces that bind them, over distances ranging from subatomic to cosmic scale. Astronomy encompasses the entire physical universe beyond the earth: the solar system, stars, galaxies, galaxy clusters and superclusters, quasars, and the large-scale structure of the universe. The basic tools in physics and astronomy are mathematics and experimental investigation and observation of the world around us.

At Penn, the curriculum for undergraduate Physics majors, which includes extensive laboratory experience, is based on faculty strengths in Condensed Matter Physics, Elementary Particle Physics, and Astrophysics. Undergraduate teaching is linked to faculty research efforts in these areas, and participation by undergraduates in research is strongly encouraged.

This concentration is particularly appropriate for students whose ultimate goal is a career in modern industry involving both technical and managerial components. A student choosing this concentration will have a solid background in Physics, be comfortable with electronics and computers, and have some appreciation of modern business methods and economics.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.physics.upenn.edu/

For information about the General Education Requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 499</td>
<td>Senior Honor Thesis (Semester 1)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 499</td>
<td>Senior Honor Thesis (Semester 2)</td>
<td>1</td>
</tr>
<tr>
<td>Thesis Accepted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Physics: Business & Technology, BA

Physics and astronomy are fundamental sciences aimed at discovering the basic principles that govern our universe. Physicists study the interplay between space, time, matter, and energy. Complex behavior in nature is explained in terms of elementary relations between constituent elements and the forces that bind them, over distances ranging from subatomic to cosmic scale. Astronomy encompasses the entire physical universe beyond the earth: the solar system, stars, galaxies, galaxy clusters and superclusters, quasars, and the large-scale structure of the universe. The basic tools in physics and astronomy are mathematics and experimental investigation and observation of the world around us.

At Penn, the curriculum for undergraduate Physics majors, which includes extensive laboratory experience, is based on faculty strengths in Condensed Matter Physics, Elementary Particle Physics, and Astrophysics. Undergraduate teaching is linked to faculty research efforts in these areas, and participation by undergraduates in research is strongly encouraged.

This concentration is particularly appropriate for students whose ultimate goal is a career in modern industry involving both technical and managerial components. A student choosing this concentration will have a solid background in Physics, be comfortable with electronics and computers, and have some appreciation of modern business methods and economics.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.physics.upenn.edu/

For information about the General Education Requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 230</td>
<td>Principles of Physics III: Thermal Physics and Waves</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 250</td>
<td>Principles of Physics IV: Modern Physics</td>
<td>1.5</td>
</tr>
<tr>
<td>PHYS 351</td>
<td>Analytical Mechanics</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 361</td>
<td>Electromagnetism I: Electricity and Potential Theory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 362</td>
<td>Electromagnetism II: Magnetism, Maxwell's Equations, and Electromagnetic Waves</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 411</td>
<td>Introduction to Quantum Mechanics I</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
<td>1.5</td>
</tr>
<tr>
<td>or PHYS 170</td>
<td>Honors Physics I: Mechanics and Wave Motion</td>
<td></td>
</tr>
</tbody>
</table>

Concentration Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 364</td>
<td>Laboratory Electronics</td>
<td>1</td>
</tr>
<tr>
<td>or PHYS 414</td>
<td>Laboratory in Modern Physics</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit in Computation</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 4 course units in Business</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants must have a minimum GPA of 3.3 in major-related courses.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>PHYS 499</td>
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<td>1</td>
</tr>
<tr>
<td>PHYS 499</td>
<td>Senior Honor Thesis (Semester 2)</td>
<td>1</td>
</tr>
<tr>
<td>Thesis Accepted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Physics: Chemical Principles, BA

Physics and astronomy are fundamental sciences aimed at discovering the basic principles that govern our universe. Physicists study the interplay between space, time, matter, and energy. Complex behavior in nature is explained in terms of elementary relations between constituent elements and the forces that bind them, over distances ranging from subatomic to cosmic scale. Astronomy encompasses the entire physical universe beyond the earth: the solar system, stars, galaxies, galaxy clusters and superclusters, quasars, and the large-scale structure of the universe. The basic tools in physics and astronomy are mathematics and experimental investigation and observation of the world around us.

At Penn, the curriculum for undergraduate Physics majors, which includes extensive laboratory experience, is based on faculty strengths in Condensed Matter Physics, Elementary Particle Physics, and Astrophysics. Undergraduate teaching is linked to faculty research efforts in these areas, and participation by undergraduates in research is strongly encouraged.

This concentration is particularly appropriate for students whose ultimate goal is a career in modern industry involving both technical and managerial components. A student choosing this concentration will have a solid background in Physics, be comfortable with electronics and computers, and have some appreciation of modern business methods and economics.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: http://www.physics.upenn.edu/

For information about the General Education Requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
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<td>MATH 240</td>
<td>Calculus, Part III</td>
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<td>MATH 241</td>
<td>Calculus, Part IV</td>
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<td>PHYS 250</td>
<td>Principles of Physics IV: Modern Physics</td>
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<tr>
<td>PHYS 351</td>
<td>Analytical Mechanics</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 361</td>
<td>Electromagnetism I: Electricity and Potential Theory</td>
<td>1</td>
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<tr>
<td>PHYS 362</td>
<td>Electromagnetism II: Magnetism, Maxwell's Equations, and Electromagnetic Waves</td>
<td>1</td>
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<tr>
<td>PHYS 411</td>
<td>Introduction to Quantum Mechanics I</td>
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<tr>
<td>PHYS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
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<tr>
<td>or PHYS 170</td>
<td>Honors Physics I: Mechanics and Wave Motion</td>
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Concentration Requirements

<table>
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<tr>
<td>or PHYS 414</td>
<td>Laboratory in Modern Physics</td>
<td></td>
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<tr>
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You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Honors

Applicants must have a minimum GPA of 3.3 in major-related courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 499</td>
<td>Senior Honor Thesis (Semester 1)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 499</td>
<td>Senior Honor Thesis (Semester 2)</td>
<td>1</td>
</tr>
<tr>
<td>Thesis Accepted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Astrophysics. Undergraduate teaching is linked to faculty research efforts in these areas, and participation by undergraduates in research is strongly encouraged.

This concentration is particularly appropriate for students planning to enter the health professions. Such students should be aware that, although not part of the concentration requirements, laboratories in general and organic chemistry and lecture and laboratory work in biology are generally required by professional schools in the health area. The concentration may also be appropriate for other students pursuing double majors in Physics and Chemistry or Biochemistry.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

**Note:** For Biology concentration, see Biophysics track outlined below.

**For more information:** http://www.physics.upenn.edu/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td></td>
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</table>

**Major Requirements**

Core Requirements

- MATH 104 Calculus, Part I 1
- MATH 114 Calculus, Part II 1
- MATH 240 Calculus, Part III 1
- MATH 241 Calculus, Part IV 1
- PHYS 230 Principles of Physics I: First Semester Physics 1
- PHYS 250 Principles of Physics II: Modern Physics 1.5
- PHYS 351 Analytical Mechanics 1
- PHYS 361 Electromagnetism I: Electricity and Potential Theory 1
- PHYS 362 Electromagnetism II: Magnetism, Maxwell’s Equations, and Electromagnetic Waves 1
- PHYS 411 Introduction to Quantum Mechanics I 1
- PHYS 150 Principles of Physics III: Thermal Physics and Waves 1.5
- or PHYS 170 Honors Physics I: Mechanics and Wave Motion 1
- PHYS 151 Principles of Physics II: Electromagnetism and Radiation 1.5
- or PHYS 171 Honors Physics II: Electromagnetism and Radiation 1

**Concentration Requirements**

Select one of the following Concentrations: 5

**Chemical Principles Concentration:**

- CHEM 101 General Chemistry I
- CHEM 102 General Chemistry II
- CHEM 221 Physical Chemistry I
- CHEM 222 Physical Chemistry II
- CHEM 241 Principles of Organic Chemistry
- CHEM 242 Principles of Organic Chemistry II

**Physics: Computer Techniques, BA**

Physics and astronomy are fundamental sciences aimed at discovering the basic principles that govern our universe. Physicists study the interplay between space, time, matter, and energy. Complex behavior in nature is explained in terms of elementary relations between constituent elements and the forces that bind them, over distances ranging from subatomic to cosmic scale. Astronomy encompasses the entire physical universe beyond the earth: the solar system, stars, galaxies, galaxy clusters and superclusters, quasars, and the large-scale structure of the universe. The basic tools in physics and astronomy are mathematics and experimental investigation and observation of the world around us.

At Penn, the curriculum for undergraduate Physics majors, which includes extensive laboratory experience, is based on faculty strengths in Condensed Matter Physics, Elementary Particle Physics, and Astrophysics. Undergraduate teaching is linked to faculty research efforts in these areas, and participation by undergraduates in research is strongly encouraged.

This concentration is particularly appropriate for students planning a career in the computer or electronics industries or contemplating a dual degree in Physics and either Computer Science or Electrical Engineering.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.
For more information: [http://www.physics.upenn.edu/](http://www.physics.upenn.edu/)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Physics: Physical Theory and Experimental Technique, BA

Physics and astronomy are fundamental sciences aimed at discovering the basic principles that govern our universe. Physicists study the interplay between space, time, matter, and energy. Complex behavior in nature is explained in terms of elementary relations between constituent elements and the forces that bind them, over distances ranging from subatomic to cosmic scale. Astronomy encompasses the entire physical universe beyond the earth: the solar system, stars, galaxies, galaxy clusters and superclusters, quasars, and the large-scale structure of the universe. The basic tools in physics and astronomy are mathematics and experimental investigation and observation of the world around us.

At Penn, the curriculum for undergraduate Physics majors, which includes extensive laboratory experience, is based on faculty strengths in Condensed Matter Physics, Elementary Particle Physics, and Astrophysics. Undergraduate teaching is linked to faculty research efforts in these areas, and participation by undergraduates in research is strongly encouraged.

This concentration is particularly appropriate for students contemplating graduate study in Physics. It provides a sound basis in Physics and Mathematics with ample opportunities to take elective or even graduate courses and participate in research.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 36. Double majors may entail more course units.

For more information: [http://www.physics.upenn.edu/](http://www.physics.upenn.edu/)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

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### Honors

Applicants must have a minimum GPA of 3.3 in major-related courses.

#### Code  Title  Course Units

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</tr>
</tbody>
</table>

Thesis Accepted

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1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement ([http://www.college.upenn.edu/sectors-policy](http://www.college.upenn.edu/sectors-policy)).

2. See sample program in Physics Major Program.
Political Science: American Politics, BA

Political Science explores systematic approaches to understanding politics. Students may choose to take a general approach to the subject or pursue a concentration in the sub-fields of American politics, comparative politics, international relations or political theory. In addition students may select a world region for an area studies concentration. The Political Science Department's course offerings span the discipline of political science, from American political institutions, to the politics of world regions, the emergence of a new international order, and recent and ancient political ideas. The Department's curriculum is divided into the four standard fields of American politics, comparative politics, international relations, and political theories. There are also other opportunities for study in political processes of elections and communications and public policy.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

A minimum of 9 course units in Political Science are required, of which 6 must be taken in the Political Science Department at the University of Pennsylvania (includes Washington, DC Semester). See Major Program Booklet for Transfer and AP credit restrictions.

For more information: http://www.sas.upenn.edu/polisci/content/undergraduate-program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

For more information:
http://www.sas.upenn.edu/polisci/content/undergraduate-program

For information about the General Education requirements,
please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

Honors
Applicants must have a minimum GPA of 3.3 in major-related courses.

American Politics Concentration

Select 5 course units of Concentration courses in consultation with the faculty advisor with three course units in PSCI

Total Course Units

Honors

Required: A minimum overall GPA of 3.3 and a 3.6 GPA in all PSCI courses taken in the major.
Political Science: Comparative Politics, BA

Political Science explores systematic approaches to understanding politics. Students may choose to take a general approach to the subject or pursue a concentration in the sub-fields of American politics, comparative politics, international relations or political theory. In addition students may select a world region for an area studies concentration. The Political Science Department's course offerings span the discipline of political science, from American political institutions, to the politics of world regions, the emergence of a new international order, and recent and ancient political ideas. The Department's curriculum is divided into the four standard fields of American politics, comparative politics, international relations, and political theories. There are also other opportunities for study in political processes of elections and communications and public policy.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

A minimum of 9 course units in Political Science are required, of which 6 must be taken in the Political Science Department at the University of Pennsylvania (includes Washington, DC Semester). See Major Program Booklet for Transfer and AP credit restrictions.

For more information: http://www.sas.upenn.edu/polisci/content/undergraduate-program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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</tr>
<tr>
<td>PSCI 499</td>
<td>Independent Study - Honors (Spring of Senior Year)</td>
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</tbody>
</table>

---

**Subfield Requirement**

Select 1 course in three of the four subfields:

- American Politics
- Comparative Politics
- International Relations
- Political Theory

**PSCI or Major Related Electives**

Select 7 course units in PSCI or Major Related Electives

Total Course Units: 32

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. A maximum of three non-PSCI allowed.

---

### Comparative Politics Concentration

#### Concentration Requirements

Select 5 course units of Concentration courses in consultation with the faculty advisor with three course units in PSCI

Total Course Units: 5

---

### Honors

**Required:** A minimum overall GPA of 3.3 and a 3.6 GPA in all PSCI courses taken in the major.

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<th>Code</th>
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<td>PSCI 499</td>
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</tbody>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

### Political Science: General Political Science, BA

Political Science explores systematic approaches to understanding politics. Students may choose to take a general approach to the subject or pursue a concentration in the sub-fields of American politics, comparative politics, international relations or political theory. In addition students may select a world region for an area studies concentration. The Political Science Department’s course offerings span the discipline of political science, from American political institutions, to the politics of world regions, the emergence of a new international order, and recent and ancient political ideas. The Department’s curriculum is divided into the four standard fields of American politics, comparative politics, international relations, and political theories. There are also
other opportunities for study in political processes of elections and communications and public policy.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

A minimum of 9 course units in Political Science is required, of which 6 must be taken in the Political Science Department at the University of Pennsylvania (includes Washington, DC Semester). See Major Program Booklet for Transfer and AP credit restrictions.

For more information: http://www.sas.upenn.edu/polisci/content/undergraduate-program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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### Major Requirements

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<tr>
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#### PSCI 110 Introduction to Comparative Politics

Sectors

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<td></td>
<td>Comparative Politics</td>
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<td></td>
<td>International Relations</td>
<td></td>
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<tr>
<td></td>
<td>Political Theory</td>
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#### PSCI or Major Related Electives

<table>
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<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Select 7 course units in PSCI or Major Related Electives</td>
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Total Course Units 32

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. A maximum of three non-PSCI courses are allowed.

### Honors

Applicants must have 3.3 overall GPA and a 3.6 GPA in all PSCI courses taken in the major.

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSCI 497</td>
<td>Political Science Honors (Fall of Senior Year)</td>
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</tr>
<tr>
<td>PSCI 499</td>
<td>Independent Study - Honors (Spring of Senior Year)</td>
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</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Political Science: Individualized, BA

Political Science explores systematic approaches to understanding politics. Students may choose to take a general approach to the subject or pursue a concentration in the sub-fields of American politics, comparative politics, international relations, or political theory. In addition, students may select a world region for an area studies concentration. The Political Science Department’s course offerings span the discipline of political science, from American political institutions, to the politics of world regions, the emergence of a new international order, and recent and ancient political ideas. The Department’s curriculum is divided into the four standard fields of American politics, comparative politics, international relations, and political theories. There are also other opportunities for study in political processes of elections and communications and public policy.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

A minimum of 9 course units in Political Science are required, of which 6 must be taken in the Political Science Department at the University of Pennsylvania (includes Washington, DC Semester). See Major Program Booklet for Transfer and AP credit restrictions.

For more information: http://www.sas.upenn.edu/polisci/content/undergraduate-program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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### Major Requirements

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#### PSCI 110 Introduction to Comparative Politics

Sectors

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td></td>
<td>American Politics</td>
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<td></td>
<td>Comparative Politics</td>
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<td></td>
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<th>Course Units</th>
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<td></td>
<td>Select 7 course units in PSCI or Major Related Electives</td>
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Total Course Units 32

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. A maximum of three non-PSCI courses are allowed.
Select 7 course units in PSCI or Major Related Electives  

Total Course Units 32

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

A maximum of three non-PSCI courses are allowed.

**Individualized Major Concentration**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concentration Requirements</td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

**Honors**

Required: A minimum overall GPA of 3.3 and a 3.6 GPA in all PSCI courses taken in the major.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>PSCI 497</td>
<td>Political Science Honors (Fall of Senior Year)</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Political Science: International Relations, BA**

Political Science explores systematic approaches to understanding politics. Students may choose to take a general approach to the subject or pursue a concentration in the sub-fields of American politics, comparative politics, international relations or political theory. In addition students may select a world region for an area studies concentration. The Political Science Department's course offerings span the discipline of political science, from American political institutions, to the politics of world regions, the emergence of a new international order, and recent and ancient political ideas. The Department's curriculum is divided into the four standard fields of American politics, comparative politics, international relations, and political theories. There are also other opportunities for study in political processes of elections and communications and public policy.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

A minimum of 9 course units in Political Science are required, of which 6 must be taken in the Political Science Department at the University of Pennsylvania (includes Washington, DC Semester). See Major Program Booklet for Transfer and AP credit restrictions.

For more information: http://www.sas.upenn.edu/polisci/content/undergraduate-program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

**International Relations Concentration**

<table>
<thead>
<tr>
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<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concentration Requirements</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Select 5 course units of Concentration courses in consultation with the faculty advisor with three course units in PSCI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>5</td>
</tr>
</tbody>
</table>

**Honors**

Required: A minimum overall GPA of 3.3 and a 3.6 GPA in all PSCI courses taken in the major.

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<tr>
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</tr>
</tbody>
</table>
Political Science: Political Economy, BA

Political Science explores systematic approaches to understanding politics. Students may choose to take a general approach to the subject or pursue a concentration in the sub-fields of American politics, comparative politics, international relations or political theory. In addition students may select a world region for an area studies concentration. The Political Science Department's course offerings span the discipline of political science, from American political institutions, to the politics of world regions, the emergence of a new international order, and recent and ancient political ideas. The Department's curriculum is divided into the four standard fields of American politics, comparative politics, international relations, and political theories. There are also other opportunities for study in political processes of elections and communications and public policy.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

A minimum of 9 course units in Political Science are required, of which 6 must be taken in the Political Science Department at the University of Pennsylvania (includes Washington, DC Semester). See Major Program Booklet for Transfer and AP credit restrictions.

For more information: http://www.sas.upenn.edu/polisci/content/undergraduate-program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### PSCI or Major Related Electives
Select 7 course units in PSCI or Major Related Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

**Total Course Units**: 32

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. A maximum of three non-PSCI courses are allowed.

### Political Economy Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concentration Requirements</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Select 5 course units of Concentration courses in consultation with the faculty advisor with three course units in PSCI</td>
<td></td>
</tr>
</tbody>
</table>

**Total Course Units**: 5

### Honors

**Required**: A minimum overall GPA of 3.3 and a 3.6 GPA in all PSCI courses taken in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSCI 497</td>
<td>Political Science Honors (Fall of Senior Year)</td>
<td>1</td>
</tr>
<tr>
<td>PSCI 499</td>
<td>Independent Study - Honors (Spring of Senior Year)</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Political Science: Political Theory, BA

Political Science explores systematic approaches to understanding politics. Students may choose to take a general approach to the subject or pursue a concentration in the sub-fields of American politics, comparative politics, international relations or political theory. In addition students may select a world region for an area studies concentration. The Political Science Department’s course offerings span the discipline of political science, from American political institutions, to the politics of world regions, the emergence of a new international order, and recent and ancient political ideas. The Department’s curriculum is divided into the four standard fields of American politics, comparative politics, international relations, and political theories. There are also other opportunities for study in political processes of elections and communications and public policy.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

A minimum of 9 course units in Political Science are required, of which 6 must be taken in the Political Science Department at the University of Pennsylvania (includes Washington, DC Semester). See Major Program Booklet for Transfer and AP credit restrictions.

For more information: http://www.sas.upenn.edu/polisci/content/undergraduate-program

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

### College General Education Requirements and Free Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
</tbody>
</table>

### Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirement</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Select 2 course units in the following:</td>
<td></td>
</tr>
<tr>
<td>PSCI 110</td>
<td>Introduction to Comparative Politics</td>
<td></td>
</tr>
<tr>
<td>PSCI 130</td>
<td>Introduction to American Politics</td>
<td></td>
</tr>
<tr>
<td>PSCI 150</td>
<td>Introduction to International Relations</td>
<td></td>
</tr>
<tr>
<td>PSCI 180</td>
<td>Ancient Political Thought</td>
<td></td>
</tr>
<tr>
<td>or PSCI 181</td>
<td>Modern Political Thought</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Subfield Requirement</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 1 course in three of the four subfields:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>American Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comparative Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Relations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Political Theory</td>
<td></td>
</tr>
</tbody>
</table>
Pennsylvania (includes Washington, DC Semester). See Major Program Booklet for Transfer and AP credit restrictions.

For more information: [http://www.sas.upenn.edu/polisci/content/undergraduate-program](http://www.sas.upenn.edu/polisci/content/undergraduate-program)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum [https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum) page.

<table>
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<tr>
<th>Code</th>
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<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
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<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of the following:</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PSCI 110 Introduction to Comparative Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSCI 130 Introduction to American Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSCI 150 Introduction to International Relations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSCI 180 Ancient Political Thought</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or PSCI 181 Modern Political Thought</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subfield Requirement</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 1 course in three of the four subfields:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>American Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comparative Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Relations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Political Theory</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>PSCI or Major Related Electives</strong></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Select 7 course units in PSCI or Major Related Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>32</td>
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</tbody>
</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement ([http://www.college.upenn.edu/sectors-policy](http://www.college.upenn.edu/sectors-policy)).

2 A maximum of three non-PSCI courses are allowed.

**Political Theory Concentration**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concentration Requirements</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Select 5 course units of Concentration courses in consultation with the faculty advisor with three course units in PSCI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>5</td>
</tr>
</tbody>
</table>

**Honors**

**Required:** A minimum overall GPA of 3.3 and a 3.6 GPA in all PSCI courses taken in the major.

<table>
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<tr>
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<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
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<td>Political Science Honors (Fall of Senior Year)</td>
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</tr>
<tr>
<td>PSCI 499</td>
<td>Independent Study - Honors (Spring of Senior Year)</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Psychology, BA**

Studies in psychology introduce students to contemporary understandings of how organisms perceive, learn, think and interact with one another, how they develop, how they are motivated and how, individually and as members of species, they may be compared with one another. Psychology at Penn is a diverse discipline, with topics ranging from neuroscience to psychopathology.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 33. Double majors may entail more course units.

A minimum GPA of 2.0 is required.

6 course units of Psychology courses must be taken at the University of Pennsylvania.

For more information: [http://psychology.sas.upenn.edu/undergraduate](http://psychology.sas.upenn.edu/undergraduate)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Introductory Psychology</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSYC 001 Introduction to Experimental Psychology (or Replacement PSYC course)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Distribution</strong></td>
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</tr>
<tr>
<td></td>
<td>Biological Basis of Behavior:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PSYC 109 Introduction to Brain and Behavior</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSYC 127 Physiology of Motivated Behaviors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSYC 149 Cognitive Neuroscience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit of Lecture</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Cognitive Basis of Behavior:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
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</tr>
<tr>
<td></td>
<td>PSYC 111 Perception</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSYC 151 Language and Thought</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSYC 181 Intro to Developmental Psychology</td>
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</tr>
<tr>
<td></td>
<td>Select 1 course unit of Lecture</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Individual &amp; Group Bases of Behavior:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
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<tr>
<td></td>
<td>PSYC 160 Personality and Individual Differences</td>
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<tr>
<td></td>
<td>PSYC 162 Abnormal Psychology</td>
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</tr>
<tr>
<td></td>
<td>PSYC 170 Social Psychology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit of Lecture</td>
<td>1</td>
</tr>
</tbody>
</table>
Religious Studies, BA

Religion is a complex network of ideas and actions (ethical and ritual) that express a group’s sense of ultimate meaning of life. The academic study of religion examines how the beliefs and values of contemporary and historical cultures shape and are shaped by societal factors, long-standing traditions, and distinctive forms of literary and artistic expression.

Because of the multi-faceted nature of the subject matter, the University of Pennsylvania’s Religious Studies major program of study is open to students looking to tailor their educational experience to fit with their own personal and academic areas of interest. Each undergraduate who wishes to major in Religious Studies will meet with the Chair of the Department prior to claiming the major to discuss their desired coursework and create a individualized plan of execution.

As our core faculty shares research foci and skills in the study of material culture (art, manuscripts, archaeology, inscriptions, and other primary historical sources), we are well-suited to lead serious students in intensive research to better prepare them for graduate study which requires research and evaluation skills.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/religious_studies/undergraduate/major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

Honors

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELS 399</td>
<td>Directed Reading</td>
<td>1</td>
</tr>
<tr>
<td>RELS 309</td>
<td>Honors Thesis Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Romance Languages: French and Italian, BA

The Dual Romance Languages Major allows students to pursue advanced course work across two Romance Languages: French, Spanish, and/or Italian. It is an 18-credit major, with nine advanced courses in each language. Interested students should contact the Undergraduate Coordinator or the appropriate undergraduate chairs for more information and guidance.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

Students are required to meet with the appropriate undergraduate chairs prior to beginning course work. Study Abroad courses must be pre-approved by the Undergraduate Chair to count for the major.

For more information: http://ccat.sas.upenn.edu/roml/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>French Studies</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Requirement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>FREN 212</td>
<td>Advanced French Grammar and Composition</td>
<td>1</td>
</tr>
<tr>
<td>or FREN 214</td>
<td>Advanced French Composition and Conversation</td>
<td></td>
</tr>
<tr>
<td>FREN 231</td>
<td>Perspectives in French Literature: Love and Passion</td>
<td>1</td>
</tr>
<tr>
<td>or FREN 232</td>
<td>Perspectives in French Literature: The Individual and Society</td>
<td></td>
</tr>
<tr>
<td>FREN 226</td>
<td>French History and Culture until 1789</td>
<td>1</td>
</tr>
<tr>
<td>FREN 227</td>
<td>French History and Culture 1789-1945</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>200 or 300 Level Courses</td>
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</tr>
<tr>
<td>Select 2 course units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300 Level Courses:</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Select 3 course units of 300-level courses, with only 1 course unit in major-related courses</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Italian Studies</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Requirement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ITAL 201</td>
<td>Advanced Italian I</td>
<td>1</td>
</tr>
<tr>
<td>ITAL 203</td>
<td>Masterpieces-Italian Literature</td>
<td>1</td>
</tr>
<tr>
<td>ITAL 202</td>
<td>Advanced Italian II</td>
<td>1</td>
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<tr>
<td></td>
<td>Electives:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 6 course units of electives, with no more than two courses taught in English</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Research Requirement</strong></td>
<td></td>
</tr>
</tbody>
</table>

Complete Research Requirement in the Department at Penn

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>36</td>
</tr>
<tr>
<td>1</td>
<td>You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (<a href="http://www.college.upenn.edu/sectors-policy">http://www.college.upenn.edu/sectors-policy</a>).</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Must be taken in the Department at Penn.</td>
<td></td>
</tr>
</tbody>
</table>

**Honors**

Applicant must have a minimum GPA of 3.5 in the major and a GPA of 3.3 overall. Only one of the courses below need to be taken, and it must be taken in the Department at Penn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td>FREN 398</td>
<td>Honors Thesis</td>
<td></td>
</tr>
<tr>
<td>ITAL 398</td>
<td>Honors Thesis</td>
<td></td>
</tr>
<tr>
<td>SPAN 398</td>
<td>Honors Thesis</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
The Dual Romance Languages Major allows students to pursue advanced course work across two Romance Languages: French, Spanish, and/or Italian. It is an 18-credit major, with nine advanced courses in each language. Interested students should contact the Undergraduate Coordinator or the appropriate undergraduate chairs for more information and guidance.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

Students are required to meet with the appropriate undergraduate chairs prior to beginning course work. Study Abroad courses must be pre-approved by the Undergraduate Chair to count for the major.

For more information: http://ccat.sas.upenn.edu/roml/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>College General Education Requirements and Free Electives</td>
<td>Foundational Approaches + Sectors ¹ + Free Electives</td>
<td>18</td>
</tr>
<tr>
<td>Hispanic Studies</td>
<td>Core Requirement: ²</td>
<td></td>
</tr>
<tr>
<td>ITAL 201 Advanced Italian I</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ITAL 202 Advanced Italian II</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ITAL 203 Masterpieces-Italian Literature</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Electives:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select six electives with no more than two courses taught in English</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Research Requirement

Complete Research Requirement in the Department at Penn

Total Course Units

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. At least 2 course units must be taken in the Department at Penn.

3. At least 2 course units must be taken in the Department at Penn.

Honors

Applicant must have a minimum GPA of 3.5 in the major and a GPA of 3.3 overall. Only one of the courses below need be taken, and it must be taken in the Department at Penn.

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<thead>
<tr>
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<tbody>
<tr>
<td>FREN 212 Advanced French Grammar and Composition</td>
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<td>or FREN 214 Advanced French Composition and Conversation</td>
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<td></td>
</tr>
<tr>
<td>FREN 226 French History and Culture until 1789</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>FREN 227 French History and Culture 1789-1945</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

200- or 300 Level Courses

Select 2 course units of 200 or 300 level courses

300 Level Courses:

Select 3 course units from 300-level courses, with only 1 course unit in a major-related course

Hispanic Studies

Core Requirement: ²

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 212 Advanced Spanish II: Grammar and Composition</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SPAN 219 Hispanic Texts and Contexts</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>or SPAN 223 Introduction to Literary Analysis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

200 or 200 Level Course

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. At least 2 course units must be taken in the Department at Penn.

3. At least 2 course units must be taken in the Department at Penn.

Honors

Applicant must have a minimum GPA of 3.5 in the major and a GPA of 3.3 overall. Only one of the courses below need be taken, and it must be taken in the Department at Penn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 398 Honors Thesis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITAL 398 Honors Thesis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPAN 398 Honors Thesis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
**Honors**

Applicant must have a minimum GPA of 3.5 in the major and a GPA of 3.3 overall. Only one of the courses below needs to be taken, and it must be taken in the Department at Penn.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 398</td>
<td>Honors Thesis</td>
<td></td>
</tr>
<tr>
<td>ITAL 398</td>
<td>Honors Thesis</td>
<td></td>
</tr>
<tr>
<td>SPAN 398</td>
<td>Honors Thesis</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**Science, Technology and Society: Biotechnology & Biomedicine, BA**

Science, Technology & Society (STSC) examines the social contexts in which science and technology occur, the organizations of people and things that make up science and technology systems, and the social and cultural consequences of scientific and technological change over time. In a wide array of courses, STSC majors explore the relationship between scientific knowledge, technological innovations, technological systems, and society past and present.

This program equips students with sophisticated critical faculties, multidisciplinary skills, and wide knowledge that enables our graduates to go into business, law, government, journalism, research, and education. STSC provides a foundation for citizenship in a globalizing, diversifying world with rapid technological and scientific change.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 34. Double majors may entail more course units.

For more information: [https://hss.sas.upenn.edu/undergraduate/stsc-major/science-technology-society-requirements](https://hss.sas.upenn.edu/undergraduate/stsc-major/science-technology-society-requirements)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>STSC 001</td>
<td>Emergence of Modern Science</td>
<td></td>
</tr>
<tr>
<td>or STSC 003</td>
<td>Technology &amp; Society</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STSC 160</td>
<td>The History of the Information Age</td>
<td></td>
</tr>
<tr>
<td>or STSC 168 Environment and Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or STSC 212 Science Technology and War</td>
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<td></td>
</tr>
</tbody>
</table>

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**Honors**

Applicants must have a minimum GPA of 3.5 in the major and a 3.0 overall.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>STSC 400</td>
<td>Undergraduate Seminar in Science</td>
<td></td>
</tr>
<tr>
<td>or STSC 498</td>
<td>Technology and Society</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

**Science, Technology and Society: Energy and Environment, BA**

Science, Technology & Society (STSC) examines the social contexts in which science and technology occur, the organizations of people and things that make up science and technology systems, and the social and cultural consequences of scientific and technological change over time. In a wide array of courses, STSC majors explore the relationship between scientific knowledge, technological innovations, technological systems, and society past and present.

This program equips students with sophisticated critical faculties, multidisciplinary skills and wide knowledge that enables our graduates to go into business, law, government, journalism, research, and education. STSC provides a foundation for citizenship in a globalizing, diversifying world with rapid technological and scientific change.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 34. Double majors may entail more course units.

For more information: [https://hss.sas.upenn.edu/undergraduate/stsc-major/science-technology-society-requirements](https://hss.sas.upenn.edu/undergraduate/stsc-major/science-technology-society-requirements)
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tbody>
<tr>
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</table>

**College General Education Requirements and Free Electives**

**Foundational Approaches + Sectors** + Free Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
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**Major Requirements**

**Core Courses**

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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>STSC 001</td>
<td>Emergence of Modern Science</td>
<td>1</td>
</tr>
<tr>
<td>or STSC 003</td>
<td>Technology &amp; Society</td>
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</tr>
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</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>STSC 160</td>
<td>The History of the Information Age</td>
<td>1</td>
</tr>
<tr>
<td>or STSC 168</td>
<td>Environment and Society</td>
<td></td>
</tr>
<tr>
<td>or STSC 212</td>
<td>Science Technology and War</td>
<td></td>
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</table>

**STSC Electives**

Select 7 course units in STSC Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**Energy & Environment**

Select 4 course units in Energy & Environment

<table>
<thead>
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<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
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<td></td>
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**Capstone Research Requirement**

Select 1 course unit of 400-level STSC Research Seminar

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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**Total Course Units**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2. See the STSC website for a list of pre-approved courses.

3. See the STSC website for a list of pre-approved courses.

**Honors**

Applicants must have a minimum GPA of 3.5 in the major and 3.0 overall.

**Code**

**Title**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>STSC 400</td>
<td>Undergraduate Seminar in Science Technology and Society</td>
<td>1</td>
</tr>
<tr>
<td>STSC 498</td>
<td>Honors Thesis</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Science, Technology and Society: Global Science and Technology, BA**

Science, Technology & Society (STSC) examines the social contexts in which science and technology occur, the organizations of people and things that make up science and technology systems, and the social and cultural consequences of scientific and technological change over time.
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Science, Technology and Society: Information and Organizations, BA**

Science, Technology & Society (STSC) examines the social contexts in which science and technology occur, the organizations of people and things that make up science and technology systems, and the social and cultural consequences of scientific and technological change over time. In a wide array of courses, STSC majors explore the relationship between scientific knowledge, technological innovations, technological systems, and society past and present.

This program equips students with sophisticated critical faculties, multidisciplinary skills and wide knowledge that enables our graduates to go into business, law, government, journalism, research, and education. STSC provides a foundation for citizenship in a globalizing, diversifying world with rapid technological and scientific change.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/stsc-major/science-technology-society-requirements

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core Courses</strong></td>
<td></td>
</tr>
<tr>
<td>STSC 001</td>
<td>Emergence of Modern Science ¹</td>
<td>1</td>
</tr>
<tr>
<td>or STSC 003</td>
<td>Technology &amp; Society ¹</td>
<td></td>
</tr>
<tr>
<td>Select any one of the following:</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>STSC 160</td>
<td>The History of the Information Age ¹</td>
<td></td>
</tr>
<tr>
<td>or STSC 168 Environment and Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or STSC 212 Science Technology and War</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STSC 001</td>
<td>Emergence of Modern Science ¹</td>
<td></td>
</tr>
<tr>
<td>&amp; STSC 003</td>
<td>and Technology &amp; Society ¹</td>
<td></td>
</tr>
<tr>
<td><strong>STSC Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 7 course units in STSC electives ²</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Information &amp; Organizations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 4 course units in Information Technologies &amp; Organizations Concentration courses ³</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Capstone Research Requirement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of 400-level STSC Research Seminar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total Course Units</strong></td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
² See the STSC website for a list of pre-approved courses.
³ See the STSC website for a list of pre-approved courses.

**Honors**

Applicants must have a minimum GPA of 3.5 in the major and 3.0 overall.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>STSC 400</td>
<td>Undergraduate Seminar in Science Technology and Society</td>
<td>1</td>
</tr>
<tr>
<td>STSC 498</td>
<td>Honors Thesis</td>
<td>1</td>
</tr>
</tbody>
</table>

**Science, Technology and Society: Science/Nature/Culture, BA**

Science, Technology & Society (STSC) examines the social contexts in which science and technology occur, the organizations of people and things that make up science and technology systems, and the social and cultural consequences of scientific and technological change over time. In a wide array of courses, STSC majors explore the relationship between scientific knowledge, technological innovations, technological systems, and society past and present.

This program equips students with sophisticated critical faculties, multidisciplinary skills and wide knowledge that enables our graduates to go into business, law, government, journalism, research, and education. STSC provides a foundation for citizenship in a globalizing, diversifying world with rapid technological and scientific change.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://hss.sas.upenn.edu/undergraduate/science-technology-society-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core Courses</strong></td>
<td></td>
</tr>
<tr>
<td>STSC 001</td>
<td>Emergence of Modern Science ¹</td>
<td>1</td>
</tr>
<tr>
<td>or STSC 003</td>
<td>Technology &amp; Society ¹</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>STSC 160</td>
<td>The History of the Information Age ¹</td>
<td></td>
</tr>
<tr>
<td>or STSC 168 Environment and Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or STSC 212 Science Technology and War</td>
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<td></td>
</tr>
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<td>Or</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Emergence of Modern Science ¹</td>
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</tr>
<tr>
<td>&amp; STSC 003</td>
<td>and Technology &amp; Society ¹</td>
<td></td>
</tr>
<tr>
<td><strong>STSC Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 7 course units in STSC electives ²</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Information &amp; Organizations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 4 course units in Information Technologies &amp; Organizations Concentration courses ³</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Capstone Research Requirement</strong></td>
<td></td>
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</tr>
<tr>
<td>Select 1 course unit of 400-level STSC Research Seminar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total Course Units</strong></td>
<td></td>
<td>34</td>
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</tbody>
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¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
² See the STSC website for a list of pre-approved courses.
³ See the STSC website for a list of pre-approved courses.
STSC 160 The History of the Information Age
or STSC 168 Environment and Society
or STSC 212 Science Technology and War

STSC Electives
Select 7 course units in STSC Electives 2

Science/Nature/Culture
Select 4 course units in Electives 3

Capstone Research Requirement
Select 1 course unit of 400-level STSC Research Seminar

Total Course Units 34

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 See the STSC website for a list of pre-approved electives.

3 See the STSC website for a list of pre-approved electives.

Honors
Applicants must have a minimum GPA of 3.5 in the major and 3.0 overall.

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Sociology: Global and International Studies, BA

The Sociology major helps students identify and explain patterns of social life and human behavior by emphasizing how large-scale social phenomena (such as class, race, and gender inequality) affect the everyday experiences of individuals and vice versa. The major prepares students for a career in a variety of fields such as law, medicine and healthcare, marketing, education, scholarly and applied social research, social work, demography, journalism and media, management in the public and private sectors, administration, and government. The program offers comprehensive advising and significant research and independent study opportunities. Our program is dedicated to nurturing a strong community of scholars, helping them grow academically and professionally under the large-scale mission of the College of Arts & Sciences.

In this concentration, students examine a variety of global and international issues such as immigration, urbanism, demographic change, world health, and the persistence of social inequality.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

A minimum of 11 course units must be in Sociology.

For more information: https://sociology.sas.upenn.edu/global_international_studies

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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<td>STSC 401</td>
<td>Thesis Workshop II</td>
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<tr>
<td>STSC 399</td>
<td>Independent Study (Or Approved Course)</td>
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</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
### Sociology: Law and Society, BA

The Sociology major helps students identify and explain patterns of social life and human behavior by emphasizing how large-scale social phenomena (such as class, race, and gender inequality) affect the everyday experiences of individuals and vice versa. The major prepares students for a career in a variety of fields such as law, medicine and healthcare, marketing, education, scholarly and applied social research, social work, demography, journalism and media, management in the public and private sectors, administration, and government. The program offers comprehensive advising and significant research and independent study opportunities. Our program is dedicated to nurturing a strong community of scholars, helping them grow academically and professionally under the large-scale mission of the College of Arts & Sciences.

Sociologists study institutions, and among the most important is the law. This concentration examines issues such as: What is deviance and how do we define it? What is the relationship between the law and other social institutions? The concentration is suitable for students with a variety of interests, but may be especially well-suited to those interested in careers in law and criminal justice.

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 34. Double majors may entail more course units.

A minimum of 11 course units must be in Sociology.

For more information: [https://sociology.sas.upenn.edu/content/concentrations-sociology-law-and-society](https://sociology.sas.upenn.edu/content/concentrations-sociology-law-and-society)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum ([https://www.college.upenn.edu/curriculum](https://www.college.upenn.edu/curriculum)) page.

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<th>Code</th>
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<tbody>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td><strong>Major Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Introductory Course</strong></td>
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</tr>
<tr>
<td>SOCI 001</td>
<td>Introduction to Sociology</td>
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</tr>
<tr>
<td></td>
<td><strong>Sociological Theory</strong></td>
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<td></td>
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<tr>
<td></td>
<td><strong>Social Research Methods</strong></td>
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<tr>
<td>SOCI 100</td>
<td>Introduction to Sociological Research</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Advanced Research Methods</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Statistics</td>
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<tr>
<td></td>
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<td><strong>SOCI or Related Courses</strong></td>
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<td>Select 2 course units in SOCI or Related</td>
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</tbody>
</table>

Complete Research Poster

Total Course Units 34

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement ([http://www.college.upenn.edu/sectors-policy](http://www.college.upenn.edu/sectors-policy)).

2. Students are encouraged to take some courses outside of their concentration.

### Honors

Applicants must have an overall GPA of 3.3 and a GPA of 3.5 in the major.

<table>
<thead>
<tr>
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<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>SOCI 301</td>
<td>Thesis Workshop II</td>
<td></td>
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<tr>
<td>SOCI 399</td>
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<td></td>
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<tr>
<td></td>
<td>Senior Thesis</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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### Sociology: Quantitative Methods, BA

The Sociology major helps students identify and explain patterns of social life and human behavior by emphasizing how large-scale social phenomena (such as class, race, and gender inequality) affect the everyday experiences of individuals and vice versa. The major prepares students for a career in a variety of fields such as law, medicine and healthcare, marketing, education, scholarly and applied social research, social work, demography, journalism and media, management in the public and private sectors, administration, and government. The program offers comprehensive advising and significant research and independent study opportunities. Our program is dedicated to nurturing a strong community of scholars, helping them grow academically and professionally under the large-scale mission of the College of Arts & Sciences.

Sociologists pursue knowledge in many ways, one of which is through the examination of society through surveys, demographic data, and statistical models. In this concentration, students will become familiar with quantitative methods in sociology, both with respect to how to use them in general (e.g., Introduction to Demographic Methods) and how they are used for specific topics (e.g., Health of Populations).

The minimum total course units ([https://www.college.upenn.edu/credits-needed-major](https://www.college.upenn.edu/credits-needed-major)) for graduation in this major is 34. Double majors may entail more course units.

A minimum of 11 course units must be in Sociology.

For more information: [https://sociology.sas.upenn.edu/quantitative_methods](https://sociology.sas.upenn.edu/quantitative_methods)
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
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<td>Major Requirements</td>
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<td></td>
<td>Introductory Course</td>
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<td>Select 1 course unit in Advanced Research Methods course</td>
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<tr>
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<td>Select 1 course unit in Statistics</td>
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<tr>
<td></td>
<td>Option 2:</td>
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<tr>
<td></td>
<td>SOCI 535 Quantitative Methods in Sociology I</td>
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</table>

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

² Students are encouraged to take some courses outside of their concentration.

**Honors**

Applicants must have an overall GPA of 3.3 and a GPA of 3.5 in the major.

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<td></td>
<td>SOCI 399 Independent Study (Or Approved Course)</td>
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<td>Senior Thesis</td>
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</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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**Sociology: Sociology of Culture, BA**

The Sociology major helps students identify and explain patterns of social life and human behavior by emphasizing how large-scale social phenomena (such as class, race, and gender inequality) affect the everyday experiences of individuals and vice versa. The major prepares students for a career in a variety of fields such as law, medicine and healthcare, marketing, education, scholarly and applied social research, social work, demography, journalism and media, management in the public and private sectors, administration, and government. The program comprehensive advising and significant research and independent study opportunities. Our program is dedicated to nurturing a strong community of scholars, helping them grow academically and professionally under the large-scale mission of the College of Arts & Sciences.

The sociology of culture investigates an aspect of human life that is central to its definition: the origins and development of meaning - religious, moral, normative, aesthetic, cognitive - and how they are expressed in and serve to shape human conduct. Processes of cultural innovation and cultural stability are examined in various social institutions and settings of American, Middle Eastern, European, and Asian societies.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

A minimum of 11 course units must be taken in Sociology.

For more information: https://sociology.sas.upenn.edu/sociology_of_culture

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Major Requirements</td>
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<td></td>
<td>Introductory Course</td>
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<td>2</td>
</tr>
<tr>
<td></td>
<td>Research Poster</td>
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</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Students are encouraged to take some courses outside of their concentration.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Complete Research Poster

Total Course Units 34

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Students are encouraged to take some courses outside of their concentration.

Honors

Applicants must have an overall GPA of 3.3 and a GPA of 3.5 in the major.

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<td></td>
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</tr>
<tr>
<td>SOCI 300</td>
<td>Thesis Workshop</td>
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<tr>
<td>SOCI 301</td>
<td>Thesis Workshop II</td>
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<tr>
<td>SOCI 399</td>
<td>Independent Study (Or Approved Course)</td>
<td></td>
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<tr>
<td></td>
<td>Senior Thesis</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Sociology: Sociology of Families and Populations, BA

The Sociology major helps students identify and explain patterns of social life and human behavior by emphasizing how large-scale social phenomena (such as class, race, and gender inequality) affect the everyday experiences of individuals and vice versa. The major prepares students for a career in a variety of fields such as law, medicine and healthcare, marketing, education, scholarly and applied social research, social work, demography, journalism and media, management in the public and private sectors, administration, and government. The program offers comprehensive advising and significant research and independent study opportunities. Our program is dedicated to nurturing a strong community of scholars, helping them grow academically and professionally under the large-scale mission of the College of Arts & Sciences.

The family is one of the most important institutions in any society, and it is critical to the socialization of each generation and the stability and functioning of the larger society. Family systems vary across cultures and have changed dramatically in the United States in recent decades. Understanding the causes and consequences of such variation is a central focus of social research. Family change is reflected in demographic patterns through its impact on fertility, marriage, divorce, migration, and mortality. Population processes also respond to technological factors, economic change and social policy. The study of population patterns provides an opportunity to investigate quantitatively the interactions between large social aggregates and the behavior of individuals.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

A minimum of 11 course units must be in Sociology.

For more information: https://sociology.sas.upenn.edu/sociology_of_families_and_populations

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Foundational Approaches + Sectors + Free Electives</td>
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<td></td>
<td><strong>Introductory Course</strong></td>
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</tr>
<tr>
<td>SOCI 001</td>
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<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Sociological Theory</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Social Research Methods</strong></td>
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<tr>
<td>SOCI 100</td>
<td>Introduction to Sociological Research</td>
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</tr>
<tr>
<td></td>
<td>Select 1 course unit in Advanced Research Methods</td>
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<tr>
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<td>Select 1 course unit in Statistics</td>
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<tr>
<td></td>
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<td>Complete Research Poster</td>
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<td></td>
<td><strong>Total Course Units</strong></td>
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</tbody>
</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Students are encouraged to take some courses outside of their concentration.

Honors

Applicants must have an overall GPA of 3.3 and a GPA of 3.5 in the major.

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<td><strong>Requirements</strong></td>
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<td>SOCI 300</td>
<td>Thesis Workshop</td>
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<tr>
<td>SOCI 301</td>
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<td></td>
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</tbody>
</table>

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consult with their academic program regarding final certifications and requirements for graduation.

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**Sociology: Sociology of Health and Medicine, BA**

The Sociology major helps students identify and explain patterns of social life and human behavior by emphasizing how large-scale social phenomena (such as class, race, and gender inequality) affect the everyday experiences of individuals and vice versa. The major prepares students for a career in a variety of fields such as law, medicine and healthcare, marketing, education, scholarly and applied social research, social work, demography, journalism and media, management in the public and private sectors, administration, and government. The program offers comprehensive advising and significant research and independent study opportunities. Our program is dedicated to nurturing a strong community of scholars, helping them grow academically and professionally under the large-scale mission of the College of Arts & Sciences.

Conceptions of health and illness, although not uniform the world over or even in any one society, are of fundamental importance in every society. In this concentration, students focus on the following topics: How health is defined in various societies; how the ill are viewed by the well; how illness is treated; who the healers are, how they are trained, and what their position is in society; the relationships among the religion, class, gender, and age of the ill and their healers; and when and how public health policies are inaugurated.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

A minimum of 11 course units must be in Sociology.

**For more information:** https://sociology.sas.upenn.edu/sociology_health_and_medicine

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tbody>
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<tr>
<td>Foundational Approaches + Sectors 1 + Free Electives</td>
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<tr>
<td><strong>Major Requirements</strong></td>
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<tr>
<td>Introductory Course</td>
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<tr>
<td>SOCI 001</td>
<td>Introduction to Sociology</td>
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</tr>
<tr>
<td><strong>Sociological Theory</strong></td>
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<tr>
<td>Select 1 course unit in Sociological Theory</td>
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</tr>
<tr>
<td><strong>Social Research Methods</strong></td>
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<tr>
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<td>Select 3 course units in Concentration</td>
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1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Students are encouraged to take some courses outside of their concentration.

**Honors**

Applicants must have an overall GPA of 3.3 and a GPA of 3.5 in the major.

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**Sociology: Structures of Opportunity and Inequality, BA**

The Sociology major helps students identify and explain patterns of social life and human behavior by emphasizing how large-scale social phenomena (such as class, race, and gender inequality) affect the everyday experiences of individuals and vice versa. The major prepares students for a career in a variety of fields such as law, medicine and healthcare, marketing, education, scholarly and applied social research, social work, demography, journalism and media, management in the public and private sectors, administration, and government. The program offers comprehensive advising and significant research and independent study opportunities. Our program is dedicated to nurturing a strong community of scholars, helping them grow academically and professionally under the large-scale mission of the College of Arts & Sciences.

What is the balance of individual self-determination and institutionalized constraint in shaping people’s lives? Social institutions such as the educational system and the economy sort people and distribute rewards, but their workings are profoundly shaped by persistent inequalities of class, ethnicity, gender, age, race, and nationality. How and why do such inequalities persist? How might opportunities be more fairly distributed? What sorts of individual and collective action affect existing structures of constraint?
The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

A minimum of 11 course units must be in Sociology.

**For more information:** https://sociology.sas.upenn.edu/structures_opportunity_inequality

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
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<td><strong>Major Requirements</strong></td>
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<tr>
<td></td>
<td><strong>Introductory Course</strong></td>
<td></td>
</tr>
<tr>
<td>SOCI 001</td>
<td>Introduction to Sociology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Sociological Theory</strong></td>
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</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td><strong>Social Research Methods</strong></td>
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</tr>
<tr>
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<tr>
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<td><strong>Sociology of Opportunity and Inequality Concentration</strong></td>
<td>3</td>
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<td>Select 3 course units in Concentration</td>
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<tr>
<td></td>
<td><strong>Additional SOCI Courses</strong></td>
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<td></td>
<td>Select 4 course units in SOCI Free²</td>
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<tr>
<td></td>
<td><strong>SOCI or Related Courses</strong></td>
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</tr>
<tr>
<td></td>
<td>Select 2 course units in SOCI or Related</td>
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</tr>
<tr>
<td></td>
<td><strong>Research Poster</strong></td>
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<tr>
<td></td>
<td>Complete Research Poster</td>
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</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>34</td>
</tr>
</tbody>
</table>

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

² Students are encouraged to take some courses outside of their concentration.

### Honors

Applicants must have an overall GPA of 3.3 and a GPA of 3.5 in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
<td>20</td>
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<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
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<td></td>
<td><strong>Introductory Course</strong></td>
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<tr>
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<tr>
<td>SOCI 100</td>
<td>Introduction to Sociological Research</td>
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<td>Select 1 course unit in Advanced Research Methods</td>
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<tr>
<td></td>
<td>Select 1 course unit in Statistics</td>
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</tr>
<tr>
<td></td>
<td><strong>Urban Sociology Concentration</strong></td>
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</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Sociology: Urban Sociology, BA

The Sociology major helps students identify and explain patterns of social life and human behavior by emphasizing how large-scale social phenomena (such as class, race, and gender inequality) affect the everyday experiences of individuals and vice versa. The major prepares students for a career in a variety of fields such as law, medicine and healthcare, marketing, education, scholarly and applied social research, social work, demography, journalism and media, management in the public and private sectors, administration, and government. The program offers comprehensive advising and significant research and independent study opportunities. Our program is dedicated to nurturing a strong community of scholars, helping them grow academically and professionally under the large-scale mission of the College of Arts & Sciences.

Neighborhoods, cities, and metropolitan areas are communities defined by geographic, economic, legal, political, cultural, and social boundaries. The characteristics distinguishing urban areas that affect social interactions include density of concentration of residents and firms-relative homogeneity in ethnicity, class, education, language, and income of neighbors; shared representations, such as sports teams; common meeting places and facilities, such as churches, schools, clubs, restaurants, and businesses; and facilities of communication and transportation. How does the configuration of urban areas affect opportunities for employment, education, health, and safety? What shapes the interactions within and across neighborhoods? Why are jobs suburbanizing? Why are neighborhoods and schools segregated by race, ethnicity, and income?

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

A minimum of 11 course units must be in Sociology.

**For more information:** https://sociology.sas.upenn.edu/urban_sociology

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
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<tr>
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<td>Foundational Approaches + Sectors¹ + Free Electives</td>
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</tr>
<tr>
<td></td>
<td>Select 1 course unit in Advanced Research Methods</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit in Statistics</td>
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<tr>
<td></td>
<td><strong>Urban Sociology Concentration</strong></td>
<td></td>
</tr>
</tbody>
</table>

² Students are encouraged to take some courses outside of their concentration.

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2018-19 Catalog | Generated 08/30/18
Select 3 course units in Concentration  
**Additional SOCI Courses**  
Select 4 course units in SOCI Free  
**SOCI or Related Courses**  
Select 2 course units in SOCI or Related  
Research Poster  
Complete Research Poster  
Total Course Units  

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. Students are encouraged to take some courses outside of their concentration.

### Honors
Applicants must have an overall GPA of 3.3 and a GPA of 3.5 in the major.

#### Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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<tr>
<td>SOCI 300</td>
<td>Thesis Workshop</td>
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<tr>
<td>SOCI 301</td>
<td>Thesis Workshop II</td>
<td></td>
</tr>
<tr>
<td>SOCI 399</td>
<td>Independent Study (Or Approved Course)</td>
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<tr>
<td>Senior Thesis</td>
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</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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### South Asia Studies, BA

South Asia Studies is an interdisciplinary field focusing on the history, languages, society, literature, and art from India, Pakistan, Bangladesh, Nepal, Sri Lanka, Afghanistan, and Bhutan. We are America's oldest and arguably most distinguished South Asia regional studies program dealing with the past and contemporary life of one-fifth of the world's population and teaching more languages than any other South Asian studies program in the US. Having a deep knowledge of the country set to outpace the US as the second largest economy in the world in an increasingly competitive global job market gives graduates a competitive edge over others with more generic skills. Make your home in a department where you get to know your Faculty and they know you as an individual, whether as a major or double major. You don’t have to know anything about India or be South Asian to find a home with us; just be curious!

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: http://www.southasia.upenn.edu/undergraduate

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### Theatre Arts, BA

The Theatre Arts program focuses on all intellectual and creative aspects of theatre and performance studies. Our courses link academic...
approaches to the theatre such as the study of dramatic literature, theory, history, and criticism, to practical aspects of performance such as acting, directing, designing, devising, and playwriting. Special features of our program include faculty-directed productions, which are taught as courses for credit, and extracurricular programs such as workshops and talks with visiting artists, staged readings, and theatre outings. One special highlight of our program is the Edinburgh Project. On alternating years, majors are selected to enroll in a course that develops a performance piece that travels to the Edinburgh Festival Fringe in Scotland. The honors thesis is another special opportunity in which majors who are accomplished in both academic and production work are invited to work on honors thesis projects, which may be based on practice such as acting, directing, and design or on scholarly research.

Penn Theatre Arts graduates proceed to a wide array of successful careers, both in and out of the theatre. Our majors are well-prepared to enter professional MFA programs in acting, directing, or design, as well as doctoral programs. We also count among our alumni not only those who are successful in theatre and film as artists, producers, and business people, but also those who flourish in unrelated fields, such as medicine and law.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 33. Double majors may entail more course units.

**For more information:** [http://theatre.sas.upenn.edu](http://theatre.sas.upenn.edu)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
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<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
<td>20</td>
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<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
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<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>THAR 101</td>
<td>Theatre, History, Culture I: From Classical to the Middle Classes</td>
<td>1</td>
</tr>
<tr>
<td>THAR 102</td>
<td>Theatre, History, Culture II: Romantics, Realists and Revolutionaries</td>
<td>1</td>
</tr>
<tr>
<td>THAR 120</td>
<td>Introduction to Acting</td>
<td>1</td>
</tr>
<tr>
<td>THAR 121</td>
<td>Introduction to Directing</td>
<td>1</td>
</tr>
<tr>
<td>THAR 125</td>
<td>The Play: Structure, Style, Meaning</td>
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<tr>
<td>THAR 130</td>
<td>Introduction to Light, Set, and Costume Design</td>
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<td>Select 1 course unit from the following Advanced Topic range:</td>
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<td>THAR 270 - THAR 279</td>
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<tr>
<td></td>
<td><strong>Electives</strong></td>
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<td>Select 6 course units of Electives ²</td>
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<tr>
<td></td>
<td><strong>Practicum Requirement</strong></td>
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<td>Complete the Practicum Requirement</td>
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<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>33</td>
</tr>
</tbody>
</table>
| ¹         | You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement ([http://www.college.upenn.edu/sectors-policy](http://www.college.upenn.edu/sectors-policy)).

² Courses may be taken in other departments, in consultation with the Undergraduate Chair.

### Honors

**Honors Credit**

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Urban Studies, BA

Urban Studies students are interested in making a difference and connecting to real world issues. To do this well, students learn about urban history and current challenges. They come to understand how policy at the national level and global economic trends affect what we see at the local, even neighborhood level. In a broad, theoretical sense, the central intellectual frame of Urban Studies is about understanding how people and resources are distributed in space and defines what kinds of places result. Urban Studies students take this understanding to explain the conditions of urban places and work towards creating places that foster equity, better health outcomes, environmental sustainability, and a better quality of life. In addition to urban studies coursework and coursework in a disciplinary concentration, all of our students complete an internship for credit and carry out an original research project.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

Urban Studies is a flexible major and requires conferring with an advisor to tailor a set of courses that fit your interests. This online worksheet is meant as a planning tool; before you will be accepted to the major, you are required to meet with an Urban Studies advisor to go over your plans and address your questions.

**For more information:** [http://www.sas.upenn.edu/urban/students/-major](http://www.sas.upenn.edu/urban/students/-major)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
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<tr>
<td></td>
<td>Foundational Approaches + Sectors¹ + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Introduction to Urban Research</strong></td>
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<tr>
<td>URBS 200</td>
<td>Urban Research Methods</td>
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</tr>
<tr>
<td></td>
<td><strong>Fieldwork Seminar</strong></td>
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<td>URBS 300</td>
<td>Fieldwork Seminar</td>
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<td></td>
<td><strong>Senior Seminar</strong></td>
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<tr>
<td>URBS 400</td>
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<tr>
<td></td>
<td><strong>The Discipline Cluster</strong></td>
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</table>
Select 3 course units of Discipline Cluster courses in a particular department or program

*Urban Studies Themes*
- Select 1 course unit in History of Cities 1
- Select 1 course unit in Comparative and Theoretical Dimensions 1
- Select 1 course unit in The Built Environment 1
- Select 1 course unit in Urban Economics / Finance 1
- Select 1 course unit in Public Policy / Government 1
- Select 2 additional course units in any theme 2

Total Course Units: 34

You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

**Honors**

**Requirement.** A minimum grade of A- in URBS 400 Senior Seminar.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBS 401</td>
<td>Urban Studies Honors (or Honors Paper)</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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**Visual Studies: Architecture Practice and Technology, BA**

Visual Studies at the University of Pennsylvania prepares students to forge innovative connections across the disciplines that study vision and images. Students acquire a critical awareness of seeing and the problems and possibilities for investigating, thinking, and writing about seeing in the 21st century. Fundamentally interdisciplinary, the Visual Studies Program partners with the Departments of Philosophy, Psychology, History of Art, Fine Arts, and Architecture. Students may also find interest in Penn Programs such as Cinema Studies and Gender, Sexuality, and Women’s Studies or outside of the School of Arts and Sciences in the Annenberg School of Communication, and the School of Engineering and Applied Science.

Sector C enables students to develop skills in the making of art ranging from the two- and three-dimensional to digital and time-based media, and includes both fine arts and architecture tracks.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 36. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/visual-studies

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
Honors
Applicants must have a minimum GPA of 3.70 in the major.

- Senior Project Completed (Grade of A)

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Visual Studies: Art and Culture of Seeing, BA

Visual Studies at the University of Pennsylvania prepares students to forge innovative connections across the disciplines that study vision and images. Students acquire a critical awareness of seeing and the problems and possibilities for investigating, thinking, and writing about seeing in the 21st century. Fundamentally interdisciplinary, the Visual Studies Program partners with the Departments of Philosophy, Psychology, History of Art, Fine Arts, and Architecture. Students may also find interest in Penn Programs such as Cinema Studies and Gender, Sexuality, and Women’s Studies or outside of the School of Arts and Sciences in the Annenberg School of Communications, and the School of Engineering and Applied Sciences.

In Sector B, students explore the status of images as representations or models of visual experience and as bearers of information, and they develop skills in interpreting artifacts visually.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/visual-studies

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
Stage 4 · Capstone Course

VLST 395  Senior Project (Year-Long Course)  1

Total Course Units  35

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Important - Check for Pre-Requisites on PSYC and some FNAR courses.

3 Four courses (4 course units) in your concentration and one course (1 course unit) from another Sector. (Note: No Stage 2 courses may be double-counted in Stage 3).

Honors

Applicants must have a minimum GPA of 3.70 in the major.

- Senior Project Completed (Grade of A)

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Visual Studies: Art, Practice and Technology, BA

Visual Studies at the University of Pennsylvania prepares students to forge innovative connections across the disciplines that study vision and images. Students acquire a critical awareness of seeing and the problems and possibilities for investigating, thinking, and writing about seeing in the 21st century. Fundamentally interdisciplinary, the Visual Studies Program partners with the Departments of Philosophy, Psychology, History of Art, Fine Arts, and Architecture. Students may also find interest in Penn Programs such as Cinema Studies and Gender, Sexuality, and Women's Studies or outside of the School of Arts and Sciences in the Annenberg School of Communications, and the School of Engineering and Applied Sciences.

Sector C enables students to develop skills in the making of art ranging from the two- and three-dimensional to the digital and time-based media, and includes both fine arts and architecture tracks.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 35. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/visual-studies

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.
VLST 395  Senior Project (Year-Long Course)  1

Total Course Units  35

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Important - Check for Pre-Requisites on PSYC and some FNAR courses.

3 Four courses (4 course units) in your concentration and one course (1 course unit) from another Sector. (Note: No Stage 2 courses may be double-counted in Stage 3).

Honors
Applicants must have a minimum GPA of 3.70 in the Major.

• Senior Project Completed (Grade of A)

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Visual Studies: Philosophy and Science of Seeing, BA

Visual Studies at the University of Pennsylvania prepares students to forge innovative connections across the disciplines that study vision and images. Students acquire a critical awareness of seeing and the problems and possibilities for investigating, thinking, and writing about seeing in the 21st century. Fundamentally interdisciplinary, the Visual Studies Program partners with the Departments of Philosophy, Psychology, History of Art, Fine Arts, and Architecture. Students may also find interest in Penn Programs such as Cinema Studies and Gender, Sexuality, and Women’s Studies or outside of the School of Arts and Sciences in the Annenberg School of Communications, and the School of Engineering and Applied Sciences.

In Sector A, students learn about the physiology and psychology of seeing; perception of color, movement, space, objects, and events; and issues in philosophy of vision from ancient to contemporary.

For more information: https://www.sas.upenn.edu/visual-studies

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
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</table>

College General Education Requirements and Free Electives
Foundational Approaches + Sectors1 + Free Electives  20

Major Requirements
Stage 1 - Core Courses
VLST 101  Eye, Mind, and Image  1
VLST 102  Form and Meaning  1
or VLST 103  3 Dimensions: Time and Space  1

Stage 2 - Core Courses

Select 2 courses from each Sector:  6

A. Philosophy and Science of Seeing:  2

| PSYC 111/ VLST 211 | Perception |
| or BIBB/ PSYC/VLST 217 | Visual Neuroscience |

| PSYC 311/ VLST 212 | Research Experience in Perception |
| or VLST 305 What is an Image? |

Select one of the following:

| PHIL/PPE | Introduction to Philosophy of Mind |
| 244/VLST 221 |
| PHIL 423/ VLST 223 | Philosophy and Visual Perception |
| PHIL 330/ VLST 222 | Philosophy of Perception |

B. Art and the Culture of Seeing:

| ARTH 102/ VLST 232 | Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present |
| or ARTH 278 American Art |
| or ARTH 286 Modern Art: Picasso to Pollock |

| ARTH 294/ VLST 236 | Art Now |
| or VLST 303 The Rise of Image Culture: History and Theories |

Select one of the following:

| ARTH 103/ EALC 013/ VLST 233 | Art and Civilization in East Asia |
| ARTH 104/ SAST 200/ VLST 234 | Introduction to Art in South Asia |
| ARTH/VLST 235 | Introduction to Visual Culture of the Islamic World |

C. Art Practice and Technology:

| VLST 102 | Form and Meaning (course not used in Stage 1) |
| or VLST 103 3 Dimensions: Time and Space |

Select one of the following:

| FNAR 061/ VLST 261 | Video I |
| FNAR 123/ VLST 253 | Drawing I |
| FNAR/VLST 264 | Art, Design and Digital Culture |
| or one approved alternate course (See Website) |

| VLST 301 | What is Visual Studies? |

Stage 1 - Concentration Requirements
Philosophy and Science of Seeing:  2

Select 4 course units of Phil/Science  4
Select 1 course unit of Art/Culture or Art Pract/Technol  1

Stage 4 - Capstone Course

VLST 395  Senior Project (Year-Long Course)  1

Total Course Units  35
You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

Important - Check for Pre-Requisites on PSYC and some FNAR courses.

Four courses (4 course units) in your concentration and one course (1 course unit) from another Sector. (Note: No Stage 2 courses may be double-counted in Stage 3).

Honors
Applicants must have a minimum GPA of 3.70 in the Major.
- Senior Project Completed (Grade of A)

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

East Asian Languages and Civilizations: Korean, BA

The undergraduate program in EALC offers language training and courses in the culture, history, literature, and archaeology of East Asia. The graduate program in EALC deals with two major areas, China and Japan (a graduate program in Korean is planned for the future), and all of its programs focus mainly upon language, philology, and the study of civilization and culture. Each provides training for the Ph.D. and A.M. degrees.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: https://www.sas.upenn.edu/ealc/undergraduate/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>KORN 011 Elementary Korean I</td>
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<td>KORN 012 Elementary Korean II</td>
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<tr>
<td>KORN 111 Intermediate Korean I</td>
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<tr>
<td>KORN 112 Intermediate Korean II</td>
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<tr>
<td>KORN 211 Advanced Korean I</td>
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<td>KORN 212 Advanced Korean II</td>
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<table>
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<td>EALC 001 Introduction to Chinese Civilization</td>
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<td>or EALC 002 Introduction to Japanese Civilization</td>
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Honors
Additional Electives & Thesis

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<td></td>
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<td>Honors Thesis</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Comparative Literature: (Trans)national Literatures, BA

The undergraduate program in Comparative Literature welcomes students interested in the study of literature from theoretical, interdisciplinary, cross-cultural, and global perspectives. The core courses train students to appreciate the variety of meanings that texts acquire in different institutional and philosophical contexts and different socio-political frameworks. There are three concentrations within the major: National and Transnational Literatures (four courses in each of two languages), Theory, and Globalization.

Comparative Literature is a flexible program, allowing students to take courses in a variety of departments in the College. Students with interests in more than one national literature and in fields such as philosophy and political theory, art and aesthetics, and film and music will find the requirements congenial. The program provides students with a cosmopolitan intellectual background that is increasingly in demand today.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://ccat.sas.upenn.edu/Complit/undergraduate.htm
For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<th>Code</th>
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<th>Course Units</th>
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<td>Core Requirements</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>COML 100 Introduction to Literary Study</td>
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<tr>
<td></td>
<td>or COML 125 Narrative Across Cultures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or COML 191 World Literature</td>
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<tr>
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<td>Core Course 2:</td>
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<tr>
<td></td>
<td>COML 094 Introduction to Literary Theory</td>
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<td></td>
<td>or COML 383 Topics in Literary Theory</td>
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<tr>
<td></td>
<td>COML 399 Independent Study</td>
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<tr>
<td></td>
<td>COML 498 Honors Thesis &amp; COML 499 and Independent Study</td>
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<td></td>
<td>Comparative Literature Electives 2</td>
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<td>Select 1 Theory elective</td>
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<td></td>
<td>Select 1 Non-Western or Post-Colonial elective</td>
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<td></td>
<td>Select 1 COML elective</td>
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<tr>
<td></td>
<td>Concentration Requirements 3</td>
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<td></td>
<td>Select 8 courses in two national literatures (4 in each) 4</td>
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1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2 Must be COML courses.
3 All Concentration courses to be chosen in consultation with the Undergraduate Chair.
4 At least one concentration (4 course units) must be taken in a language other than English.

Honors

Applicants must have an overall GPA of 3.4 and a GPA of 3.6 in Major Related courses.

<table>
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<th>Code</th>
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<tr>
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<td>COML 499 Independent Study (required)</td>
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</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Comparative Literature: Theory, BA

The undergraduate program in Comparative Literature welcomes students interested in the study of literature from theoretical, interdisciplinary, cross-cultural, and global perspectives. The core courses train students to appreciate the variety of meanings that texts acquire in different institutional and philosophical contexts and different socio-political frameworks. There are three concentrations within the major: National and Transnational Literatures (four courses in each of two languages), Theory, and Globalization.

Comparative Literature is a flexible program, allowing students to take courses in a variety of departments in the College. Students with interests in more than one national literature and in fields such as philosophy and political theory, art and aesthetics, and film and music will find the requirements congenial. The program provides students with a cosmopolitan intellectual background that is increasingly in demand today.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://ccat.sas.upenn.edu/Complit/undergraduate.htm

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Major Requirements</td>
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<td>Core Requirements</td>
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<tr>
<td></td>
<td>Core Course 1</td>
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<tr>
<td></td>
<td>COML 100 Introduction to Literary Study</td>
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</tr>
<tr>
<td></td>
<td>or COML 125 Narrative Across Cultures</td>
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<td>or COML 191 World Literature</td>
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<tr>
<td></td>
<td>Core Course 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COML 094 Introduction to Literary Theory</td>
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<td>or COML 383 Topics in Literary Theory</td>
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<td>Core Course 3: Capstone Seminar or Thesis</td>
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<tr>
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<td>Select one of the following</td>
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<td>COML 399 Independent Study</td>
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<tr>
<td></td>
<td>COML 498 Honors Thesis &amp; COML 499 and Independent Study</td>
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<tr>
<td></td>
<td>Advanced Elective</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comparative Literature Electives 2</td>
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<td>Select 1 Non-Western or Post-Colonial elective</td>
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<td>Concentration Requirements 3</td>
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<td>Select 4 Theory Courses 5</td>
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<tr>
<td></td>
<td>Select 4 Advanced Literature or Film Courses 6</td>
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<tr>
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<td>Total Course Units</td>
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</table>
Africana Studies is an interdisciplinary field of study devoted to the critical and systematic examination of the cultural, political, social, economic, and historical experiences of African Americans, Africans, and peoples of African descent around the world. Our course of study is designed to provide students with an integrated understanding and appreciation for a new global black studies. An undergraduate degree in Africana Studies prepares students for graduate work in the humanities, social sciences, and professional schools, as well as a range of careers in teaching, business, public service, and the arts, among others.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

African Language courses do not count toward the Major Requirements.

For more information: https://africana.sas.upenn.edu/department/undergraduate

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>AFRC 001</td>
<td>Introduction to Africana Studies</td>
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<td>AFST 190</td>
<td>Introduction to Africa</td>
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### Category Requirements

#### Humanities Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
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<td>AFRC 325</td>
<td>Performance in the African Diaspora</td>
<td>1</td>
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<tr>
<td>or AFRC 176</td>
<td>Afro-American History 1550-1876</td>
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<tr>
<td>or AFRC 177</td>
<td>Afro-American History 1876 to Present</td>
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#### Social Science Course

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<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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<tbody>
<tr>
<td>AFRC 006</td>
<td>Race and Ethnic Relations</td>
<td>1</td>
</tr>
<tr>
<td>or AFRC 307</td>
<td>Race, Science and Justice</td>
<td></td>
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<tr>
<td>or SOCI 006</td>
<td>Race and Ethnic Relations</td>
<td></td>
</tr>
<tr>
<td>or SOCI 307</td>
<td>Race, Science &amp; Justice</td>
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### Methodology Course

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>AFRC 322</td>
<td>American Slavery and the Law (or similar)</td>
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#### Research Course

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<tr>
<th>Code</th>
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<td>AFRC 499</td>
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### Concentration

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>AFRC 399</td>
<td>Independent Study</td>
<td>1</td>
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</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

African Language courses do not count toward the Major Requirements.

For more information: https://africana.sas.upenn.edu/department/undergraduate

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

East Asian Languages and Civilizations: East Asian Area Studies, BA

East Asian Studies focuses on East Asia as a region of the world and human experience, and provides an integrated curriculum drawing on the approaches of the social sciences and the humanities. The program requires relevant courses in areas including history, international relations, political science, sociology, legal studies, and East Asian arts and cultures, while maintaining high standards in language study.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: https://ceas.sas.upenn.edu/academics/east-asia-area-studies-major

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

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<td>Core Requirements</td>
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<tr>
<td>AFRC 001</td>
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</tr>
<tr>
<td>AFST 190</td>
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<td></td>
<td>Social Science Course</td>
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<tr>
<td>AFRC 006</td>
<td>Race and Ethnic Relations</td>
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<tr>
<td>or AFRC 307</td>
<td>Race, Science and Justice</td>
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<td>or SOCI 006</td>
<td>Race and Ethnic Relations</td>
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<td>or SOCI 307</td>
<td>Race, Science &amp; Justice</td>
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<td>Methodology Course</td>
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<tr>
<td>AFRC 120</td>
<td>Social Statistics</td>
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<tr>
<td>or SOCI 120</td>
<td>Social Statistics</td>
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<tr>
<td>Research Course (^2)</td>
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<td>AFRC 322</td>
<td>American Slavery and the Law (or similar)</td>
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<td>Concentration (^3)</td>
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<td>Total Course Units</td>
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\(^1\) You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

\(^2\) Select a Research Course at the 300-400 level.

\(^3\) Must include one history course.

Honors

A minimum GPA of 3.3 is required. Please consult with the Program Director for further details of requirements.

<table>
<thead>
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</table>

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Near Eastern Languages & Civilizations: Persian Language & Literature, BA

Persian Language and Literature focuses on the language and culture of Iran from the premodern to the modern periods as well as in the context of Islamic Civilization. Because of the interdependence of language and culture, a primary emphasis is on gaining mastery of Persian, alongside coursework in history, religion, and culture.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

For more information: http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_major.html

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<td></td>
<td>Foundational Approaches + Sectors ¹ + Free Electives</td>
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<td>Major Requirements</td>
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<td></td>
<td>Language Requirement</td>
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<td>Breadth Requirement</td>
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<td>NELC 101/ANCH 025/HIST 024</td>
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<td>NELC 102 Introduction to the Middle East ¹</td>
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<td>Concentration Requirements ³</td>
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<td>Total Course Units</td>
<td>34</td>
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</tbody>
</table>

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
² Up to 4 course units of electives may be taken in place of the language requirement. Consult with major advisor.
³ One of the above may be a general East Asia course.
⁴ Can be fulfilled by other requirements.
⁵ To be chosen in consultation with the Major Advisor.

Honors

Required: A minimum overall GPA of 3.0 and 3.5 in major related courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Russian and East European Studies: Language, Literature and Culture, BA

The major in Russian and East European Studies provides a program of study that enables a broad multi-disciplinary and multi-cultural understanding of the languages, literatures, cultures, histories, and societies of Russia, Central and Eastern European, and the Balkan and Baltic regions. For the language requirement, students can choose any regional language offered at Penn (i.e. Bosnian/Croatian/Serbian, Hungarian, Polish, Russian, Ukrainian) or in which they can demonstrate an equivalent proficiency. In addition to linguistic flexibility, the major allows students to pursue their specific disciplinary interests through three concentrations: Language, Literature, and Culture; History, Politics, and Society; and Cinema, Arts, and Letters. Majors are encouraged to complete a summer or semester abroad to gain first-hand understanding of the communities they study and to advance their language competency. The major offers an honors option.

Knowledge of Russian and East European languages and cultures is a marketable and impressive skill, whether you are in academia, arts, law, medicine, governmental service, public interest, business, or politics. Russian and East European majors and minors land jobs in a variety of settings. They go on to work in business as financial and policy analysts for American and foreign companies. They work for NGOs, publishing houses, or the media. They teach abroad and consult in marketing, advertising, aerospace, or computer engineering. And, of course, some work as educators in universities and schools and as employees of the US government.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: http://ccat.sas.upenn.edu/slavic
Russian and East European Studies: History, Politics and Society, BA

The major in Russian and East European Studies provides a program of study that enables a broad multi-disciplinary and multi-cultural understanding of the languages, literatures, cultures, histories, and societies of Russia, Central and Eastern European, and the Balkan and Baltic regions. For the language requirement, students can choose any regional language offered at Penn (i.e. Bosnian/Croatian/Serbian, Hungarian, Polish, Russian, Ukrainian) or in which they can demonstrate an equivalent proficiency. In addition to linguistic flexibility, the major allows students to pursue their specific disciplinary interests through three concentrations: Language, Literature, and Culture; History, Politics, and Society; and Cinema, Arts, and Letters. Majors are encouraged to complete a summer or semester abroad to gain first-hand understanding of the communities they study and to advance their language competency. The major offers an honors option.

Knowledge of Russian and East European languages and cultures is a marketable and impressive skill, whether you are in academia, arts, law, medicine, governmental service, public interest, business, or politics. Russian and East European majors and minors land jobs in a variety of settings. They go on to work in business as financial and policy analysts for American and foreign companies. They work for NGOs, publishing houses, or the media. They teach abroad and consult in marketing, advertising, aerospace, or computer engineering. And, of course, some work as educators in universities and schools and as employees of the US government.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: http://ccat.sas.upenn.edu/slavic

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>College General Education Requirements and Free Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors + Free Electives</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Major Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Russian and East European Studies Core</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>1</td>
</tr>
<tr>
<td>EEUR 010</td>
<td>Central and Eastern Europe: Cultures, Histories, Societies</td>
<td></td>
</tr>
<tr>
<td>RUSS 010</td>
<td>Intro to Russia and Eurasia: Histories, Cultures, Societies</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Concentration Requirements</strong></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Select 2 courses to fulfill the Advanced Language Requirement</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Select 5 Literature and Culture courses</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 4 Electives</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Students take seven REES courses* with language, literature, and cultural studies content. * Note that some REES courses (defined as those with RUSS and EEUR course numbers) are offered through Penn Language Center (PLC) (http://plc.sas.upenn.edu)

3 Students must complete the advanced language program in any regional language approved by the Undergraduate Chair or demonstrate equivalent proficiency. In most cases, students fulfill this requirement by taking two advanced 400-level or 500-level language courses or their equivalent in any regional language approved by the Undergraduate Chair.

4 Chronological, Disciplinary, and Distribution requirements must be met with Literature & Culture and free elective courses.

5 Students must take at least one broad survey course that covers the period before 1800, one that covers the period before 1900 and one that covers the period after 1900 to fulfill the Chronological Distribution requirement.

Honors

Applicants must have a minimum overall 3.3 and a GPA of 3.5 in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 399</td>
<td>Supervised Work</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2 Students take seven REES courses* with history, political science, and other social sciences content. 400-level or 500-level (or equivalent) content-based language courses may be counted towards this requirement. * Note that some REES courses (defined as those with RUSS and EEUR course numbers) are offered through Penn Language Center (PLC) (http://plc.sas.upenn.edu)

3 Chronological, Disciplinary, and Geographical requirements must be met with concentration and free elective courses.

4 Students must take at least one broad survey course that covers the period before 1800, one that covers the period before 1900 and one that covers the period after 1900 to fulfill the Chronological Distribution requirement.

5 Students must take at least one course with historical content, one with political science content, and one with other social sciences (such as economics or sociology) content to fulfill the Disciplinary Distribution requirement.

Honors
Applicants must have a minimum overall 3.3 and a GPA of 3.5 in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 399</td>
<td>Supervised Work</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Russian and East European Studies: Cinema, Arts and Letters, BA

The major in Russian and East European Studies provides a program of study that enables a broad multi-disciplinary and multi-cultural understanding of the languages, literatures, cultures, histories, and societies of Russia, Central and Eastern Europe, and the Balkan and Baltic regions. For the language requirement, students can choose any regional language offered at Penn (i.e. Bosnian/Croatian/Serbian, Hungarian, Polish, Russian, Ukrainian) or in which they can demonstrate an equivalent proficiency. In addition to linguistic flexibility, the major allows students to pursue their specific disciplinary interests through three concentrations: Language, Literature, and Culture; History, Politics, and Society; and Cinema, Arts, and Letters. Majors are encouraged to complete a summer or semester abroad to gain first-hand understanding of the communities they study and to advance their language competency. The major offers an honors option.

Knowledge of Russian and East European languages and cultures is a marketable and impressive skill, whether you are in academia, arts, law, medicine, governmental service, public interest, business, or politics. Russian and East European majors and minors land jobs in a variety of settings. They go on to work in business as financial and policy analysts for American and foreign companies. They work for NGOs, publishing houses, or the media. They teach abroad and consult in marketing, advertising, aerospace, or computer engineering. And, of course, some work as educators in universities and schools and as employees of the US government.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 32. Double majors may entail more course units.

For more information: http://ccat.sas.upenn.edu/slavic

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
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<tbody>
<tr>
<td></td>
<td>College General Education Requirements and Free Electives</td>
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</tr>
<tr>
<td></td>
<td>Foundational Approaches + Sectors 1 + Free Electives</td>
<td>20</td>
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</tbody>
</table>

Major Requirements

Russian and East European Studies Core

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>EEUR 010</td>
<td>Central and Eastern Europe: Cultures, Histories, Societies</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 010</td>
<td>Intro to Russia and Eurasia: Histories, Cultures, Societies</td>
<td>4</td>
</tr>
</tbody>
</table>

Concentration Requirements 2

Select 7 courses 3,4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RUSS 020 Central and Eastern Europe: Cultures, Histories, Societies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>RUSS 011 Intro to Russia and Eurasia: Histories, Cultures, Societies</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RUSS 020 Central and Eastern Europe: Cultures, Histories, Societies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>RUSS 011 Intro to Russia and Eurasia: Histories, Cultures, Societies</td>
<td>4</td>
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</table>

Electives

Select 4 Electives 3,4,5

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RUSS 020 Central and Eastern Europe: Cultures, Histories, Societies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>RUSS 011 Intro to Russia and Eurasia: Histories, Cultures, Societies</td>
<td>4</td>
</tr>
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</table>

Total Course Units 32

1 You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).

2 Students take seven REES courses* with cinema studies, art history, and literature content. 400-level or 500-level (or equivalent) content-based language courses may be counted towards this requirement. * Note that some REES courses (defined as those with RUSS and EEUR course numbers) are offered through Penn Language Center (PLC) (http://plc.sas.upenn.edu)

3 Chronological, Disciplinary, and Geographical requirements must be met with concentration and free elective courses.

4 Because the language of cinema in this part of the world is deeply historical and cultural, students must take at least one broad survey course that covers the period before 1800, one that covers the period before 1900 and one that covers the period after 1900 to fulfill the Chronological Distribution requirement.

5 Students must take at least one course with cinema studies content, one course with art history content, and one with literature content to fulfill the Disciplinary Distribution requirement.

Honors
Applicants must have a minimum overall 3.3 and a GPA of 3.5 in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 399</td>
<td>Supervised Work</td>
<td>1</td>
</tr>
</tbody>
</table>
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Nutrition Science, BA**

Jointly sponsored by the College of Arts and Sciences and the School of Nursing, the second major in Nutrition Science builds on a student’s basic science skills with a deep dive into the science of nutrition. Linkages of nutritional compounds and dietary approaches with health and disease, novel approaches to the study of nutritional impact on health, and future avenues of exploration in the field are examined. Elective courses in anthropology, biology, economics, physiology, psychology, health care, and public policy provide a rounded context for the study of nutrition science.

The minimum total course units (https://www.college.upenn.edu/credits-needed-major) for graduation in this major is 34. Double majors may entail more course units.

**For more information:** https://www.nursing.upenn.edu/nutrition-major/

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (https://www.college.upenn.edu/curriculum) page.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>College General Education Requirements and Free Electives</strong></td>
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<td></td>
</tr>
<tr>
<td>Foundational Approaches + Sectors + Free Electives</td>
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<td>20</td>
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<tr>
<td><strong>Major Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Required Basic Science Courses</strong></td>
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<td></td>
</tr>
<tr>
<td>Biology</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Recommended for students with A.P., I.B.:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 121 Introduction to Biology - The Molecular Biology of Life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 123 Introductory Molecular Biology Laboratory</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>BIOL 124 Introductory Organismal Biology Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended for students with one year of high school biology</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BIOL 101 Introduction to Biology A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 102 Introduction to Biology B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 101 General Chemistry I</td>
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</tr>
<tr>
<td>CHEM 102 General Chemistry II</td>
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<td>1</td>
</tr>
<tr>
<td>CHEM 241 Principles of Organic Chemistry</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Biochemistry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 204 Biochemistry</td>
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<td>1</td>
</tr>
<tr>
<td><strong>Required Nutrition Science Courses</strong></td>
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<td></td>
</tr>
<tr>
<td>NURS 112 Nutrition: Science &amp; Applications</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>NURS 312 Nutritional Aspects of Disease</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>NURS 523 Advanced Nutrition: Molecular Basis of Nutrition</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>NURS 524 Advanced Human Nutrition and Micronutrient Metabolism</td>
<td></td>
<td>1</td>
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</tbody>
</table>

**Elective Courses**

Select 4 course units of electives (see website for list of suggested courses) 4

Total Course Units 34

1. You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (http://www.college.upenn.edu/sectors-policy).
2. BIOL 123 Introductory Molecular Biology Laboratory must be concurrent with BIOL 121 Introduction to Biology - The Molecular Biology of Life.
3. 3 course units count as 2 for this major.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Minors**

- Actuarial Mathematics, Minor (p. 136)
- Africana Studies, Minor (p. 136)
- American Public Policy, Minor (p. 137)
- American Sign Language and Deaf Studies, Minor (p. 137)
- Ancient History, Minor (p. 137)
- Anthropology, Minor (p. 138)
- Archaeological Science, Minor (p. 138)
- Architectural History, Minor (p. 138)
- Architecture, Minor (p. 139)
- Asian American Studies, Minor (p. 139)
- Bioethics, Minor (p. 139)
- Biological Basis of Behavior, Minor (p. 139)
- Biology, Minor (p. 140)
- Biophysics, Minor (p. 140)
- Chemistry, Minor (p. 141)
- Cinema and Media Studies, Minor (p. 141)
- Classical Studies, Minor (p. 141)
- Cognitive Science, Minor (p. 142)
- Comparative Literature, Minor (p. 142)
- Computational Neuroscience, Minor (p. 143)
- Consumer Psychology, Minor (p. 143)
- Creative Writing, Minor (p. 144)
- Design, Minor (p. 144)
- Digital Humanities, Minor (p. 144)
- Dutch (Netherlandic), Minor (p. 145)
- East Asian Area Studies, Minor (p. 145)
- East Asian Languages and Civilizations
  - Chinese, Minor (p. 165)
  - Japanese, Minor (p. 165)
  - Korean, Minor (p. 165)
- East Central European Studies, Minor (p. 145)
- Economic Policy, Minor (p. 146)
• Economics, Minor (p. 146)
• English, Minor (p. 146)
• Environmental Science, Minor (p. 167)
• Environmental Studies, Minor (p. 147)
• European Studies, Minor (p. 147)
• Fine Arts, Minor (p. 148)
• French and Francophone Studies, Minor (p. 148)
• Gender, Sexuality, and Women's Studies, Minor (p. 149)
• Geology, Minor (p. 149)
• German, Minor (p. 149)
• Global Medieval Studies, Minor (p. 166)
• Health Care Management, Minor (p. 149)
• Hispanic Studies, Minor (p. 150)
• History and Legal Studies, Minor (p. 150)
• History of Art, Minor (p. 164)
• History, Minor (p. 151)
• International Development, Minor (p. 151)
• International Relations, Minor (p. 151)
• Italian Studies
  • Italian Culture, Minor (p. 164)
  • Italian Literature, Minor (p. 152)
• Jewish Studies, Minor (p. 152)
• Journalism, Minor (p. 153)
• Landscape Studies, Minor (p. 153)
• Latin American and Latino Studies, Minor (p. 153)
• Law and Society, Minor (p. 153)
• Linguistics, Minor (p. 154)
• Logic, Information, and Computation, Minor (p. 154)
• Mathematics, Minor (p. 155)
• Medical Sociology, Minor (p. 155)
• Modern Middle Eastern Studies, Minor (p. 156)
• Music
  • Jazz and Popular Music, Minor (p. 156)
  • Music, Minor (p. 156)
• Native American and Indigenous Studies, Minor (p. 157)
• Near Eastern Languages & Civilizations
  • Ancient Near East, Minor (p. 157)
  • Arabic & Hebrew Studies, Minor (p. 164)
  • Arabic & Islamic Studies, Minor (p. 157)
  • Hebrew & Judaica, Minor (p. 164)
  • Persian Language & Literature, Minor (p. 167)
• Nutrition, Minor (p. 158)
• Philosophy, Minor (p. 158)
• Physics, Minor (p. 158)
• Political Science, Minor (p. 159)
• Psychoanalytic Studies, Minor (p. 159)
• Psychology, Minor (p. 159)
• Religious Studies, Minor (p. 160)
• Russian and East European Studies
  • Russian Culture and History, Minor (p. 160)
  • Russian Language, Literature and Culture, Minor (p. 161)
• Science, Technology and Society, Minor (p. 161)
• Sociology, Minor (p. 161)
• South Asia Studies, Minor (p. 162)
• Statistics, Minor (p. 234)
• Survey Research and Data Analytics, Minor (p. 162)
• Sustainability and Environmental Management, Minor (p. 162)
• Theatre Arts, Minor (p. 163)
• Urban Education, Minor (p. 166)
• Urban Real Estate and Development, Minor (p. 163)
• Urban Studies, Minor (p. 163)

**Actuarial Mathematics, Minor**

Actuarial Science stands at the intersection of risk and money. Actuaries use their knowledge of mathematics and probability theory to define, analyze and solve complex business, financial and social problems. Actuaries evaluate individual and corporate risks, and design financially sound insurance and pension plans. Graduates from the University of Pennsylvania with an Actuarial Mathematics Minor are expected to be in great demand by the insurance and banking industry.

**For more information:** https://www.math.upenn.edu/undergraduate/math-majors-and-minors/minor-actuarial-mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>MATH 240</td>
<td>Calculus, Part III</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
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</tr>
<tr>
<td>MATH 320</td>
<td>Computer Methods in Mathematical Science I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 530</td>
<td>Mathematics of Finance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other with permit</td>
<td></td>
</tr>
<tr>
<td>STAT 430</td>
<td>Probability</td>
<td>1</td>
</tr>
<tr>
<td>STAT 431</td>
<td>Statistical Inference</td>
<td>1</td>
</tr>
<tr>
<td>STAT/BEPP 451</td>
<td>Fundamentals of Actuarial Science I</td>
<td>1</td>
</tr>
<tr>
<td>STAT/BEPP 452</td>
<td>Fundamentals of Actuarial Science II</td>
<td>1</td>
</tr>
<tr>
<td>STAT/BEPP 454</td>
<td>Applied Statistical Methods for Actuaries</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select an additional INSR course (see list on web)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>8</td>
</tr>
</tbody>
</table>

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**Africana Studies, Minor**

Africana Studies is an interdisciplinary field of study devoted to the critical and systematic examination of the cultural, political, social, economic, and historical experiences of African Americans, Africans, and peoples of African descent around the world. Our course of study is designed to provide students with an integrated understanding and appreciation for a new global black studies. An undergraduate degree in Africana Studies prepares students for graduate work in the humanities,
social sciences, and professional schools, as well as a range of careers in teaching, business, public service, and the arts, among others.

For more information: https://africana.sas.upenn.edu/department/undergraduate

African Language courses do not count toward the Minor Requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFRC 001</td>
<td>Introduction to Africana Studies</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 5 course units of African American or Caribbean or Latin American centered courses with 3 course units intermediate or upper level and no more than 2 African Caribbean or Latin American centered courses</td>
<td>5</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

American Public Policy, Minor

The minor in American Public Policy enables undergraduates interested in American Public Policy to construct an integrated program across the University. The minor — for students who do not major or concentrate in PSCI or BEPP — requires six courses, three from each department, in addition to the course work required for their major or concentration.

For more information: https://www.sas.upenn.edu/polisci/node/867

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSCI 130</td>
<td>Introduction to American Politics</td>
<td>1</td>
</tr>
<tr>
<td>BEPP 201</td>
<td>Public Finance and Policy</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of PSCI courses</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of BEPP courses</td>
<td>2</td>
</tr>
<tr>
<td>Total Course Units</td>
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<td>6</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

American Sign Language and Deaf Studies, Minor

The ASL/Deaf Studies Program at Penn offers ASL instruction grounded in Deaf cultural experiences and perspectives for the purpose of attaining ASL proficiency for real-world applications in both coursework and future professional endeavors. The course of study for the minor in ASL and Deaf Studies is interdisciplinary, with foundations in language, content, and theory-based courses. Furthermore, as our program has long-standing and steadfast commitment to working in and with local Deaf community organizations for meaningful, mutually beneficial outcomes, we partner with local Deaf community organizations to integrate academic rigor and Deaf cultural values into our coursework. We do so with two organizations primarily, the Deaf-Hearing Communication Centre in Swarthmore, PA and Pennsylvania School for the Deaf in the Germantown section of Philadelphia. Ultimately, these collaborative relationships manifest in a research-based capstone course, Academically Based Community Service in ASL and Deaf Studies, providing opportunities for merging research with practice in a Deaf community setting.

For more information: http://www.ling.upenn.edu/undergraduate/minor-asl

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>LING 075</td>
<td>American Sign Language V</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or LING 076 Deaf Literature, Performance, Art, and Film</td>
<td></td>
</tr>
<tr>
<td>LING 078</td>
<td>Defa Culture</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Linguistic Foundational Courses</td>
<td></td>
</tr>
<tr>
<td>LING 001</td>
<td>Introduction to Linguistics</td>
<td>1</td>
</tr>
<tr>
<td>LING 102</td>
<td>Introduction to Sociolinguistics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Capstone Fieldwork</td>
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</tr>
<tr>
<td>LING 077</td>
<td>ASL/Deaf Studies - ABCS</td>
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<td></td>
<td>Cross-Disciplinary Elective</td>
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<td>Select 1 course unit of Cross-Disciplinary elective</td>
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<tr>
<td>Total Course Units</td>
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</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Ancient History, Minor

Classical Studies encompasses the civilization of the ancient Greeks and Romans from prehistory to the Middle Ages, with emphasis on the literature, philosophy and history of the classical Greek and Roman periods. It includes economic, political and social and intellectual history as well as philosophy, archaeology, religion and myth. Students may choose a track that emphasizes the study of texts in Greek and/or Latin, or they may opt for a program of courses that do not require any knowledge of the ancient languages.

For more information: http://www.classics.upenn.edu/
Anthropology, Minor

Anthropology is the global social science. It is the study of the human condition everywhere; its cultural, linguistic, and biological diversity; and how it evolved and developed from the prehistoric past into the globalizing present. The Anthropology minor is a 6 credit minor, in which students are encouraged to draw from all sub-fields of the discipline.

For more information: https://www.sas.upenn.edu/anthropology/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 6 course units of Anthropology courses</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

1 No more than 4 courses from any one field (Cultural/Linguistic, Archaeology, Human Biology) can be applied to the minor.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Archaeology, Minor

Archaeological Science, Minor

The Minor in Archaeological Science consists of six course units. Of these six, four will be CAAM classes from introductory, intermediate and advanced levels; one must be an advanced class with an archaeological science research component (the capstone class); and one must be a class in the archaeology or culture of a relevant area.

To Declare:

Students interested in declaring a Minor in Archaeological Science should contact Dr. Marie-Claude Boileau at mboileau@upenn.edu.

Architectural History, Minor

The Architectural History Minor aims to deepen students’ knowledge of artistic production and practice over the scope of human history. A Minor program in architectural history may complement the student’s Major in a cognate field, or it may be unrelated to the student’s primary field instruction.

For more information: http://www.sas.upenn.edu/arthistory/undergraduate/minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tr>
<td>Minor Requirements</td>
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<td></td>
</tr>
<tr>
<td>Survey Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH 106  Architect and History</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ARTH 102  Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Architectural History Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of any 200, 400, or 500 Level course</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of any 200 or 400 Level course</td>
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<td></td>
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<tr>
<td>Total Course Units</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

1 See department for list of approved courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Architecture, Minor

The minor in Architecture is for students with another major who seek to gain a basic knowledge of architecture and acquire basic skills in architectural design.

For more information: www.architecture.sas.upenn.edu

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
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</tr>
<tr>
<td>Studio Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARCH 102 Introduction to Design</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ARCH 201 Design Fundamentals I</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>ARCH 202 Design Fundamentals II</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Art History Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH 102 Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ARTH 106 Architect and History</td>
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</tr>
</tbody>
</table>

Total Course Units 6

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Bioethics, Minor

The Penn Bioethics minor is designed to give students a broad overview of the methods, core content areas and central ethical questions in the field of bioethics. The Bioethics minor is an interdisciplinary program created through a collaboration of the Departments of Anthropology, History and Sociology of Science, Philosophy, Political Science, and Sociology in the College of Arts and Sciences, and Medical Ethics & Health Policy in the Perelman Medical School.

For more information: http://www.sas.upenn.edu/bioethics/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<td>Minor Requirements</td>
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<td></td>
</tr>
<tr>
<td>Select 1 course unit of Historical courses</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of Normative courses</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of Policy &amp; Culture courses</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of Elective</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Course Units 6

Content Areas & Course Type Requirements

- Research Ethics
- Clinical Ethics
- Allocation
- Seminar Course
- Comparative Course

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Asian American Studies, Minor

Asian American Studies explores the historical and contemporary experiences of Asian immigrants and of persons of Asian ancestry in North America, and the relevance of those experiences for understanding race and ethnicity in national and global contexts. The program introduces students to the methods and concerns of a wide spectrum of disciplines: anthropology and ethnography, economics, history, law, literature, sociology and demography, political science, and urban studies, as well as creative and expository writing.

For more information: http://asam.sas.upenn.edu/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
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<tbody>
<tr>
<td>Minor Requirements</td>
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</tr>
<tr>
<td>Core Courses</td>
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<tr>
<td>Select 2 of the following:</td>
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<td></td>
</tr>
<tr>
<td>ASAM 001 Asian Americans in Contemporary Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASAM 002 Asian American Literature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASAM 003 Introduction to Asian American History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other ASAM Courses</td>
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<td></td>
</tr>
<tr>
<td>Select 3 course units of other ASAM courses</td>
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</tr>
<tr>
<td>ASAM or Related Courses</td>
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<td></td>
</tr>
<tr>
<td>Select 1 course unit of ASAM or Related courses chosen in consultation with your Minor advisor</td>
<td>1</td>
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</table>

Total Course Units 6

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Biological Basis of Behavior, Minor

Biological Basis of Behavior is an interdisciplinary program in which students explore the relationship between behavior (both human and animal) and its organic bases. The Program offers courses in virtually all areas of neuroscience ranging from cellular neurobiology to cognitive neuropsychology and integrates these basic interdisciplinary courses with basic science requirements in biology, chemistry and psychology. Students also engaged in supervised research in areas as diverse as molecular neurobiology, chemical neuroanatomy, visual sciences and behavioral ecology.

For more information: http://www.sas.upenn.edu/bbb/requirements/
Biology, Minor

The Biology minor introduces students to fundamental topics in the areas of cell and molecular biology, genetics, physiology, and ecology and evolution. This broad range of coursework is designed to provide students with a sufficient background to understand the basics underlying many of the current advances in the field.

For more information: https://www.bio.upenn.edu/undergraduate/current-students/minor-requirements

Biophysics, Minor

Bridging the biological sciences and the physical sciences, Biophysics is concerned with physical and chemical explanations of living processes, especially at the cellular and molecular levels. Detailed molecular descriptions are emerging for genetic elements and for the mechanisms that control their propagation and expression. Biophysical studies include the investigation of protein structure, nucleic acid structure, enzyme mechanisms, the phenomena underlying cellular behavior, excitable phenomena in nerve, muscle and visual cells, and integrative neural phenomena.

For more information: http://www.physics.upenn.edu/biophysics/biopages/Minor.html
Select one of the following Options:

**Option 1:**
- **PHYS 150** Principles of Physics I: Mechanics and Wave Motion
- **PHYS 151** Principles of Physics II: Electromagnetism and Radiation
- **PHYS 170** Honors Physics I: Mechanics and Wave Motion
- **PHYS 171** Honors Physics II: Electromagnetism and Radiation

**Option 2:**
- **PHYS 093**
- **PHYS 094**
- **PHYS 364** Laboratory Electronics

**Total Course Units**

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Chemistry, Minor

Chemistry is concerned with the study of matter and the changes matter can undergo. The chemistry program provides a basic foundation for career opportunities in chemical research and teaching, in scientific communication and information transfer, and in the health professions. The chemistry minor provides an introduction to several areas of chemistry, providing exposure to both lecture and laboratory courses.

**For more information:** [http://www.chem.upenn.edu/node/9](http://www.chem.upenn.edu/node/9)

**Note:** Other departments’ courses may not be substituted.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td><strong>Minor Requirements</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Core Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Chemistry:</td>
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<td></td>
</tr>
<tr>
<td><strong>CHEM 101</strong> General Chemistry I</td>
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<td></td>
</tr>
<tr>
<td>or <strong>CHEM 115</strong> Honors Chemistry I</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHEM 102</strong> General Chemistry II</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>or <strong>CHEM 116</strong> Honors Chemistry II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Chemistry Laboratories:</td>
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<td></td>
</tr>
<tr>
<td><strong>CHEM 053</strong> General Chemistry Laboratory I</td>
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<td></td>
</tr>
<tr>
<td>&amp; <strong>CHEM 054</strong> General Chemistry Laboratory II</td>
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<td></td>
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<tr>
<td><strong>Upper Level Chemistry</strong></td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td><strong>CHEM 223</strong> Experimental Physical Chemistry I</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHEM 245</strong> Experimental Organic Chemistry</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHEM 246</strong> Advanced Synthesis and Spectroscopy</td>
<td></td>
<td></td>
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<tr>
<td>Laboratory</td>
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</tbody>
</table>

Select 3 course units of Upper Level Chemistry courses at the 200 level and above

**Total Course Units**

1. CHEM 299 Directed Study and Seminar & CHEM 399 Independent Research may NOT be counted.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Cinema and Media Studies, Minor

The Penn Cinema and Media Studies major and minor are traditional humanities programs involving the critical study of film and media history, theory, and aesthetics. Reflecting the hybrid nature of the field of Cinema and Media Studies, our faculty members are housed in departments across SAS and the university, and we cross-list courses with various departments and schools, including Africana Studies, Anthropology, Communications, East Asian Language and Civilizations, English, Fine Arts, German, History, History of Art, Near Eastern Languages and Civilizations, Romance Languages, Slavic Languages and Literatures, and Women's Studies. This truly interdisciplinary program will introduce students to the wide range of methodologies used to study film and media, and this intersection with other disciplines makes Cinema and Media Studies an ideal component of a double major.

**For more information:** [http://cinemastudies.sas.upenn.edu/undergraduate/minor](http://cinemastudies.sas.upenn.edu/undergraduate/minor)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td><strong>Minor Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Core Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CIMS 101</strong> World Film History to 1945</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>CIMS 102</strong> World Film History, 1945-present</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>CIMS 103</strong> Television and New Media</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Electives</strong></td>
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<td></td>
</tr>
<tr>
<td>Select 1 course unit of Non-American Cinema</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of Elective (Production &amp; Craft of Cinema maximum 2 course units)</td>
<td>3</td>
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<tr>
<td><strong>Total Course Units</strong></td>
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</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Classical Studies, Minor

Classical Studies encompasses the civilization of the ancient Greeks and Romans from prehistory to the Middle Ages, with emphasis on the literature, philosophy and history of the classical Greek and Roman periods. It includes economic, political and social and intellectual history.
as well as philosophy, archaeology, religion and myth. Students may choose a track that emphasizes the study of texts in Greek and/or Latin, or they may opt for a program of courses that do not require any knowledge of the ancient languages. The Classical Studies Department provides extensive training at the Undergraduate level as well as graduate training in both Classical Studies and Ancient History.

For more information: http://www.classics.upenn.edu/

Please see Undergraduate Chair for details on course approval.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>ANCH 026</td>
<td>Ancient Greece</td>
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</tr>
<tr>
<td>or ANCH 027</td>
<td>Ancient Rome</td>
<td></td>
</tr>
<tr>
<td>Select 5 course units of CLST or Other courses</td>
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<td></td>
</tr>
<tr>
<td>Total Course Units</td>
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<td>6</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Cognitive Science, Minor

Cognitive science is the empirical study of intelligent systems, including the human mind. An interdisciplinary science, it combines results from biology, computer science, linguistics, mathematics, neuroscience, philosophy and psychology to the study of language processing, perception, action, learning, concept formation, inference and other activities of the mind, with applications for information technology and the study of artificial intelligence.

For more information: https://web.sas.upenn.edu/cogsci/program/minor/

<table>
<thead>
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<th>Code</th>
<th>Title</th>
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<tr>
<td>COGS 001</td>
<td>Introduction to Cognitive Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS 140/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LING 105/</td>
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<tr>
<td>PHIL 044/</td>
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<tr>
<td>PSYC 207</td>
<td></td>
<td></td>
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<tr>
<td>PSYC 001</td>
<td>Introduction to Experimental Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 151</td>
<td>Language and Thought</td>
<td></td>
</tr>
<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming</td>
<td></td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
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</tr>
<tr>
<td>PHIL 005/</td>
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<tr>
<td>LGIC 010</td>
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<tr>
<td>BIBB 249/</td>
<td>Cognitive Neuroscience</td>
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<tr>
<td>PSYC 149</td>
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<tr>
<td>BIBB/BIOL/</td>
<td>Introduction to Brain and Behavior</td>
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<tr>
<td>PSYC 109</td>
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<tr>
<td>Concentration Requirement</td>
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<tr>
<td>Select two courses from a single concentration:</td>
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</tr>
<tr>
<td>Cognitive Neuroscience</td>
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<td></td>
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<tr>
<td>Computation and Cognition</td>
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<td></td>
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<tr>
<td>Language and Mind</td>
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<tr>
<td>Total Course Units</td>
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<td>6</td>
</tr>
</tbody>
</table>

1 Consult with Undergraduate Chair.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Comparative Literature, Minor

The undergraduate program in Comparative Literature welcomes students interested in the study of literature from theoretical, interdisciplinary, cross-cultural, and global perspectives. The core courses train students to appreciate the variety of meanings that texts acquire in different institutional and philosophical contexts and different socio-political frameworks. There are three concentrations within the major: National and Transnational Literatures (four courses in each of two languages), Theory, and Globalization.

Comparative Literature is a flexible program, allowing students to take courses in a variety of departments in the College. Students with interests in more than one national literature and in fields such as philosophy and political theory, art and aesthetics, and film and music will find the requirements congenial. The program provides students with a cosmopolitan intellectual background that is increasingly in demand in an era of globalization.

The minor in Comparative Literature requires students to take an introductory course and a course in theory, along with an open selection of four literature and film courses.

For more information: http://ccat.sas.upenn.edu/Complit/undergraduate.htm
COML 094  Introduction to Literary Theory  1
Select 1 course unit of COML Elective  1
Select 3 course units of courses in any national or comparative literature  3
Total Course Units  6

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Computational Neuroscience, Minor

The BBB Program has established a new cross-school, inter-disciplinary Minor in Computational Neuroscience, which is an emerging field involving the application of quantitative methods to the analysis of neural circuits and the brain. In brief, the Minor requires eight courses, four core classes and four electives, the latter encouraging breadth. No more than five of these courses can also be used to fulfill requirements for another major or minors.

For more information: http://www.sas.upenn.edu/bbb/content/computational-neuroscience-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>MINOR</td>
<td>Minor Requirements</td>
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<tr>
<td>Core</td>
<td>Requirements</td>
<td></td>
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<tr>
<td>BIBB/BIOL</td>
<td>Introduction to Brain and Behavior 109</td>
<td>1</td>
</tr>
<tr>
<td>BIBB/BIOL</td>
<td>Molecular and Cellular Neurobiology 251</td>
<td>1.5</td>
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<tr>
<td>BIBB/PHYS</td>
<td>Theoretical and Computational Neuroscience 539</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 399</td>
<td>Independent Research</td>
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</tr>
<tr>
<td>Electives</td>
<td>Select 4 course units of Electives</td>
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<td>Total Course Units</td>
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For more information: https://psychology.sas.upenn.edu/more-information-minors

<table>
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<tr>
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<tr>
<td>MKTG 101</td>
<td>Introduction to Marketing</td>
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<tr>
<td>MKTG 211</td>
<td>Consumer Behavior</td>
<td>1</td>
</tr>
<tr>
<td>MKTG 212</td>
<td>Data and Analysis for Marketing Decisions</td>
<td>1</td>
</tr>
<tr>
<td>MKTG 271</td>
<td>Models for Marketing Strategy</td>
<td></td>
</tr>
<tr>
<td>MKTG 309</td>
<td>Special Topics: Experiments for Business Decision Making</td>
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<tr>
<td>MKTG 476</td>
<td>Applied Probability Models for Marketing</td>
<td></td>
</tr>
<tr>
<td>MKTG 940</td>
<td>Measurement and Data Analysis in Marketing - Part A</td>
<td></td>
</tr>
<tr>
<td>MKTG 941</td>
<td>Measurement and Data Analysis in Marketing - Part B</td>
<td></td>
</tr>
<tr>
<td>MKTG 942</td>
<td>Research Methods in Marketing - Part A</td>
<td>1</td>
</tr>
<tr>
<td>MKTG 943</td>
<td>Research Methods in Marketing - Part B</td>
<td></td>
</tr>
</tbody>
</table>

Total Course Units  9

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Consumer Psychology, Minor

The goal of the interschool Consumer Psychology Minor is to create a program that fosters the natural link between Psychology in the College and Marketing in Wharton. To fulfill the Minor in Consumer Psychology students must complete four courses from the Psychology Department in the College and four courses from the Marketing Department in Wharton, and the stats requirement. Both College and Wharton requirements will consist of core courses along with a set of elective courses. College students who wish to minor in Consumer Psychology must count two of the four required psychology (PSYC) courses towards only the Consumer Psychology minor (and towards no other major or minor).

For more information: http://www.sas.upenn.edu/bbb/content/computational-neuroscience-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINOR</td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td>Core</td>
<td>Requirements</td>
<td></td>
</tr>
<tr>
<td>PSYC 001</td>
<td>Introduction to Experimental Psychology</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 170</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 266</td>
<td>Introduction to Positive Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 272</td>
<td>Evolutionary Psychology</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>Select 1 course unit of the courses not used or a 300 or a 400-level course in Social Psychology or Decision Making</td>
<td>1</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>
Creative Writing, Minor

Creative Writing is the study of writing and literature with an emphasis on cultivating students' own approach to craft. Students can choose from a range of workshops in fiction, creative nonfiction, poetry, screenwriting, playwriting, or journalism, all of which expose them to a range of writing in the field and give them opportunities to craft their own original work. Students can minor in Creative Writing by completing four workshop courses and two courses in the study of literature.

For more information: http://writing.upenn.edu/cw/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINR</td>
<td>Creative Writing Workshops</td>
<td>4</td>
</tr>
<tr>
<td>MINR</td>
<td>Literary Writing in the English Language</td>
<td>2</td>
</tr>
<tr>
<td>MINR</td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

1 course unit may be taken in the literature of a language other than English.

Digital Humanities, Minor

The Undergraduate Minor in Digital Humanities is offered by the School of Arts and Sciences at the University of Pennsylvania. It has been designed for students who want to augment their disciplinary studies in the humanities or humanistic social sciences with advanced digital research techniques and in-depth engagement with theoretical and practical questions raised by digital humanities. Students who are not majoring in humanities fields are also welcome to complete the minor.

For more information: https://pricelab.sas.upenn.edu/education/digital-humanities-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL</td>
<td>Introduction to Digital Humanities</td>
<td>1</td>
</tr>
<tr>
<td>CIS</td>
<td>Computational Data Exploration</td>
<td>1</td>
</tr>
<tr>
<td>CIS</td>
<td>Introduction to Computer Programming</td>
<td>1</td>
</tr>
<tr>
<td>PSCI</td>
<td>Introduction to Data Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS</td>
<td>Visualizing the Past.</td>
<td>1</td>
</tr>
</tbody>
</table>

Design, Minor

Minor in Design, established in 2010, is for those students with another major who seek to gain a basic knowledge of the creative process of design and to acquire the basic skills necessary to link design with other disciplines in the arts and sciences.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH</td>
<td>Design Fundamentals I</td>
<td>2</td>
</tr>
<tr>
<td>ARCH</td>
<td>Design Fundamentals II</td>
<td>2</td>
</tr>
<tr>
<td>FNAR</td>
<td>3-D Design</td>
<td>2</td>
</tr>
<tr>
<td>FNAR</td>
<td>and Art, Design and Digital Culture</td>
<td>2</td>
</tr>
<tr>
<td>VLST</td>
<td>Form and Meaning</td>
<td>2</td>
</tr>
<tr>
<td>VLST</td>
<td>and 3 Dimensions: Time and Space</td>
<td>2</td>
</tr>
<tr>
<td>ARCH</td>
<td>Design I (or equivalent)</td>
<td>2</td>
</tr>
<tr>
<td>ARCH</td>
<td>Select 1 course unit of Studio course in consultation with your Minor advisor</td>
<td>1</td>
</tr>
<tr>
<td>FNAR</td>
<td>Select 2 course units of Design-Related courses in subjects other than ARCH or FNAR</td>
<td>2</td>
</tr>
<tr>
<td>CLST</td>
<td>The Material Past in a Digital World</td>
<td>1</td>
</tr>
<tr>
<td>COMM</td>
<td>Quantitative Research Methods in Communication</td>
<td>1</td>
</tr>
<tr>
<td>COMM</td>
<td>Big Data and Social Research</td>
<td>1</td>
</tr>
<tr>
<td>PSCI</td>
<td>Introduction to Data Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS</td>
<td>Visualizing the Past.</td>
<td>1</td>
</tr>
</tbody>
</table>
Dutch (Netherlandic), Minor

The Dutch-speaking Low Countries (the Netherlands and part of Belgium) are a unique cultural community of about 22 million speakers in North-Western Europe. The names of famous Dutch artists readily come to mind: Rembrandt, Rubens, Breughel, Van Eyck, Mondriaan, as do some of the cities where they lived: Amsterdam, Brussels, Leyden, Maastricht. But artists do not flourish in a vacuum. Each of these artists assumes a cultural, political, economic, and historical context that is worthy of study in its own right. The resources in Dutch Studies at Penn offer students and faculty the ability to learn more about:

- The Dutch Economy
- The Dutch Language
- The Netherlands and Belgium During the Nazi Occupation
- The Literature and Culture of the Dutch Colonial Period

For more information: https://www.sas.upenn.edu/germanic/languages/dutch

Intensive Summer study in Zeist or Gent can also count toward Minor requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTCH 101</td>
<td>Elementary Dutch I</td>
<td>1</td>
</tr>
<tr>
<td>DTCH 102</td>
<td>Elementary Dutch II</td>
<td>1</td>
</tr>
<tr>
<td>DTCH 103</td>
<td>Intermediate Dutch I</td>
<td>1</td>
</tr>
<tr>
<td>DTCH 104</td>
<td>Intermediate Dutch II</td>
<td>1</td>
</tr>
<tr>
<td>Literature, Culture, or History Requirements</td>
<td>Select 2 course units of Literature, Culture, or History Requirement courses</td>
<td>2</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

East Central European Studies, Minor

The Minor program in East Central European Studies offers students the opportunity for the interdisciplinary study of the language, history, politics, literature, and culture of Eastern and Central Europe. The minor requires a total of six courses (6 c.u.) beyond the language requirement (two semesters), which students can satisfy by choosing any regional language currently offered at Penn (i.e. Bosnian/Croatian/Serbian, Hungarian, Polish, Ukrainian, Yiddish), by completing language coursework through a study abroad program, or by demonstrating equivalent proficiency.

For more information: http://ccat.sas.upenn.edu/slavic/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Language Requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DTCH 101</td>
<td>Elementary Dutch I</td>
</tr>
<tr>
<td></td>
<td>DTCH 102</td>
<td>Elementary Dutch II</td>
</tr>
<tr>
<td></td>
<td>DTCH 103</td>
<td>Intermediate Dutch I</td>
</tr>
<tr>
<td></td>
<td>DTCH 104</td>
<td>Intermediate Dutch II</td>
</tr>
<tr>
<td></td>
<td>Literature, Culture, or History Requirements</td>
<td>Select 2 course units of Literature, Culture, or History Requirement courses</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td></td>
</tr>
</tbody>
</table>

East Asian Area Studies, Minor

East Asian Area Studies focuses on East Asia as a region of the world and human experience, and provides an integrated curriculum drawing on the approaches of the social sciences and the humanities. The program requires relevant courses in areas including history, international relations, political science, sociology, legal studies, and East Asian arts and cultures, while maintaining high standards in language study.

For more information: https://ceas.sas.upenn.edu/undergraduate/secondary-undergraduate-page

With intensive language courses (4 course units) the Minor will require 8 course units.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Language Requirement</td>
<td>Select a minimum of 2 course units in one language: Chinese, Japanese, or Korean</td>
</tr>
<tr>
<td></td>
<td>Gateway Course</td>
<td>Select 1 course unit in Introduction to China, Japan or Korea</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>Select a minimum of 3 course units of Electives in consultation with the Major Adviser</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select up to 2 course units of Electives in place of Language Requirement courses (Consult with Major Advisor)</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Economic Policy, Minor

Economics is a social science and as such an important component of the liberal arts curriculum. At the core of economics are theories of how individuals, firms, and other organizations make choices and interact, taking into account constraints on their behaviors. Among the topics studied in economics are: the determination of prices and quantities in various types of markets (from perfectly competitive commodity markets to highly regulated utility markets and internet auctions); the effects of taxes, subsidies, and regulations; the determination of aggregate economic activity (e.g., GDP, unemployment); inflation, monetary policy, and financial intermediation; economic growth and income distribution; international trade and international finance (e.g., exchange rates). Economic policy questions stand at the center of public policy debates in the U.S. and countries all around the world. The goal of the Economic Policy Minor is to provide students who are not majoring in economics with the analytical tools that are necessary to participate in and shape public policy debates. The foundation for the minor is provided by the microeconomics and macroeconomics principles courses. After having completed the principles courses, the student can choose a minimum of four elective courses, which apply the basic tools of economic analysis to specific policy questions. The completion of the Economic Policy Minor does not require university-level calculus courses.

For more information: http://economics.sas.upenn.edu/undergraduate-program/economic-policy-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Required 1</td>
<td></td>
</tr>
<tr>
<td>ECON 001</td>
<td>Introduction to Micro Economics</td>
<td>1</td>
</tr>
<tr>
<td>ECON 002</td>
<td>Introductory Economics: Macro</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select four of the following: 1,2</td>
<td>4</td>
</tr>
<tr>
<td>ECON 024</td>
<td>Development Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 030</td>
<td>Public Policy Analysis</td>
<td></td>
</tr>
<tr>
<td>ECON 033</td>
<td>Labor Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 032</td>
<td>Political Economy</td>
<td></td>
</tr>
<tr>
<td>ECON 035</td>
<td>Industrial Organization</td>
<td></td>
</tr>
<tr>
<td>ECON 036</td>
<td>Law and Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 039</td>
<td>Economics and Financing of Health Care Delivery</td>
<td></td>
</tr>
<tr>
<td>ECON 050</td>
<td>International Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 103</td>
<td>Statistics for Economists</td>
<td></td>
</tr>
</tbody>
</table>

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Economics, Minor

Economics is a social science and as such an important component of the liberal arts curriculum. At the core of economics are theories of how individuals, firms, and other organizations make choices and interact, taking into account constraints on their behaviors. Among the topics studied in economics are: the determination of prices and quantities in various types of markets (from perfectly competitive commodity markets to highly regulated utility markets and internet auctions); the effects of taxes, subsidies, and regulations; the determination of aggregate economic activity (e.g., GDP, unemployment); inflation, monetary policy, and financial intermediation; economic growth and income distribution; international trade and international finance (e.g., exchange rates). The Economics Minor is intended for students with a strong interest in rigorous economics who are majoring in related fields. For instance, this minor should be attractive for students who are majoring in political science or sociology, who are interested in quantitative data analysis, or students looking for an applied field that accompanies a major in mathematics.

For more information: http://economics.sas.upenn.edu/undergraduate-program/economics-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 001</td>
<td>Introduction to Micro Economics</td>
<td>1</td>
</tr>
<tr>
<td>ECON 002</td>
<td>Introductory Economics: Macro</td>
<td>1</td>
</tr>
<tr>
<td>ECON 101</td>
<td>Intermediate Microeconomics</td>
<td>1</td>
</tr>
<tr>
<td>Select 1 course unit at 200 level</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 2 course units of ECON Electives</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

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English, Minor

Students deciding to pursue English at Penn study language, literature, literary history and theories of literary production in a thirteen-course major of flexible design. While completing the language and literature requirement and the five required courses in the literary historical “core,” majors also pursue their own special literary interests in six-course
concentrations of their own choosing. English offers more than twenty
distinct concentrations, including several options for creative writers.

For more information: http://www.english.upenn.edu/undergraduate/
minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 020</td>
<td>Literature Before 1660</td>
<td>1</td>
</tr>
<tr>
<td>or ENGL 040</td>
<td>British Poetry 1660 - 1914</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of 200 Level Research Seminar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of ENGL courses</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of ENGL or Related course (with permission)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

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for students entering in the Fall of 2018 and later. Students should
consult with their academic program regarding final certifications and
requirements for graduation.

Environmental Studies, Minor

The Environmental Studies minor is designed to achieve an
understanding of the breadth of contemporary environmental issues
through a series of courses in environmental studies, while ensuring that
each student pursue a purposeful course of study in some traditionally
defined area of scholarship. Graduates of the program are trained for
professions directly or indirectly involved with problems of environmental
quality.

For more information: http://www.sas.upenn.edu/earth/minors/
environmental-studies-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 100</td>
<td>Introduction to Environmental Science</td>
<td>1</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOL 204</td>
<td>Global Climate Change</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 100</td>
<td>Introduction to Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 103</td>
<td>Natural Disturbances and Human Disasters</td>
<td></td>
</tr>
<tr>
<td>GEOL 125</td>
<td>Earth and Life Through Time</td>
<td></td>
</tr>
<tr>
<td>GEOL 130</td>
<td>Oceanography</td>
<td></td>
</tr>
<tr>
<td>ENVS 301</td>
<td>Environmental Case Studies</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit in Data Analysis &amp; Statistics</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit in Economics &amp; Policy</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 2 course units of 400 or 500-level Electives</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

European Studies, Minor

European Studies at Penn is an interdisciplinary minor and an ideal
addition to the study of many disciplines in the humanities and social
sciences. It supplements majors in history, political science, sociology
and art history as well as in French, German, English, Spanish, Italian and
Slavic languages. It is designed to give students access to:

- An understanding of Europe as a historical and cultural entity and its
  world leadership in business, politics and culture.
- A great variety of countries, cultures and languages whose
  interaction with each other and with the United States is an essential
  part of transatlantic culture.
- The institutions of a new Europe—European Union, Council of Europe,
  European Court of Human Rights—reflecting the largest experiment in
  building a global system of governance in human history.

For more information: https://www.college.upenn.edu/european

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 126</td>
<td>Modern Europe, 1789-1919</td>
<td>1</td>
</tr>
<tr>
<td>HIST 127</td>
<td>The Material Past in a Digital World</td>
<td></td>
</tr>
<tr>
<td>HIST 128</td>
<td>From Complete Destruction to Superpower:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe 1945-2013</td>
<td></td>
</tr>
<tr>
<td>PSCI 215</td>
<td>The European Union</td>
<td>1</td>
</tr>
<tr>
<td>PSCI 218</td>
<td>Politics of Post War Western Europe</td>
<td></td>
</tr>
</tbody>
</table>

Electives with European Component

Select 3 course units of Electives with European Component 1 3

European Politics & Culture

Select 2 course units of European Politics & Culture courses 2 2

Non-English Language

Select 1 course unit of Non-English Language course beyond
the Language Requirement level 1

Total Course Units 8

1 See pre-approved list.
2 See pre-approved list or consult adviser.

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consult with their academic program regarding final certifications and
requirements for graduation.
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### French and Francophone Studies, Minor

French and Francophone Studies introduces students to the full span of historical and cultural traditions from France and the French-speaking world. Languages courses - from introductory to advanced - promote linguistic fluency, building on the skills students have acquired in high school or at Penn. Upper-level seminars explore a range of topics pertaining to literature, history, visual arts, and/or the media, and they offer majors and minors the opportunity to engage in research on French and global Francophone cultures across periods into contemporary times.

For more information: [https://www.sas.upenn.edu/french/undergraduate/requirements-majors-and-minors/minor-french-francophone-studies](https://www.sas.upenn.edu/french/undergraduate/requirements-majors-and-minors/minor-french-francophone-studies)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FREN 212 Advanced French Grammar and Composition</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or FREN 214 Advanced French Composition and Conversation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Option I:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FNAR 123 Drawing I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>FNAR: Drawing Studio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option II:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FNAR 145 Sculpture Practices</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FNAR: Sculpture Studio or Ceramic Studio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option III:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FNAR 150 Photography Practices</td>
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<td>FNAR: Photography Studio</td>
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<td>FNAR 231 Painting Practices</td>
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<td></td>
<td>FNAR 264 Art, Design and Digital Culture</td>
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<td>FNAR: Design, Animation, or Video Studio</td>
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<td>Art History Requirement</td>
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<td>Studio Electives</td>
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<td>Select 4 course units of Electives at 200 and 300 level courses</td>
<td>4</td>
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<td></td>
<td>Total Course Units</td>
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</table>

1. At least 3 courses must be taken in the department at Penn. ALL courses must be taken in French.
2. Must be taken in the Department at Penn.
3. At least one must be taken in the Department at Penn.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Gender, Sexuality, and Women's Studies, Minor

The Gender, Sexuality and Women’s Studies Program is an interdisciplinary program that provides exciting intellectual opportunities to explore the role of gender in human affairs. The Gender, Sexuality and Women’s Studies Program offers over 50 courses each year, many cross-listed with other departments. GSWS offers a major, a minor, and a graduate certificate.

For more information: http://www.sas.upenn.edu/gsws/

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
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<td>Core Requirements</td>
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<tr>
<td>GSWS 002 Gender and Society</td>
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<td>GSWS 003 Introduction to Sexuality Studies and Queer Theory</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Total Course Units</td>
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</table>

1 Electives should be selected in consultation with the undergraduate chair of Gender, Sexuality, and Women’s Studies.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

German, Minor

The major and minor programs in the Department of Germanic Languages and Literatures provide deep understandings of language and cultures. Building from basic language competency to synthesizing significant literary works, historical context and current media and politics, the program offers a comprehensive education through engaged, active learning in a combination of core courses with a wide range of electives. Your learning experiences can be broadened and applied in study abroad as well as internship programs.

For more information: https://www.sas.upenn.edu/germanic/

<table>
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<td>GRMN 203 Texts and Contexts</td>
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<td>Electives</td>
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<tr>
<td>Select 5 course units of Electives</td>
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<tr>
<td>Total Course Units</td>
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</table>

1 2 course units at or above 200-level taught in German by the Department of Germanic Literature and Language, 3 course units may be taken as German Literature in translation, as a PRE-APPROVED course in a related field, or approved study-abroad program.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Geology, Minor

The Geology minor is designed to provide the graduates with skills to determine the environmental and/or geologic events that have led to the structures and features of a location and to analyze a field site or geologic region. Areas of interest include mineralogy, petrology, volcanology, stratigraphy, economic geology and paleontology. Geology also includes subjects as varied as environmental geology, evolutionary biology, solid-state chemistry, oceanography, mineral economics and geochronology.

For more information: http://www.sas.upenn.edu/earth/minors/earth-science-minor

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<td>Core Course</td>
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<td>GEOL 100 Introduction to Geology</td>
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<td>Advanced Level Courses</td>
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</table>

1 See web site for list of approved courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Health Care Management, Minor

The Biological Basis of Behavior Program and the Health Care Management Department of the Wharton School have jointly sponsored this effort. The objective is to provide students with exposure to two related areas: study in neuroscience and behavioral biology, as a leading example of the bioscience enterprise, and health services management, as the environment in which science innovation must be developed and managed.

The minor consists of eight courses, four from the Biological Basis of Behavior Program and four from Wharton. Students must earn a minimum grade of C- in courses taken to fulfill the minor requirements. Students must have a minimum of 3 courses that they count towards the minor and not towards any other major of minor.

For more information: https://www.sas.upenn.edu/bbb/requirements/bbbbbhsmmminor

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Hispanic Studies, Minor

The demographic, economic and political realities of the United States, the articulation of a mainstream English culture with an always increasing diversity of Hispanic and Latino cultures, and the ongoing forging of strong cultural and economic ties throughout the Americas, have moved Spanish out of the bounds of the category of "foreign" language and culture in this country. There are many instances that point to the fact that Spanish will become—de facto if not officially—a second national language and culture of the United States. Furthermore, in Europe, Spain is assuming an ever-more significant role in the affairs of the European Union. The Spanish transition to democracy in the 1970s fostered an environment of cultural, linguistic and political diversity that for half a century has served as a fascinating model for the rest of Europe, both east and west.

Hence, the knowledge of Spanish culture gives students much more than the ability to communicate in the third-most-spoken language of the world. It prepares them to account for an entirely different national, continental and global reality in all its complexity. Since culture is the controlling category in this field of studies, the major in Hispanic Studies orients itself to the types of knowledge generated by new disciplines such as cultural studies, new historicism, ethics, and postcolonial studies.

Majors in Hispanic Studies are overwhelmingly double majors. This means that they bring to their classes a dialogic perspective that engages in the study of Hispanic cultures informed by interest in other fields such as history, government, sociology, economics, medicine, and law. The richness and depth of these interests make for lively and intellectually rewarding classroom discussions.

For more information: https://www.sas.upenn.edu/hispanic-portuguese-studies/undergraduate/hispanic-studies/requirements-majors-minors/minor-hispanic-studies

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<th>Course Units</th>
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<td></td>
<td><strong>HCMG Requirements</strong></td>
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<tr>
<td>HCMG 101</td>
<td>Health Care Systems (must be taken first in the HCMG sequence)</td>
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<td><strong>Select 3 course units of HCMG Electives</strong></td>
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<td></td>
<td><strong>BIBB Requirements</strong></td>
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<tr>
<td>BIBB/PSYC 109</td>
<td>Introduction to Brain and Behavior</td>
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<tr>
<td>or BIOL 109</td>
<td>Introduction to Brain and Behavior</td>
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</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

History and Legal Studies, Minor

The University of Pennsylvania’s Wharton School and the College of Arts and Sciences are pleased to offer a unique program of study for undergraduate students that enables them to explore multiple perspectives on law as an inter-school supplement to their major field of study.

For more information: https://lgst.wharton.upenn.edu/minor-in-legal-studies-and-history/

<table>
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<td><strong>Required Courses</strong></td>
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<tr>
<td>HIST 168</td>
<td>History of American Law to 1877</td>
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<tr>
<td>HIST 169</td>
<td>History of American Law Since 1877</td>
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<td>LGST 101</td>
<td>Law and Social Values</td>
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<tr>
<td></td>
<td><strong>Philosophical Foundations of Law</strong></td>
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<td>Select one of the following:</td>
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<tr>
<td>PHIL/PPE 008</td>
<td>The Social Contract</td>
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<td>PHIL 077</td>
<td>Philosophy of Law</td>
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<tr>
<td>PHIL 277</td>
<td>Justice, Law and Morality</td>
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<td>ECON 036</td>
<td>Law and Economics</td>
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<td><strong>Political &amp; Institutional Context of Law</strong></td>
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<td>Select one of the following:</td>
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<tr>
<td>HIST 161</td>
<td>American Capitalism</td>
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<tr>
<td>HIST 164</td>
<td>Recent American History</td>
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<td>HIST 167</td>
<td>The New African Diaspora</td>
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<tr>
<td>HIST 442</td>
<td>America in the Era of the Revolution, 1763-1800</td>
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<td>PSCI 183</td>
<td>American Political Thought</td>
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<td>SOCI 135</td>
<td>Law and Society</td>
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<td><strong>International Perspective</strong></td>
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<td>LGST 219</td>
<td>Law and Policy in International Business</td>
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<tr>
<td>LGST 224</td>
<td>Human Rights and Globalization</td>
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<td><strong>Public Policy &amp; Regulation</strong></td>
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<tr>
<td>BEPP 201</td>
<td>Public Finance and Policy.</td>
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<td>BEPP 203</td>
<td>Business in the Global Political Environment.</td>
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<td>LGST 100</td>
<td>Ethics and Social Responsibility</td>
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<tr>
<td>LGST 202</td>
<td>Law of Corporate Management and Finance</td>
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<td>LGST 204</td>
<td>Real Estate Law</td>
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<tr>
<td>LGST 205</td>
<td>Law of Marketing and Antitrust</td>
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<tr>
<td>LGST 207</td>
<td>The Sports Industry: Business and Legal Aspects</td>
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<td>LGST 208</td>
<td>The Law at Work: Employment Law for Managers</td>
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<td>LGST 211</td>
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<td>LGST 215</td>
<td>Environmental Management: Law &amp; Policy</td>
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<td>LGST 218</td>
<td>Diversity and the Law</td>
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<tr>
<td>LGST 221</td>
<td>Constitutional Law and Free Enterprise</td>
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<td>Other 200 level LGST course, with permission</td>
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<tr>
<td><strong>Total Course Units</strong></td>
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</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**International Development, Minor**

The International Development minor is intended for students who wish to complement their primary area of study with an interdisciplinary focus on complex social problems associated with international development. The minor is intended to expand a student's chosen major by focusing on critical development issues from several different academic perspectives. Approved courses emphasize problems of development in poor countries and poorer regions of wealthier countries. The interdisciplinary nature of the minor allows students to embrace a global perspective on the processes of change and development, critically assess internal and external influences on the development process, and gain a deeper perspective on the interconnectedness of complex problems.

For more information: [http://www.sas.upenn.edu/polisci/node/867](http://www.sas.upenn.edu/polisci/node/867)

<table>
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<td><strong>PSCI Requirement</strong></td>
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<td><strong>Other (or PSCI) Requirement</strong></td>
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<td>Select 3 course units of Other or PSCI courses</td>
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<tr>
<td><strong>Total Course Units</strong></td>
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1 Minimum 3 course units in PSCI and no more than 3 course units in non-PSCI subjects (see pre-approved list [http://www.sas.upenn.edu/polisci/node/867](http://www.sas.upenn.edu/polisci/node/867))

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**International Relations, Minor**

International Relations addresses the ways in which governments, private groups and individuals relate to each other in the global political and economic systems. The program provides a solid grounding in the methodologies of political science, history and economics. The curriculum draws on the best courses relevant to world politics, offers a
well-rounded liberal arts education and helps prepare students for law or business school, Ph.D. programs and international careers.

For more information: http://www.sas.upenn.edu/irp/

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<th>Course Units</th>
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<td>Pre-Requisites</td>
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<td>ECON 001</td>
<td>Introduction to Micro Economics</td>
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<td>ECON 002</td>
<td>Introductory Economics: Macro</td>
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<td>Core Courses</td>
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<td>International Relations in Theory &amp; Practice:</td>
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<td>PSCI 150</td>
<td>Introduction to International Relations</td>
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<td>ECON 251</td>
<td>International Trade</td>
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<tr>
<td>or ECON 252</td>
<td>International Finance</td>
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<td>International History</td>
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<tr>
<td></td>
<td>HIST 420</td>
<td>European International Relations from the Age of Enlightenment to the Great War</td>
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<tr>
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<td>HIST 331</td>
<td>American Diplomatic History Since 1776</td>
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<td>HIST 451</td>
<td>The U.S. and the World since 1898</td>
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<tr>
<td></td>
<td>HIST 159</td>
<td>Technology, Policy &amp; War</td>
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<td>HIST 160</td>
<td>Strategy, Policy and War</td>
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<td>HIST 421</td>
<td>Europe and the World since 1914</td>
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<td>Total Course Units</td>
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</table>

1 Core courses must be taken at U of P.
2 Only 1 course unit may be Non-College.

For more information: http://www.sas.upenn.edu/italians/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tr>
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<td>Minor Requirements</td>
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<td></td>
<td>Required Courses</td>
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<tr>
<td>ITAL 201</td>
<td>Advanced Italian I</td>
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<tr>
<td>ITAL 202</td>
<td>Advanced Italian II</td>
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<td>or ITAL 203</td>
<td>Masterpieces-Italian Literature</td>
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<td></td>
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<td>6</td>
</tr>
</tbody>
</table>

1 At least 2 of the 4 electives must be taught in Italian. At least 1 of these 2 must be at the 300-level. No more that 2 extra-departmental Italian Studies courses taught in English may be counted towards the minor. No more than 3 courses may be taken abroad.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Italian Studies: Italian Literature, Minor

The Italian Studies section of the Romance Languages Department offers programs in language, literature, film, linguistics, cultural studies and civilization for students with or without a background in Italian. At the core of this program is the study of the Italian language, understood both in the narrow sense of verbal communication, but also in the larger sense of textual messages: literary, cinematic, historical, art-historical, and mass-cultural.

For more information: http://ccat.sas.upenn.edu/jwst/undergraduate

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<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<td>Minor Requirements</td>
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<td></td>
<td>Jewish History</td>
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<td>Select 2 course units of Jewish History courses</td>
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<tr>
<td></td>
<td>Jewish Literature</td>
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<td>Select 2 course units of Jewish Literature courses from at least two different historical periods</td>
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<tr>
<td></td>
<td>Jewish Religion or Culture</td>
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<td>Elective</td>
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</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Journalistic Writing, Minor

Creative Writing is the study of writing and literature with an emphasis on cultivating students’ own approach to craft. Students can choose from a range of workshops in fiction, creative nonfiction, poetry, screenwriting, playwriting, or journalism, all of which expose them to a range of writing in the field and give them opportunities to craft their own original work. Students can minor in Creative Writing by completing four workshop courses and two courses in the study of literature.

Journalistic Writing is the study of nonfiction writing and literature with an emphasis on cultivating students’ own skills in reporting, editing, interviewing, investigative journalism, media scholarship, and writing for a range of platforms. Students can minor in Journalistic Writing by completing six workshop courses in journalism and creative nonfiction, including one required course in long-form journalism.

For more information: http://writing.upenn.edu/cw/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalistic Writing Workshops</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 160 - Long-form Journalism</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 5 course units of Journalistic Writing Workshops</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Landscape Studies, Minor

The Landscape Studies Minor focuses on the role of the landscape in the cultural imagination, on its legibility as a representation of political, social, artistic, and environmental values; and on its potential to reflect and change our ideas about relationships between the natural world and society.

For more information: http://www.design.upenn.edu/landscape-architecture/undergraduate-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architecture &amp; Landscape Architecture Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARCH 312 - Topics in Theory I</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LARP 535 - Theory I: The Culture of Nature</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LARP 540 - Theory II: History and Theory of Landscape Architecture</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Select 1 course unit of LARP Elective</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Only two courses counted toward a major may be double-counted toward the LALS Minor. Study Abroad courses may count. Consult with your Minor Advisor.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Latin American and Latino Studies, Minor

The Latin American and Latino Studies (LALS) Program offers an interdisciplinary major and minor to study the history, arts, languages, cultures, societies, politics, and/or regional organizations of Latin American and Caribbean countries as well as Latino communities and individuals in the United States. With courses offered across many departments in the School of Arts and Sciences, in study abroad programs taught throughout Latin American cities, and with academically based community service courses with Latino organizations in the Greater Philadelphia area, the LALS major and minor afford our students a very comprehensive approach to Latin American and Latino Studies as well as the possibility of a flexible curriculum, where students can pursue and combine their academic interests.

For more information: https://lals.sas.upenn.edu/undergraduate/minor-requirements

Requirements: Language competence equal to two semesters of college study in Spanish or Portuguese.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 6 course units of courses with Latin American content</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Law and Society, Minor

The Law and Society Minor program gives students the opportunity to study and understand the law within a sociological framework, by examining both the factors that affect variations in the law, as well as how those variations affect individuals and populations differently. In addition to a theoretical foundation in Sociology, students in the minor will study issues involving the state, its relationship to other institutions such as religions, corporations, civil liberties, the organization of courts,
The minor prepares students interested in the broad aspects of legal regulations and social organization. It is for students who are interested in graduate studies in law, applied community organizations, or business.

For more information: https://sociology.sas.upenn.edu/lawandsociety

### Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 001</td>
<td>Introduction to Sociology</td>
<td>1</td>
</tr>
<tr>
<td>SOCI 100</td>
<td>Introduction to Sociological Research</td>
<td>1</td>
</tr>
<tr>
<td>SOCI 135</td>
<td>Law and Society</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Additional Electives

Select 2 course units of Additional Electives 2

Sociology or Related Course

Select 1 course unit of Sociology or Related course 1

Total Course Units 6

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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### Linguistics, Minor

The Linguistics Program is intended to acquaint students with the methods and findings of the scientific study of human language and its relationships to cognition, society, and history. It serves as a preparation for graduate training in linguistics or related areas, and as part of a rigorous general education. Linguistic training is relevant to work in anthropology, philosophy, psychology, and language and literature, as well as to careers in such fields as education, computer science and law. Founded by Zellig Harris in 1947, the Penn Linguistics Department is the oldest modern linguistics department in the United States. We have outstanding programs in the core disciplines of syntax and phonology, as well as in sociolinguistics, semantics, discourse, historical linguistics, phonetics, and psycholinguistics. Penn is also the home of the Linguistic Data Consortium (LDC), a compiler and distributor of linguistic materials for language engineering research. The graduate group in Linguistics at the University of Pennsylvania is an interdisciplinary team of faculty from the Department of Linguistics and related departments. Our program has strong concentrations in several areas and a tradition of collaboration among its faculty.

For more information: http://www.ling.upenn.edu/undergraduate/minor-linguistics

### Logic, Information, and Computation, Minor

Modern mathematical logic began with work by Cantor, Frege, and other mathematicians during the last three decades of the nineteenth century who were concerned with providing a sound basis for the development of mathematical analysis. In the wake of "the crisis in the foundations of mathematics" precipitated by the discovery of various logical paradoxes at the turn of the twentieth century, mathematicians and philosophers such as Hilbert and Russell intensively pursued investigations into the logical foundations of mathematics. Connections between logic and the foundations of mathematics remained an important source for scientific developments in logic through the epochal results of Gödel in 1930 and 1931, which indicated both the scope and limits of the mechanization of mathematical reasoning. The great burst of scientific activity occasioned by Gödel's results led directly to Turing's mathematical characterization of mechanical computation in terms of simple devices, now known as Turing machines. The work of Gödel, Turing, and other logicians during the 1930s laid the scientific foundations for the revolution in computer and information technology that began in the last half of the twentieth century and continues today.

The Logic, Information, and Computation Program offers students the opportunity to engage in a systematic, integrative program of study within the School of Arts and Sciences. Logic remains one of the core disciplines in investigations of information and computation. Indeed, logic is playing a major role in advances in computer security, database technology, networking, and software engineering. Moreover, logic has expanded its role within mathematics beyond foundational studies and now enjoys rich connections with areas as diverse as algebra, analysis, and combinatorics. In light of the current importance of the investigation of computation and information from both a scientific and technological point of view, the Major and Minor in Logic, Information, and Computation will provide students with a strong background to pursue computational aspects of the natural, biological, and social sciences and prepare them for careers in information technology.

For more information: http://logic.sas.upenn.edu/program.html

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II with Probability and Matrices</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 115</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
</tbody>
</table>

1 Must be taken in the Linguistics Dept. at Penn. Please consult with the Undergraduate Chair for selection of courses to match interests.
Mathematics, Minor

At the core of modern theoretical science, mathematics has historically provided an expressive language as well and theoretical framework for advances in the physical sciences. It has since become central in the life and social sciences and computer science. Mathematics at Penn embraces traditional core areas of mathematics as well as developing areas (Penn is one of the world’s leading centers in the application of logic to theoretical computer science). The goals of the major program are to assist students in acquiring both an understanding of mathematics and an ability to use it. The mathematics major provides a solid foundation for graduate study in mathematics as well as background for study in economics, the biological sciences, the physical sciences and engineering, as well as many non-traditional areas.

For more information: https://www.math.upenn.edu/undergraduate/math-majors-and-minors/mathematics-minor

Review the math minor first by visiting, http://www.math.upenn.edu/ugrad/minor.html. Below is a planning tool that is meant to help you but does not replace the web and adviser visit requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 115</td>
<td>Calculus, Part II with Probability and Matrices</td>
<td>1</td>
</tr>
<tr>
<td>MATH 240</td>
<td>Calculus, Part III</td>
<td>1</td>
</tr>
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</table>

Algebra Requirement

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 312</td>
<td>Linear Algebra</td>
<td>1</td>
</tr>
<tr>
<td>MATH 313</td>
<td>Computational Linear Algebra</td>
<td>1</td>
</tr>
<tr>
<td>MATH 350</td>
<td>Number Theory</td>
<td>1</td>
</tr>
</tbody>
</table>

Medical Sociology, Minor

The Medical Sociology minor gives students the opportunity to engage in the sociological study of medicine and the health of populations. A sociological perspective on medicine allows students to critically engage with the social and cultural framing of what is defined as “illness”; the structural factors that may contribute to those illnesses; and the interactive dynamics between healthcare providers and patients.

Students will be able to critically connect the organization of social groups with the profession of medicine, the practice of medical care, and the social factors that contribute to sickness and well-being. Students who complete this minor will have a theoretical foundation in Sociology, and a dynamic perspective on health and healthcare in the world today.

For more information: https://sociology.sas.upenn.edu/medicalsociologyminor

- Bioethics and Medical Sociology minors cannot double count more than 1 course unit.
- HSOC majors and Medical Sociology minors cannot double count more than 1 course unit.
Modern Middle Eastern Studies, Minor

The interdisciplinary Modern Middle Eastern Studies degree is designed to allow students to specialize in the Middle East as a region of the world and human experience by combining course work using both social scientific and humanistic approaches, underpinned by relevant language skills. Students will work with faculty committed to supporting interdisciplinary, applied, research-oriented advanced study. The minor gives students opportunities to work on problems of politics, policy, history, ideology, social thought, economic development, and international relations.

For more information: https://www.sas.upenn.edu/mec/programs/mmes

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humanities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of Humanities courses</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Social Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of Social Sciences courses</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of Electives</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

1 May include two language courses - in a single language.

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Music: Jazz and Popular Music, Minor

There are two paths of study for the Music minor. One flexible path allows students to draw together five courses on a wide array of topics in History, Theory, and Ethnomusicology. The other path is the Interdisciplinary minor in Jazz and Popular music studies, which is intended for students who wish to integrate their interest in music in the contemporary world and in academically-based community service as a form of learning. This minor is also for music majors who wish to include knowledge of jazz and popular music performance into their degrees.

For more information: https://www.sas.upenn.edu/music/undergraduate

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MUSC 035/AFRC 077</td>
<td>Jazz Style and History</td>
</tr>
<tr>
<td></td>
<td>ENGL 080/AFRC 079/MUSC 080</td>
<td>Literatures of Jazz</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 4 course units of Electives suitable for study of \</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>performance, history &amp; culture, or the music industry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

1 Only 1 course unit of performance coursework may be used toward minor electives. Consult with the Minor advisor.
2 If MUSC 007 Ensemble Performance (0.5 course unit) is chosen as an elective, additional semesters are required.
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Native American and Indigenous Studies, Minor

The Native American and Indigenous Studies (NAIS) Initiative at Penn features an inter-disciplinary Minor that focuses on the cultures and histories of Native Americans, First Nations, and other Indigenous peoples. Students can explore a diverse range of topics, including cross-cultural historical encounters, heritage landscapes, language recovery, cultural performance, law and sovereignty, museum anthropology, archaeology, decolonizing methods, and more. Many NAIS courses are cross-listed in more than one department (e.g., Anthropology, History, Religion). NAIS Faculty often use comparative case studies of Indigenous communities in different world settings, past and present, to illuminate current issues, locally and globally.

For more information: https://nais.sas.upenn.edu/

NAIS courses must be taken for a grade (not pass/fail). Students must achieve a grade no lower than a C in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH 149</td>
<td>Introduction to Native American and Indigenous Studies</td>
<td>1</td>
</tr>
<tr>
<td>Thematic Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of Thematic courses</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Related Courses</td>
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<td></td>
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<tr>
<td>Select 2 course units of Related courses</td>
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<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

near Eastern Languages & Civilizations: Arabic & Islamic Studies, Minor

Arabic and Islamic Studies focuses on languages and cultures of the wider Middle East in the context of Islamic Civilization. Because of the interdependence of language and culture, a primary emphasis is on gaining mastery of Middle Eastern languages such as Arabic and Turkish, alongside coursework in history, religion, and culture.

For more information: http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_minor.html

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language Requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 4 course units of Language Requirement courses</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Concentration Requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NELC 101</td>
<td>Introduction to the Ancient Near East</td>
<td>1</td>
</tr>
<tr>
<td>ANC 025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST 024</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of Concentration Requirement courses</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

1 Please check the online description of the minor for the possible combinations of ancient language courses that can fulfill this requirement.

Near Eastern Languages & Civilizations: Ancient Near East, Minor

This minor explores the cultures of the ancient Near East, including Mesopotamian, Egyptian, Israeliite, Hittite and Persian civilizations. Along with gaining familiarity with an ancient Near Eastern language, coursework includes history, religion and archaeology of the ancient Near East.

For more information: http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_minor.html

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language Requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May be fulfilled in Arabic, Persian or Turkish.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Concentration Requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May be fulfilled in Arabic, Persian or Turkish. Arabic, Persian or Turkish culture courses to be chosen in consultation with the advisor.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

1 May be fulfilled in Arabic, Persian or Turkish.
2 May be fulfilled in Arabic, Persian or Turkish. Arabic, Persian or Turkish culture courses to be chosen in consultation with the advisor.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Nutrition, Minor

Jointly sponsored by the Schools of Nursing and Arts and Sciences, the Nutrition Minor presents a broad view of the field, and illustrates the pervasiveness of nutrition-related issues in such diverse fields as anthropology, economics, folklore, history, physiology, psychology, health care and public policy.

For more information: [https://www.nursing.upenn.edu/nutrition-minor/](https://www.nursing.upenn.edu/nutrition-minor/)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit from each Core A, B and C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core A - Basic Nutrition:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NURS 065 Fundamentals of Nutrition</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>or NURS 112 Nutrition: Science &amp; Applications</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core B - Scientific Basis of Nutrition:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following Options:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option 1:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NURS 068 Integrated Cell Biology and Microbiology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option 2:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 017 The Biology of Food</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 101 Introduction to Biology A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 121 Introduction to Biology - The Molecular Biology of Life</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core C - Advanced Nutrition:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NURS 524 Advanced Human Nutrition and Micronutrient Metabolism</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 course units of Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

1 It is strongly recommended that Core A & B courses be taken prior to the Elective courses.

2 See website [http://www.nursing.upenn.edu/nutrition-minor/plans-of-study](http://www.nursing.upenn.edu/nutrition-minor/plans-of-study) for list of approved elective courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Philosophy, Minor

Philosophy seeks to illuminate fundamental aspects of the world, of our relation to and knowledge of the world, and of our own nature as rational, purposive, and social beings. The study of philosophy aims at an appreciation of the ways this enterprise has been, is, and might be approached. It also provides a vantage point for reflecting on the nature and achievement of other disciplines, such as science, the arts, and the humanities. Philosophical topics can be divided roughly into practical (ethics, politics, aesthetics) and theoretical (epistemology, metaphysics, mind, and logic). The Philosophy Minor requires a Philosophy balanced selection of courses in the various fields of philosophy and its history.


<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribution Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit each from the following categories:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>History of Philosophy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Logic/Philosophy of Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Epistemology/Metaphysics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethics/Political Philosophy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of Level Requirements at 200 or above</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select up to 3 course units of Electives</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Physics, Minor

The aim of physicists is to discover the most fundamental principles of nature. Their tools are mathematics and experiment. The physical world as we perceive it is very complex, yet the principles of physics are inherently simple. A physicist’s forte is the ability to analyze a problem, reduce its complexity, and arrive at an understanding of the underlying patterns of nature in terms of simple relationships among constituent elements. Learning to do this gives Physics minors an intellectual versatility that can serve them well in a variety of future activities ranging from research and teaching in Physics or related sciences to careers in law, the health professions, and high-technology companies.

For more information: [http://www.physics.upenn.edu/undergraduate/physics-astronomy-major#minor](http://www.physics.upenn.edu/undergraduate/physics-astronomy-major#minor)

Total 6 courses (not course units but courses). No more than two (2) courses can be at the 100 (introductory) level.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following Options:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option I - Recommended Minor</td>
<td>0-6</td>
</tr>
<tr>
<td></td>
<td>PHYS 150 Principles of Physics I: Mechanics and Wave Motion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 151 Principles of Physics II: Electromagnetism and Radiation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 230 Principles of Physics III: Thermal Physics and Waves</td>
<td></td>
</tr>
</tbody>
</table>
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Political Science, Minor**

The Political Science Department's course offerings span the discipline of political science, from American political institutions, to the politics of world regions, the emergence of a new international order, and recent and ancient political ideas. The Department's curriculum is divided into the four standard fields of American politics, comparative politics, international relations, and political theories. There are also other opportunities for study in political processes of elections and communications and public policy. A minor involves one introductory political science course and five political science electives.

For more information: [http://www.sas.upenn.edu/polisci/node/867](http://www.sas.upenn.edu/polisci/node/867)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements 1</td>
<td>Political Science Core Requirement</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>PSCI 110</td>
<td>Introduction to Comparative Politics</td>
<td></td>
</tr>
<tr>
<td>PSCI 130</td>
<td>Introduction to American Politics</td>
<td></td>
</tr>
<tr>
<td>PSCI 150</td>
<td>Introduction to International Relations</td>
<td></td>
</tr>
<tr>
<td>PSCI 180</td>
<td>Ancient Political Thought</td>
<td></td>
</tr>
<tr>
<td>or PSCI 181</td>
<td>Modern Political Thought</td>
<td></td>
</tr>
<tr>
<td>Other Requirements</td>
<td>Select 5 course units of PSCI courses</td>
<td>5</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

1 4 course units must be taken in PSCI Dept at U of P.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Psychoanalytic Studies, Minor**

Psychoanalytic ideas provide a coherent basis for understanding how people feel and think, and how they function as individuals and in groups. These ideas, centered on unconscious emotional processes and human relationships, continue to evolve and develop. They form a bridge across many disciplines throughout the humanities, social sciences, and some of the natural sciences. Penn is now one of very few schools in the country (and the world) to offer the exciting opportunity of a minor in Psychoanalytic Studies.

As it provides a unifying body of ideas, Psychoanalytic Studies comprises courses in many departments. The minor is designed in partnership with the Psychoanalytic Center of Philadelphia, and students who sign up for the minor also have the opportunity to meet monthly with a practicing psychoanalyst to learn about contemporary psychoanalytic theories and therapies. Students who complete six courses that count toward the minor as well as a series of meetings with a psychoanalytic mentor will receive both the minor on their transcript and a Certificate of Accomplishment from the Psychoanalytic Center of Philadelphia.

For more information: [http://web.sas.upenn.edu/psys/](http://web.sas.upenn.edu/psys/)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 6 course units of courses approved by student’s adviser</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Psychology, Minor**

Studies in psychology introduce students to contemporary understandings of how organisms perceive, learn, think and interact with one another, how they develop, how they are motivated and how, individually and as members of species, they may be compared with one another. Psychology at Penn is a diverse discipline, with topics ranging from neuroscience to psychopathology.

The Minor in Psychology consists of six courses. It is intended to give the student a broad base in Psychology without the commitment to the full course load of the major. The requirements are therefore comparable to those of the major in type but reduced in number. At least three of the six required course units must be taken at Penn. In addition, students minoring in psychology must have a minimum of 3 PSYC courses that they count only towards the minor and not towards any other major or minor.

For more information: [http://psychology.sas.upenn.edu/undergraduate](http://psychology.sas.upenn.edu/undergraduate)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introductory Psychology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC 001</td>
<td>Introduction to Experimental Psychology</td>
<td>1</td>
</tr>
<tr>
<td>Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 course in each category:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Biological Basis of Behavior:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or PSYC 127 Physiology of Motivated Behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC 109</td>
<td>Introduction to Brain and Behavior</td>
<td>1</td>
</tr>
</tbody>
</table>

1 4 course units must be taken in PSCI Dept at U of P.
Religious Studies, Minor

The Religious Studies minor is a great way to gain background in the scholarly study of religion in order to supplement or enhance major studies in other fields like Jewish Studies, History, Anthropology, Art History, Psychology, Political Science, or even Nursing, Engineering, Pre-Med, Pre-Law, and Business. Students in Wharton or the College of Nursing have taken a Religious Studies minor to gain some fluency in matters of business ethics, bio-ethics, cross-cultural analysis, inter-religious affairs, and the like.

Every minor program must include six courses in at least two different religious traditions. At least two of the six courses must be taken with core Department faculty. Students wishing to focus on an individualized topic may work out a program with the Undergraduate Chair. RELS also offers many course options which can count towards College Sector requirements, which makes it easier to incorporate the RELS minor into a typical undergraduate course-load.

For more information: https://www.sas.upenn.edu/religious_studies/undergraduate/minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELS 003</td>
<td>Religion and Literature</td>
<td>1</td>
</tr>
<tr>
<td>or RELS 004</td>
<td>Art and Religion</td>
<td>1</td>
</tr>
</tbody>
</table>

Select 1 course unit of any RELS Arts/Letters Elective

Select 1 course unit of RELS Arts/Letters Elective at 200 or Above

Select 1 course unit of Hist/Trad OR Society Elective course

Select 2 course units of Elective, RELS or Other courses

Total Course Units 6

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Russian and East European Studies: Russian Culture and History, Minor

The Department of Slavic Languages and Literatures offers programs in Russian and, with the support of the Penn Language Center, courses in the Czech and Polish languages. The department also offers a series of courses for students who have spoken Russian at home and wish to gain literacy and/or improve their language skills or to pursue the study of Russian literature and culture in Russian. Students of Russian at Penn are invited to reside in the Russian House (which brings together students interested in daily use of the language) and encouraged to spend a semester of study abroad.

For more information: http://ccat.sas.upenn.edu/slavic/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 004</td>
<td>Intermediate Russian II (or literacy courses for Russian speakers or Equivalents)</td>
<td>2</td>
</tr>
</tbody>
</table>

History and Culture

Select one of the following Options:

Option 1:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS/HIST 048</td>
<td>The Rise and Fall of the Russian Empire, 1552-1917</td>
<td>2</td>
</tr>
</tbody>
</table>


Option 2:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 136/ HIST 047</td>
<td>Portraits of Russian Society. Art, Fiction, Drama</td>
<td>2</td>
</tr>
</tbody>
</table>

RUSS 187/ HIST 046 | Portraits of Soviet Society. Literature, Film, Drama |

Core Requirement

Select 2 course units of Core Requirement courses

Russian Related Courses
Select 2 course units of Russian Related courses (History, Politics, Economics, etc.)  2

Total Course Units  6

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**Science, Technology and Society, Minor**

Science, Technology & Society (STSC) examines the social contexts in which science and technology occur, the organizations of people and things that make up science and technology systems, and the social and cultural consequences of scientific and technological change over time. In a wide array of courses, STSC majors explore the relationship between scientific knowledge, technological innovations, technological systems, and society past and present.

For more information: https://hss.sas.upenn.edu/undergraduate/stsc-major/stsc-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STSC 001</td>
<td>Emergence of Modern Science</td>
<td>1</td>
</tr>
<tr>
<td>STSC 003</td>
<td>Technology &amp; Society</td>
<td>1</td>
</tr>
<tr>
<td>Select 4 course units of STSC Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Sociology, Minor**

The Sociology Minor program allows students to get an introduction to major sociological concepts and theories, along with methods for sociological research, and a broad foundation of substantive, empirical, and theoretical knowledge rooted in the discipline.

For more information: https://sociology.sas.upenn.edu/sociologyminor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCI 001</td>
<td>Introduction to Sociology</td>
<td>1</td>
</tr>
<tr>
<td>Select 1 course unit of Sociological Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCI 100</td>
<td>Introduction to Sociological Research</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 3 course units of Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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South Asia Studies, Minor

South Asia Studies is an interdisciplinary field focusing on the history, languages, society, literature, and art from India, Pakistan, Bangladesh, Nepal, Sri Lanka, Afghanistan, and Bhutan. We are America’s oldest and arguably most distinguished South Asia regional studies program dealing with the past and contemporary life of one-fifth of the world’s population and teaching more languages than any other South Asian studies program in the US. Having a deep knowledge of the country set to outpace the US as the second largest economy in the world in an increasingly competitive global job market gives graduates a competitive edge over others with more generic skills. You don’t have to know anything about India or be South Asian to enjoy our great, flexible minor. So ask us about it today!

For more information: http://www.southasia.upenn.edu/undergraduate/major-and-minor-requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foundational Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of SAST 001 - SAST 008 or SAST Freshman or Writing Seminars</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 course units of Language &amp; 2 course units of courses relevant to South Asia</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4 course units of courses relevant to South Asia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

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Survey Research and Data Analytics, Minor

The Survey Research and Data Analytics minor is intended for students who wish to complement their primary area of study with an interdisciplinary focus on using data and survey methods for conducting research and evaluating programs, policies, and outcomes in the social sciences.

For more information: http://pores.upenn.edu/students/survey-research-data-analytics-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSCI 130 Introduction to American Politics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PSCI 236/ PPE 312 Public Policy Process</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 course units of Electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Sustainability and Environmental Management, Minor

The Sustainability and Environmental Management minor is focused on sustainability and it is designed to help students understand the nature of environmental constraints which face organizations and individuals in the modern world, and to understand how these constraints can be effectively considered as part of the decision-making process in for-profit and non-profit organizations.

For more information: https://www.sas.upenn.edu/earth/minors/sustainability-and-environmental-management-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVS 100 Introduction to Environmental Science</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>And take any 2 of the following:</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>LGST 215 Environmental Management: Law &amp; Policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BEPP 261 Risk Analysis and Environmental Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BEPP 263 Environmental &amp; Energy Economics and Policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of Electives from Pre-approved courses</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

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Theatre Arts, Minor

The Theatre Arts Program offers a six-course minor, with three courses that focus on academic approaches to the theatre, such as the study of dramatic literature, theory, history and criticism, and three that focus practical aspects of performance, such as acting, directing, designing, devising, and playwriting. English majors concentrating on drama will find courses that cross-list; a diverse group of students with a wide array of major fields of study find it possible to pursue their interest in Theatre Arts with a minor.

For more information: http://theatre.sas.upenn.edu

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dramatic Literature, Theory or History</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 course units of Dramatic Literature, Theory or History courses</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Performance or Design</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 course units of Performance or Design courses</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

Urban Real Estate and Development, Minor

This minor, co-sponsored by Real Estate (Wharton) and Urban Studies (Arts and Sciences), is designed to enable students to combine an interest in Urban Studies and Real Estate Development. Students take a total of seven Urban Studies and Real Estate courses, in consultation with the minor advisor.

For more information: http://www.sas.upenn.edu/urban/students/real-estate-development-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Theme Choice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit from History of Cities or Comparative &amp; Theoretical Dimension</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Theme Choice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 course units of Public Policy, Built Environment, or Urban Economics &amp; Finance</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Related Elective</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course unit of Related Elective</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Field Work</td>
<td></td>
</tr>
<tr>
<td>URBS 300</td>
<td>Fieldwork Seminar (or Approved Alternative Work)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

Urban Studies, Minor

The Urban Studies minor offers students an opportunity to think and learn about cities in an informed, disciplined and integrated way. The program introduces a variety of perspectives on the origins, development, and nature of cities, stressing the application of theory to practice. Students take four Urban Studies courses, and complete an internship for an additional two CUs in this six CU minor. The internship component allows students the opportunity to work closely with a community group, public agency, non-profit or private organization in the city.

For more information: http://www.sas.upenn.edu/urban/students/urban-studies-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Minor Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Theme Choice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 course units of URBS and REAL Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Take either URBS 204 Urban Law or REAL 204 Real Estate Law, not both.
2. See lists of approved electives on website.

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History of Art, Minor

The Minor in the History of Art, like the Major, aims to deepen students' knowledge of artistic production and practice over the scope of human history. A Minor program in art history may complement the student's Major in a cognate field, or it may be unrelated to the student's primary field instruction.

For more information: http://www.sas.upenn.edu/arthistory/undergraduate/minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td>Survey Course Requirements</td>
<td></td>
</tr>
<tr>
<td>Take 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH 101</td>
<td>Prehistory to Renaissance: Introduction to Western Art from its Beginning to 1400</td>
<td>2</td>
</tr>
<tr>
<td>or ARTH 102</td>
<td>Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present</td>
<td></td>
</tr>
<tr>
<td>or ARTH 103</td>
<td>Art and Civilization in East Asia</td>
<td></td>
</tr>
<tr>
<td>or ARTH 104</td>
<td>Introduction to Art in South Asia</td>
<td></td>
</tr>
<tr>
<td>or ARTH 106</td>
<td>Architect and History</td>
<td></td>
</tr>
<tr>
<td>Special Study Areas</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Any 200, or 400 level course or 300 Seminar</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| ARTH 200 or 400 level course | | 1

1 Courses 2-3 is ARTH 200 or a 400 level course. Course 4 is ARTH 200 or a 400 level course or a related course.

Near Eastern Languages & Civilizations: Arabic & Hebrew Studies, Minor

This minor explores the inter-relationships between Arabic and Hebrew cultures within the modern and/or medieval periods. Emphasis is paced on language facility in Arabic and/or Hebrew, alongside courses in history, religion, literature and culture.

For more information: http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_minor.html

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td>Language Requirement</td>
<td>4</td>
</tr>
<tr>
<td>Concentration Requirement</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

1 With proficiency in Hebrew before entering Penn, the minor may be fulfilled with 6 course units.
2 At least 2 course units must be in the study of Hebrew texts from any two areas: Biblical, Rabbinic or Medieval, and Modern Hebrew literature.

Italian Studies: Italian Culture, Minor

The Italian Studies section of the Romance Languages Department offers programs in language, literature, film, linguistics, cultural studies and civilization for students with or without a background in Italian. At the core of this program is the study of the Italian language, understood both in the narrow sense of verbal communication, but also in the larger sense of textual messages: literary, cinematic, historical, art-historical, and mass-cultural.

For more information: http://www.sas.upenn.edu/italians/

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td>Required Courses</td>
<td></td>
</tr>
<tr>
<td>ITAL 201</td>
<td>Advanced Italian I</td>
<td>1</td>
</tr>
<tr>
<td>or ITAL 203</td>
<td>Masterpieces-Italian Literature</td>
<td>1</td>
</tr>
</tbody>
</table>
or ITAL 204

Italian History on Screen: How Movies Tell the Story of Italy

Electives
Select 4 course units of Electives \(^1\)

<table>
<thead>
<tr>
<th>Course Units</th>
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<tbody>
<tr>
<td>4</td>
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</tbody>
</table>

Total Course Units

<table>
<thead>
<tr>
<th>Course Units</th>
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<tbody>
<tr>
<td>6</td>
</tr>
</tbody>
</table>

\(^1\) No more than 3 courses may be taken in English. No more than 3 courses may be taken abroad. At least 1 of the 4 electives must be taught in Italian at the 300-level. The remaining 3 courses should be chosen in related fields sponsored through Comparative Literature, Cinema Studies, departments affiliated with the Center for Italian Studies, or other offerings in humanities and social sciences as appropriate.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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### East Asian Languages and Civilizations: Chinese, Minor

All students minoring in the Department of East Asian Languages and Civilizations must fulfill a set of Basic Requirements. These requirements are to be met within one of three linguistic and cultural concentrations:

- Chinese Studies
- Japanese Studies
- Korean Studies

In addition to the Basic Requirements, there are further requirements specific to each concentration.

For more information: [http://www.sas.upenn.edu/ealc/undergraduate/minor](http://www.sas.upenn.edu/ealc/undergraduate/minor)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td></td>
<td><strong>Minor Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Language Requirement</strong></td>
<td></td>
</tr>
<tr>
<td>JPAN 021</td>
<td>Intensive Beginning Japanese I</td>
<td>2</td>
</tr>
<tr>
<td>JPAN 022</td>
<td>Intensive Beginning Japanese II</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Or with prior language knowledge, two courses at</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JPAN 211 or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Survey Requirement</strong></td>
<td></td>
</tr>
<tr>
<td>EALC 001</td>
<td>Introduction to Japanese Civilization</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 course units of Electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>8</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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### East Asian Languages and Civilizations: Japanese, Minor

All students minoring in the Department of East Asian Languages and Civilizations must fulfill a set of Basic Requirements. These requirements are to be met within one of three linguistic and cultural concentrations:

- Chinese Studies
- Japanese Studies
- Korean Studies

In addition to the Basic Requirements, there are further requirements specific to each concentration.

For more information: [http://www.sas.upenn.edu/ealc/undergraduate/minor](http://www.sas.upenn.edu/ealc/undergraduate/minor)

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<td></td>
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<td>Intensive Beginning Japanese II</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Or with prior language knowledge, two courses at</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JPAN 211 or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Survey Requirement</strong></td>
<td></td>
</tr>
<tr>
<td>EALC 002</td>
<td>Introduction to Japanese Civilization</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 course units of Electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>8</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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### East Asian Languages and Civilizations: Korean, Minor

All students minoring in the Department of East Asian Languages and Civilizations must fulfill a set of Basic Requirements. These requirements are to be met within one of three linguistic and cultural concentrations:

- Chinese Studies
- Japanese Studies
- Korean Studies

In addition to the Basic Requirements, there are further requirements specific to each concentration.

For more information: [http://www.sas.upenn.edu/ealc/undergraduate/minor](http://www.sas.upenn.edu/ealc/undergraduate/minor)
Global Medieval Studies, Minor

Eleven Penn departments contribute to the interdisciplinary program in Global Medieval Studies, which allows students to discover the pre-modern world together, as the root and necessary precondition to the modern. The program is broad geographically and temporally; it includes Europe, the Middle East, Asia, and Africa, and in the latter part of our period even the New World, from Late Antiquity to 1700. This was a formative historical and cultural period in a variety of civilizations, from the north-western corner of Europe, across the Mediterranean and the Middle East, and on to southern and eastern Asia, south to Africa and over the Atlantic Ocean to the New World. The program encourages students to view the world through the lens of various disciplinary and geographic perspectives and discover the interaction of diverse civilizations and religions. As the era that gave birth to contemporary nations and a time before the formation of modern geopolitical concepts, this period provides a critical space for thinking about the composite nature of contemporary identities.

The minor program in Global Medieval Studies can easily be combined with a major in a language and literature tradition, philosophy, science, international relations, or even natural sciences, to name a few. As broadly educated historians and humanists, students of Global Medieval Studies can go on to a variety of occupations or continue their education in a range of graduate programs or professional schools.

For more information: http://web.sas.upenn.edu/global-medieval-studies/

Urban Education, Minor

The Urban Education Minor is open to undergraduates in all disciplines, and requires seven CUs. Students choose from among three concentrations depending on interest in pursuing teaching certification or deepening one’s background in urban education policy: Elementary Education; Secondary Education; Urban Education Policy, Research, and Practice. Students in all three concentrations take three core courses. The additional four requirements vary depending on the track.

For more information: http://www.sas.upenn.edu/urban/students/urban-education-minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBS 202</td>
<td>Urban Education</td>
<td>1</td>
</tr>
<tr>
<td>or EDUC 202</td>
<td>Urban Education</td>
<td></td>
</tr>
<tr>
<td>Select 1 Child or Adolescent Development course</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>URED Capstone 1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>The remaining 4 course units are specific to one of the following Tracks:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Education Policy, Research, and Practice Track</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 Urban Context course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 Teaching and Learning course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 ABCS course - related to Urban Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 of the following options to complete course #7:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 1: Policy Elective course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 2 : EDUC 535 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 3 : Select 1 Elective course 2</td>
<td></td>
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</tr>
<tr>
<td>Elementary Education Track</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC 414</td>
<td>Children's Literature</td>
<td></td>
</tr>
<tr>
<td>EDUC 421</td>
<td>Science in Elementary and Middle Schools</td>
<td></td>
</tr>
<tr>
<td>or ENVS 421</td>
<td>Science in Elementary &amp; Middle School</td>
<td></td>
</tr>
<tr>
<td>EDUC 417</td>
<td>Reading/Language Arts in the Elementary School 1</td>
<td></td>
</tr>
<tr>
<td>or EDUC 520 Literacy in Elementary/Middle Schools</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Near Eastern Languages & Civilizations: Persian Language & Literature, Minor

This concentration explores Persian and Iranian culture from the premodern to the modern periods as well as in the context of Islamic Civilization.

For more information: [http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_minor.html](http://www.sas.upenn.edu/nelc/undergrad_programs/nelc_minor.html)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Minor Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Language Requirement</strong></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Concentration Requirement</strong></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>8</td>
</tr>
</tbody>
</table>

1. This requirement must be fulfilled in Persian.
2. Culture courses to be chosen in consultation with the advisor.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Environmental Science, Minor

The Environmental Science minor is designed to achieve an understanding of the breadth of contemporary environmental issues through a series of courses in environmental studies, while ensuring that each student pursue a purposeful course of study in some traditionally defined area of scholarship. Graduates of the program are trained for professions directly or indirectly involved with problems of environmental quality.

For more information: [https://www.sas.upenn.edu/earth/minors/environmental-science-minor](https://www.sas.upenn.edu/earth/minors/environmental-science-minor)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Minor Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirement</strong></td>
<td></td>
</tr>
<tr>
<td>ENVS 100</td>
<td>Introduction to Environmental Science</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
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</tr>
<tr>
<td>ENVS 301</td>
<td>Environmental Case Studies</td>
<td></td>
</tr>
<tr>
<td>ENVS 400</td>
<td>Environmental Studies Seminar</td>
<td></td>
</tr>
<tr>
<td>GEOL 100</td>
<td>Introduction to Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 103</td>
<td>Natural Disturbances and Human Disasters</td>
<td></td>
</tr>
<tr>
<td>GEOL 125</td>
<td>Earth and Life Through Time</td>
<td></td>
</tr>
<tr>
<td>GEOL 130</td>
<td>Oceanography</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Living Systems</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following options:</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 101</td>
<td>Introduction to Biology A</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 102</td>
<td>and Introduction to Biology B</td>
<td></td>
</tr>
<tr>
<td>BIOL 121</td>
<td>Introduction to Biology - The Molecular Biology of Life and Ecotoxicology From individuals to ecosystems</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 240</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Earth &amp; Environmental Science</strong></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 1 upper level course approved by advisor</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>6</td>
</tr>
</tbody>
</table>

1. [AP BIOL Credit](https://www.sas.upenn.edu/earth/minors/environmental-science-minor) and BIOL 240 Ecology: From individuals to ecosystems.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
SCHOOL OF ENGINEERING AND APPLIED SCIENCE

Penn School of Engineering is unlike any other. Traditionally untraditional. Pioneers in interdisciplinary education and research. Theory linked with real-world practice. The path for students who want to shape the future.

With the pace of innovation and technological advancement accelerating ever faster, engineers hold the keys to the next generation’s routine wonders.

As an Ivy League institution — and the first university in the nation — Penn delivers a transformative experience in the classroom and laboratory, while ensuring its engineering and applied science students receive a fully rounded liberal arts education.

Penn Engineering is a pioneer in interdisciplinary education, allowing students the flexibility to craft a program that suits their individual interests, career, or graduate education plans. Both Bachelor of Science in Engineering (BSE) and Bachelor of Applied Science (BAS) degrees are offered, along with specialized dual-degree programs, an array of majors and minors, special programs, and study-abroad opportunities.

Penn Engineering students get valuable and extensive hands-on experience, conducting research and pursuing creative designs and new products alongside faculty renowned in their fields. The working relationship with faculty pervades Penn Engineering, where full-time faculty teach all core undergraduate courses, and each student has a faculty advisor.

As the global marketplace for technology grows, graduates go on to leadership roles in business, medicine, law, and academia. They leave armed with the technical knowledge, imagination, communication skills, and understanding of the social and human context of their work, all engendered with a fervor for the future nurtured at Penn Engineering.

Learn more about our history: http://www.seas.upenn.edu/about-seas/history.php.

Learn more about our school leadership: http://www.seas.upenn.edu/about-seas/dean-staff.php.

Two key elements distinguish the Penn Engineering experience from that provided by many other institutions: Exceptional academic programs, and practical design and research experience.

Our undergraduate programs emphasize both theory and practice while forming intellectual linkages across a breadth of disciplines. The opportunity for hands-on research, over the four years, allows undergraduates the chance to learn about the creation of knowledge, further explore their chosen field, and thereby become collaborators in the search for knowledge. The design experience over the four years, culminating in the senior design project, challenges students to utilize their academic training and problem-solving skills in practical ways, and provides them with direct experience with real-world problems that they will encounter as practicing engineers.

Technology is transforming our times and our lives, no longer on a scale of decades but of years and even months. A successful career through such changing times requires engineering graduates endowed with skills that are applicable to widely different technologies, skills that transcend the details of any one job. Such is the result of an education that pays much more attention to the fundamental than to the trendy, to the creative more than to the routine. Engineers must also be firmly educated as responsible citizens, concerned with the impact of their work on society.

Penn Engineering is an integral partner in Penn’s initiatives to prepare students for leadership in a high-tech world. Our goal is to prepare students for leadership roles in engineering and applied science as well as in other fields, such as medicine, business, and law, for which creativity, critical quantitative thinking, effective communication skills, and a strong commitment to humane values are essential.

Mission of the School
1. The creation and dissemination of scholarly research in both basic and applied arenas to be an international center of engineering excellence and the regional catalyst for technological innovation;
2. The design and delivery of engineering education known for its rigor, breadth and relevance to prepare its students to become global leaders in technology-based fields.

Mission Statements of Bachelor of Science in Engineering Programs (ABET-accredited)
- Bioengineering (http://www.be.seas.upenn.edu/about-academics)
- Chemical and Biomolecular Engineering (http://www.cbe.seas.upenn.edu/about-ugrad)
- Computer Science (http://www.cis.upenn.edu/abet.shtml)
- Computer Engineering (http://www.seas.upenn.edu/cmpe/accreditation.php)
- Electrical Engineering (http://www.ese.upenn.edu/about-ugrad)
- Materials Science and Engineering (http://www.mse.seas.upenn.edu/about-ugrad/accreditation.php)
- Mechanical Engineering and Applied Mechanics (http://www.me.upenn.edu/about-ed/accreditation.php)
- Systems Science and Engineering (http://www.ee.upenn.edu/about-ugrad)

Our extraordinary faculty-to-student ratio provides great opportunities for undergraduate students to work in state-of-the-art research laboratories during the academic year and in the summer. Below are examples of student research, along with helpful information to guide undergraduates toward finding research positions at Penn Engineering.

For more information, visit: http://www.seas.upenn.edu/undergraduate/research/index.php.

Finding a Research Mentor and Research Experiences
Students are encouraged to explore the Penn Engineering Faculty Expertise Directory (http://www.seas.upenn.edu/directory/departments.php), featuring the School’s standing faculty and is searchable by department, research center affiliation, and research expertise keyword. Users can identify which faculty are conducting research in a specific area and contact faculty members whose research interests them.

The Engineering Dean’s Advisory Board (EDAB) puts together a guide for fellow students that gives step-by-step instructions and tips on how to secure research positions as an undergraduate.
For Bioengineering majors, the Penn student chapter of the Biomedical Engineering Society (BMES) has assembled its own student guide on starting up research.

**Summer Undergraduate Research in Engineering (SURE)**
Penn Engineering’s world-acclaimed faculty, along with state-of-the-art research laboratories and highly interdisciplinary curricula, offers summer research opportunities for talented undergraduates who seek hands-on research experience. From robotics and computer animation, nanotechnology, genomics and biotechnology, Penn’s centers and institutes are at the forefront of research on multiple scientific and technological frontiers.

**International Summer Undergraduate Research in Engineering (iSURE)**
Opportunities for undergraduates are available during the summer to spend eight to 12 weeks on a research internship in one of Penn Engineering’s partner institutions abroad.

**Littlejohn Undergraduate Research Program**
Thanks to a generous gift by Angus Littlejohn, the School of Engineering is able to offer Summer Research Opportunities to Penn Engineering Students. The program is open to rising, sophomores, juniors and seniors.

The program intends to provide students the opportunity to get involved in hands-on engineering research under the supervision of a faculty member. Topics of research include all areas covered by the departments in the School of Engineering and Applied Science. Students will receive a stipend of $4,500 for a 10 week period.

**Rachleff Scholars Program**
This program offers Penn Engineering undergraduates the opportunity to gain valuable research experiences with standing faculty and to participate in a community of peers who share a common interest in research and scholarly inquiry.

The following BSE programs are accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org).

- Bioengineering (http://www.be.seas.upenn.edu/about-academics)
- Chemical and Biomolecular Engineering (http://www.cbe.seas.upenn.edu/about-ugrad)
- Computer Science (http://www.cis.upenn.edu/ugrad/abet.shtml)
- Computer Engineering (http://www.seas.upenn.edu/cmpe/accreditation.php)
- Electrical Engineering (http://www.ece.upenn.edu/about-ugrad)
- Materials Science and Engineering (http://www.mse.seas.upenn.edu/about-ugrad/accreditation.php)
- Mechanical Engineering and Applied Mechanics (http://www.me.upenn.edu/about-ug-ed/accreditation.php)
- Systems Science and Engineering (http://www.ese.upenn.edu/about-ugrad)

The BSE program in Computer Science is accredited by the Computing Accreditation Commission of ABET (http://www.abet.org). For more information, visit: http://www.seas.upenn.edu/undergraduate/handbook/programs/abet-accreditation.php.

Each student is assigned a faculty advisor with whom they are required to meet at least twice per year. No student is permitted to register for classes in any semester without first meeting with an advisor and a review of their Permission to Register form (https://www.seas.upenn.edu/undergraduate/pdf/ug-advisor-signoff.pdf). Students who take the time to prepare for these meetings generally find them beneficial and informative. Faculty advisors are the best source of information about electives within the major, research opportunities, and options for graduate study.

For more information, visit: https://www.seas.upenn.edu/undergraduate/advising/.

**Curriculum**
Each major (p. 170) within the School of Engineering and Applied Science has its own curriculum. Specific curricular requirements for each major are listed by program.

However, all Engineering students must complete requirements in four specific tracks:

- • math (http://www.seas.upenn.edu/undergraduate/handbook/courses/math-courses.php) and natural science (http://www.seas.upenn.edu/undergraduate/handbook/courses/nat-science-courses.php)
- • core engineering courses within the chosen major
- • professional electives
- • social science/humanities (http://www.seas.upenn.edu/undergraduate/handbook/courses/ssh-requirements.php) and free electives (http://www.seas.upenn.edu/undergraduate/handbook/courses/free-elective.php)

A course planning guide exists for each major to assist with planning and keeping track of the requirements toward graduation.

In addition, all Engineering students must complete the following requirements.

**Writing Requirement**
Beginning with the Class of 2001, Penn Engineering has implemented a Writing Requirement. The Writing Requirement will not necessitate the completion of additional course units. Students can easily satisfy the requirement without altering the existing constraints of BAS or the BSE degrees.

Students are strongly encouraged to fulfill the Writing Requirement during the first two years of study because it becomes increasingly difficult to schedule first-year courses as one moves through the curriculum.

For more information, visit: http://www.seas.upenn.edu/undergraduate/handbook/courses/writing-requirement.php.

**Engineering Ethics Requirement**
Beginning with the Class of 2017, Penn Engineering students must fulfill the Engineering Ethics requirement. The Ethics Requirement will not necessitate the completion of any additional course units in the existing BAS or the BSE degrees, as the requirement may be double-counted from the student’s SSH course requirements.

The Engineering Ethics requirement can be satisfied by taking EAS 203 Engineering Ethics. This course may be used (double-counted) for the Social Science requirement as well. **Students are strongly encouraged to take the Ethics Requirement course during the sophomore year.**
For more information, visit: http://www.seas.upenn.edu/undergraduate/handbook/courses/ethics-requirement.php.

Majors

- Bioengineering, BSE (p. 170)
- Biomedical Science, BAS (p. 171)
- Chemical and Biomolecular Engineering, BSE (p. 172)
- Computational Biology, BAS (p. 173)
- Computer and Cognitive Science, BAS (p. 175)
- Computer Engineering, BSE (p. 176)
- Computer Science, BAS (p. 178)
- Computer Science, BSE (p. 177)
- Digital Media Design, BSE (p. 180)
- Electrical Engineering, BSE (p. 180)
- Individualized Program, BAS (p. 182)
- Materials Science and Engineering, BSE (p. 182)
- Mechanical Engineering and Applied Mechanics, BSE (p. 183)
- Networked and Social Systems Engineering, BSE (p. 184)
- Systems Science and Engineering, BSE (p. 185)

Bioengineering, BSE

Bioengineering is a multidisciplinary area where the engineering sciences interface biology, biomedical sciences, and medicine, to advance human health. Bioengineering brings together the creation of new knowledge and understanding of biological systems through engineering analysis and experimentation, with the application of engineering design and practice principles for the development of devices, processes, methods and biotechnologies to improve medical practice and health care delivery.

For more information: https://www.seas.upenn.edu/prospective-students/undergrad/majors/bioengineering/

Bioengineering (BE) Major Requirements

40.5 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>BE 100</td>
<td>Introduction to Bioengineering</td>
<td>0.5</td>
</tr>
<tr>
<td>BE 101</td>
<td>Introduction to Bioengineering II</td>
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</tr>
<tr>
<td>ENGR 105</td>
<td>Introduction to Scientific Computing</td>
<td>1</td>
</tr>
<tr>
<td>BE 200</td>
<td>Introduction to Biomechanics</td>
<td>1</td>
</tr>
<tr>
<td>BE 220</td>
<td>Biomaterials</td>
<td>1</td>
</tr>
<tr>
<td>BE 301</td>
<td>Bioengineering Signals and Systems</td>
<td>1</td>
</tr>
<tr>
<td>BE 305</td>
<td>Engineering Principles of Human Physiology</td>
<td>1</td>
</tr>
<tr>
<td>BE 306</td>
<td>Molecular Physiology and Cellular Engineering from Atoms to Disease</td>
<td>1</td>
</tr>
<tr>
<td>BE 309</td>
<td>Bioengineering Modeling, Analysis and Design Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>BE 310</td>
<td>Bioengineering Modeling, Analysis and Design Laboratory II</td>
<td>1</td>
</tr>
<tr>
<td>BE 324</td>
<td>Chemical Basis of Bioengineering II</td>
<td>1</td>
</tr>
<tr>
<td>BE 350</td>
<td>Introduction to Biotransport Processes</td>
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<td>BE 495</td>
<td>Senior Design Project</td>
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<td>BE 496</td>
<td>Senior Design Project</td>
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Math

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<tbody>
<tr>
<td>MATH 104</td>
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</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 240</td>
<td>Calculus, Part III</td>
<td>1</td>
</tr>
<tr>
<td>or ENM 240</td>
<td>Differential Equations and Linear Algebra</td>
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</tr>
<tr>
<td>MATH 241</td>
<td>Calculus, Part IV</td>
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Select one of the following: 1

<table>
<thead>
<tr>
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<tr>
<td>ENM 375</td>
<td>Biological Data Science I - Fundamentals of Biostatistics</td>
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<td>ENM 321</td>
<td>Engineering Statistics</td>
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<td>ESE 302</td>
<td>Engineering Applications of Statistics</td>
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</tr>
<tr>
<td>STAT 431</td>
<td>Statistical Inference</td>
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Natural Science 7.5

<table>
<thead>
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<tr>
<td>PHYS 140</td>
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<td>or PHYS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
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<tr>
<td>or PHYS 170</td>
<td>Honors Physics I: Mechanics and Wave Motion</td>
<td>1</td>
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<tr>
<td>PHYS 141</td>
<td>Principles of Physics II (without laboratory)</td>
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<tr>
<td>or PHYS 151</td>
<td>Principles of Physics II: Electromagnetism and Radiation</td>
<td>1</td>
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<tr>
<td>or PHYS 171</td>
<td>Honors Physics II: Electromagnetism and Radiation</td>
<td>1</td>
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<tr>
<td>EAS 091</td>
<td>Chemistry Advanced Placement/International Baccalaureate Credit</td>
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<td>or CHEM 101</td>
<td>General Chemistry I</td>
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<td>or CHEM 11</td>
<td>Honors Chemistry I</td>
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<td>CHEM 102</td>
<td>General Chemistry II</td>
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<tr>
<td>or CHEM 111</td>
<td>Honors Chemistry II</td>
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<td>CHEM 054</td>
<td>General Chemistry Laboratory II</td>
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<tr>
<td>BIOL 121</td>
<td>Introduction to Biology - The Molecular Biology of Life</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 123</td>
<td>Introductory Molecular Biology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 204</td>
<td>Biochemistry</td>
<td>1</td>
</tr>
<tr>
<td>or BIOL 205</td>
<td>Cell Biology</td>
<td>1</td>
</tr>
<tr>
<td>or BIOL 221</td>
<td>Molecular Biology and Genetics</td>
<td>1</td>
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</tbody>
</table>

Technical Electives 2

Select two Engineering, Math, Science Electives 2

Social Sciences and Humanities 2

Select 2 Social Science courses 2

Select 2 Humanities courses 2

Select 1 Social Science or Humanities course 1

Select 2 Social Science, Humanities or Technology in Business & Society courses 2

Ethics Requirement

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>EAS 203</td>
<td>Engineering Ethics</td>
<td>1</td>
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<tr>
<td>SOCI 101</td>
<td>Bioethics</td>
<td>1</td>
</tr>
<tr>
<td>PHIL 072/PPE 072</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
HSOC 102  Bioethics
HSOC 140  History of Bioethics
LGST 220  International Business Ethics
NURS 330  Theoretical Foundations of Health Care Ethics
NURS 525  Ethical Aspects of Health and Technology
PHIL 472  Survey of Ethical Theory
SOCI 118  Sociology of Bioethics

Free Elective
Select 3 free elective courses 3

Total Course Units 40.5

1 ENM 375 Biological Data Science I - Fundamentals of Biostatistics is recommended.
2 If PHYS 150 Principles of Physics I: Mechanics and Wave Motion or PHYS 170 Honors Physics I: Mechanics and Wave Motion & PHYS 151 Principles of Physics II: Electromagnetism and Radiation or PHYS 171 Honors Physics II: Electromagnetism and Radiation taken then only 1 course unit technical elective required.
3 The Social Science & Humanities Depth, Writing & Ethics Requirements can be satisfied with the 7 total course units.

Concentrations
Students may select one of eight concentrations (http://www.be.seas.upenn.edu/current-students/undergraduates/concentrations.php):

• Biomedical Data Science and Computational Medicine
• Biomedical Devices
• Cellular/Tissue Engineering and Biomaterials
• Biomedical Imaging and Radiation Physics
• Systems and Synthetic Biology
• Neuroengineering
• Multiscale Biomechanics
• Therapeutics, Drug Delivery & Nanomedicine

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Biomedical Science, BAS

Interface the engineering sciences, biology, biomedical sciences, and medicine to advance human health and solve problems in medicine and the biological sciences. The Bachelor of Applied Science degree offers students breadth and flexibility and allows them to combine a technology-based degree with considerable course work in the liberal arts, communications, business or fine arts. It is designed primarily for students whose interests are not oriented toward a professional engineering career. It is a popular degree option for those preparing for careers in medicine, business, and law. Many students who are pursuing dual degree programs opt for this degree.

For more information: http://www.be.seas.upenn.edu/prospective-students/undergraduates/program-bse-bas.php

Biomedical Science (ASBS) Major Requirements

40.5 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
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<th>Title</th>
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<td>BE 101</td>
<td>Introduction to Bioengineering II</td>
<td>0.5</td>
</tr>
<tr>
<td>ENGR 105</td>
<td>Introduction to Scientific Computing</td>
<td>1</td>
</tr>
<tr>
<td>BE 200</td>
<td>Introduction to Biomechanics</td>
<td>1</td>
</tr>
<tr>
<td>BE 220</td>
<td>Biomaterials</td>
<td>1</td>
</tr>
<tr>
<td>BE 305</td>
<td>Engineering Principles of Human Physiology</td>
<td>1</td>
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<tr>
<td>BE 306</td>
<td>Molecular Physiology and Cellular Engineering from Atoms to Disease</td>
<td>1</td>
</tr>
<tr>
<td>BE 497</td>
<td>Senior Thesis in Biomedical Science</td>
<td>1</td>
</tr>
<tr>
<td>BE 498</td>
<td>Senior Thesis in Biomedical Science</td>
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<td>BE Elective (300, 400 or 500 level)</td>
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<td></td>
<td>1</td>
</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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<td>MATH 114</td>
<td>Calculus, Part II</td>
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<tr>
<td>MATH 240</td>
<td>Calculus, Part III</td>
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<td>or ENM 240</td>
<td>Differential Equations and Linear Algebra</td>
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<tr>
<td>MATH 241</td>
<td>Calculus, Part IV</td>
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<tr>
<td>ENM 375</td>
<td>Biological Data Science I - Fundamentals of Biostatistics</td>
<td>1</td>
</tr>
<tr>
<td>or ENM 321</td>
<td>Engineering Statistics</td>
<td></td>
</tr>
<tr>
<td>or ESE 302</td>
<td>Engineering Applications of Statistics</td>
<td></td>
</tr>
<tr>
<td>or STAT 431</td>
<td>Statistical Inference</td>
<td></td>
</tr>
</tbody>
</table>

Natural Science

Select one of the following:

- PHYS 140 Principles of Physics I (without laboratory) 1
- or PHYS 150 Principles of Physics I: Mechanics and Wave Motion
- or PHYS 170 Honors Physics I: Mechanics and Wave Motion
- PHYS 141 Principles of Physics II (without laboratory) 1
- or PHYS 151 Principles of Physics II: Electromagnetism and Radiation
- or PHYS 171 Honors Physics II: Electromagnetism and Radiation

Select one of the following:

- EAS 091 Chemistry Advanced Placement/International Baccalaureate Credit (Engineering Students Only) 1
- or CHEM 101 General Chemistry I
- or CHEM 115 Honors Chemistry I
- CHEM 053 General Chemistry Laboratory I 0.5
Chemical and Biomolecular Engineering, BSE

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>CHEM 102</td>
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</tr>
<tr>
<td>or CHEM 116</td>
<td>Honors Chemistry II</td>
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<tr>
<td>CHEM 054</td>
<td>General Chemistry Laboratory II</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 121</td>
<td>Introduction to Biology - The Molecular Biology of Life</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 123</td>
<td>Introductory Molecular Biology Laboratory</td>
<td>0.5</td>
</tr>
<tr>
<td>BIOL 204</td>
<td>Biochemistry</td>
<td>1</td>
</tr>
<tr>
<td>or BIOL 205</td>
<td>Cell Biology</td>
<td></td>
</tr>
<tr>
<td>or BIOL 221</td>
<td>Molecular Biology and Genetics</td>
<td></td>
</tr>
</tbody>
</table>

**Technical Electives**

Math, Science, or Engineering Electives\(^2\) 2

**Career Path**

Select any Math, Science, Engineering, Business, or health-related course 3

**Social Sciences and Humanities\(^3\)**

Select 2 Social Science courses 2

Select 2 Humanities courses 2

Select 1 Social Science or Humanities course 1

Select 2 Social Science or Humanities or Technology in Business & Society courses 2

Select one of the following courses to fulfill the Ethics Requirement:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS 203</td>
<td>Engineering Ethics</td>
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<tr>
<td>or EAS 203</td>
<td>Engineering Ethics</td>
</tr>
<tr>
<td>or HSOC 102Bioethics</td>
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</tr>
<tr>
<td>or SOCI 101Bioethics</td>
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</tr>
<tr>
<td>or PHIL 072</td>
<td>Biomedical Ethics</td>
</tr>
<tr>
<td>or PPE 072</td>
<td>Biomedical Ethics</td>
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<tr>
<td>or HSOC 140History of Bioethics</td>
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<tr>
<td>or LGST 100Ethics and Social Responsibility</td>
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<tr>
<td>or LGST 220International Business Ethics</td>
<td></td>
</tr>
<tr>
<td>or NURS 525Ethical Aspects of Health and Technology</td>
<td></td>
</tr>
<tr>
<td>or NURS 33CTheoretical Foundations of Health Care Ethics</td>
<td></td>
</tr>
<tr>
<td>or PPE 272</td>
<td>Ethics and the Professions</td>
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<tr>
<td>or PHIL 472</td>
<td>Survey of Ethical Theory</td>
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<tr>
<td>or SOCI 118Sociology of Bioethics</td>
<td></td>
</tr>
</tbody>
</table>

**Free Elective**

Select 3 free electives 3

**Total Course Units** 40.5

---

1. ENM 375 Biological Data Science I - Fundamentals of Biostatistics is recommended.
2. If PHYS 150 Principles of Physics I: Mechanics and Wave Motion or PHYS 170 Honors Physics I: Mechanics and Wave Motion & PHYS 151 Principles of Physics II: Electromagnetism and Radiation or PHYS 171 Honors Physics II: Electromagnetism and Radiation taken then only 2 course units technical elective required.
3. The Social Science & Humanities Depth, Writing & Ethics Requirement can be satisfied with the 7 total course units.

**Concentrations**

Students may select one of eight concentrations (http://www.be.seas.upenn.edu/current-students/undergraduates/concentrations.php):

- Biomedical Data Science and Computational Medicine
- Biomedical Devices
- Cellular/Tissue Engineering and Biomaterials
- Biomedical Imaging and Radiation Physics
- Systems and Synthetic Biology
- Neuroengineering
- Multiscale Biomechanics
- Therapeutics, Drug Delivery & Nanomedicine

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Chemical and Biomolecular Engineering, BSE**

Chemical Engineers apply concepts from the physical sciences (chemistry and physics) and life sciences (biochemistry and microbiology) to the design and optimization of processes for the efficient production of products ranging from fuels and chemicals to pharmaceuticals to advanced materials. Penn’s chemical engineering department provides students with both a strong foundation in engineering fundamentals and exposure to modern chemical engineering technologies. The program’s versatility allows our students to excel in diverse careers in the chemical industries, research, medicine, law, government, and education.

For more information: https://www.seas.upenn.edu/prospective-students/undergrad/majors/chemical-and-bimolecular-engineering/

**Chemical and Biomolecular Engineering (CBE) Major Requirements**

41 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tr>
<td>ENGR 105</td>
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<td>CBE 160</td>
<td>Introduction to Chemical Engineering</td>
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<tr>
<td>CBE 230</td>
<td>Material and Energy Balances of Chemical Processes</td>
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<tr>
<td>CBE 231</td>
<td>Thermodynamics of Fluids</td>
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<td>CBE 350</td>
<td>Fluid Mechanics</td>
<td>1</td>
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<tr>
<td>CBE 351</td>
<td>Heat and Mass Transport</td>
<td>1</td>
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<tr>
<td>CBE 353</td>
<td>Advanced Chemical Engineering Science</td>
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<tr>
<td>CBE 371</td>
<td>Separation Processes</td>
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*2018-19 Catalog | Generated 08/30/18*
CBE 400  Introduction to Product and Process Design  1
CBE 410  Chemical Engineering Laboratory  1
CBE 451  Chemical Reactor Design  1
CBE 459  Product and Process Design Projects  1
CBE 460  Chemical Process Control  1
CBE Elective  2

Math
MATH 104  Calculus, Part I  1
MATH 114  Calculus, Part II  1
MATH 240  Calculus, Part III  1
MATH 241  Calculus, Part IV  1

Natural Science
PHYS 140  Principles of Physics I (without laboratory)  1
PHYS 141  Principles of Physics II (without laboratory)  1
PHYS 150  Principles of Physics I: Mechanics and Wave Motion  1
PHYS 151  Principles of Physics II: Electromagnetism and Radiation  1

CHEM 101  General Chemistry I  1
CHEM 053  General Chemistry Laboratory I  0.5
CHEM 102  General Chemistry II  1
CHEM 054  General Chemistry Laboratory II  0.5
CHEM 221  Physical Chemistry I  1
CHEM 223  Physical Chemistry II  1
CHEM 224  Quantum Physics of Materials  1
CHEM 241  Principles of Organic Chemistry  1
CHEM 242  Principles of Organic Chemistry II  1
CHEM 251  Principles of Biological Chemistry  1

Technical Electives  3
Select 1 Engineering elective  1
Select 2 Technical Electives  2
Select one of the following:  1
CBE 480  Laboratory in Biotechnology and Genetic Engineering  1
CHEM 223  Experimental Physical Chemistry I  1
CHEM 245  Experimental Organic Chemistry  1

Social Sciences and Humanities  4
Select 2 Social Science courses  2
Select 2 Humanities courses  2
Select 1 Social Science or Humanities course  1
Select 2 Social Science or Humanities or Technology in Business and Society courses  2

Free Elective
Select 3 course units of free electives  3

Total Course Units  41

The Social Science & Humanities Depth and Writing requirements can be satisfied with the 7 total course units.

Concentrations
Students may select one of four concentrations (http://www.cbe.seas.upenn.edu/current-students/undergraduates/concentrations.php):

- Pharmaceutics and Biotechnology
- Polymer Science and Engineering
- Nanotechnology
- Environmental Engineering

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Computational Biology, BAS

The BAS in Computational Biology is an interdisciplinary area that crosses between the biological sciences, math, and computer science. More specifically, it requires that students augment a basic computer science curriculum with courses in biology, chemistry, genetics and statistics. The program is intended to train students in key areas of Computational Biology and is also designed so that a student may focus on those areas of biology in which he or she wishes to specialize. A broad background in computer science, from programming to algorithms to database systems, is also required. This program has a year-long capstone course in computational biology that is co-taught by faculty in computer science, biology and genetics. The development of Computational Biology has been influenced by various factors. One main influence derives from the need to solve problems associated with the assimilation, storage, retrieval and analysis of data arising from the Human Genome Project and similar projects that involve massive data sets containing bibliographic information, DNA sequence information and testing methods and results. The analysis of such data involves the development and use of complex information modeling techniques, languages, visualization techniques, and computational methods. The second broad area of biology in which computational methods have for some time been used is in evolution and ecology. Many evolutionary processes when viewed from the genetic point of view involve equations of such complexity that ordinary algebraic and calculus methods are simply insufficient to solve them, and numerical methods entailing the use of a computer are necessary. The construction of phylogenetic trees of evolution has for a long time been carried out by computational as opposed to mathematical methods. Many ecological processes similarly involve such complexities that computer methods offer the only way forward. Computational Biology is a field of current interest and is essential to train computer scientists with enough knowledge of biology to be able to understand the problems and computational opportunities in this domain. Employment opportunities are excellent at major pharmaceutical companies, biotech companies and research labs.

For more information: https://www.seas.upenn.edu/prospective-students/undergrad/majors/bachelor-of-applied-science/
Computational Biology (ASCB) Major Requirements

40 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tr>
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<td><strong>Engineering</strong></td>
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<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming</td>
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</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Programming Languages and Techniques II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 240</td>
<td>Introduction to Computer Systems</td>
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<tr>
<td>CIS 320</td>
<td>Introduction to Algorithms</td>
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<tr>
<td>CIS Electives</td>
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<td>2</td>
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<tr>
<td>CIS Project Electives</td>
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<td>Engineering Electives</td>
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<td>EAS 499</td>
<td>Senior Capstone Project</td>
<td>1</td>
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<tr>
<td></td>
<td><strong>Math</strong></td>
<td></td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 160</td>
<td>Mathematical Foundations of Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS 262</td>
<td>Automata, Computability, and Complexity</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 446</td>
<td>Statistics for Biologists</td>
<td>1</td>
</tr>
<tr>
<td>Math Elective</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Natural Science</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 121</td>
<td>Introduction to Biology - The Molecular Biology of Life</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 102</td>
<td>Introduction to Biology B</td>
<td>1.5</td>
</tr>
<tr>
<td>BIOL 221</td>
<td>Molecular Biology and Genetics</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 053</td>
<td>General Chemistry Laboratory I</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td><strong>Concentration</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 7-8 course units</td>
<td>7-8</td>
</tr>
<tr>
<td></td>
<td><strong>Social Sciences and Humanities</strong></td>
<td></td>
</tr>
<tr>
<td>EAS 203</td>
<td>Engineering Ethics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select 2 Social Science courses</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Select 2 Humanities courses</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Select 2 Social Science or Humanities or Technology in</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Business and Society courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Free Elective</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2.5-3.5 course units of free electives</td>
<td>2.5-3.5</td>
</tr>
<tr>
<td></td>
<td><strong>Total Course Units</strong></td>
<td>40</td>
</tr>
</tbody>
</table>

1. A CIS elective is a CIS or NETS engineering course. The SEAS handbook defines all CIS and NETS classes numbered 1xx-5xx as engineering courses, with the following exceptions that cannot be used: CIS 105 Computational Data Exploration, CIS 106 Visualizing the Past., CIS 125 Technology and Policy, CIS 160 Mathematical Foundations of Computer Science, CIS 261 Discrete Probability, Stochastic Processes, and Statistical Inference, CIS 262 Automata, Computability, and Complexity.

2. ESE 350 Embedded Systems/Microcontroller Laboratory can also be used to satisfy the CIS elective requirement.

3. The Social Science & Humanities Depth, Writing & Ethics Requirement can be satisfied with the 7 total course units.

Concentration

Department approval is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 437</td>
<td>Introduction to Computational Biology &amp; Biological Modeling</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 537</td>
<td>Advanced Computational Biology</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Select two of the following:</td>
<td></td>
</tr>
<tr>
<td>PHIS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
<td></td>
</tr>
<tr>
<td>CHEM 102/054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 215</td>
<td>Vertebrate Physiology</td>
<td></td>
</tr>
<tr>
<td>or BIOL 251</td>
<td>Molecular and Cellular Neurobiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 230</td>
<td>Evolutionary Biology</td>
<td></td>
</tr>
<tr>
<td>or BIOL 231</td>
<td>The Evolution of Animal Behavior</td>
<td></td>
</tr>
<tr>
<td>or BIOL 240</td>
<td>Ecology: From individuals to ecosystems</td>
<td></td>
</tr>
<tr>
<td>CHEM 054</td>
<td>General Chemistry Laboratory II (if applicable)</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Select remaining 3 courses from the following:</td>
<td></td>
</tr>
<tr>
<td>Any CIS course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any 200 level Biology course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 410</td>
<td>Advanced Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Evolutionary Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL 421</td>
<td>Molecular Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOL 425</td>
<td>Biochemistry and Molecular Genetics Superlab</td>
<td></td>
</tr>
<tr>
<td>BIOL 431</td>
<td>Genome Science and Genomic Medicine</td>
<td></td>
</tr>
<tr>
<td>BIOL 480</td>
<td>Advanced Cell Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 485</td>
<td>The RNA World: A functional and computational analysis</td>
<td></td>
</tr>
<tr>
<td>PHYS 280</td>
<td>Physical Models of Biological Systems</td>
<td></td>
</tr>
<tr>
<td>PHYS 585</td>
<td>Theoretical and Computational Neuroscience</td>
<td></td>
</tr>
<tr>
<td>MATH 420</td>
<td>Ordinary Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH 425</td>
<td>Partial Differential Equations</td>
<td></td>
</tr>
</tbody>
</table>
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Computer and Cognitive Science, BAS**

The BAS in Computer and Cognitive Science through the School of Engineering and Applied Science combines the application of theoretical insights from Computer Science, Linguistics, Neuroscience, Philosophy, and Psychology to the formal study of intelligence, perception, reasoning, and other properties of mind, and their application in the service of Information Technology. The degree combines a form grounding in relevant aspects of Computer Science, from programming to algorithms to artificial intelligence, with a concentration in specific courses from the contingent disciplines. The non-computer science courses have been selected for formal rigor and scientific relevance. The degree prepares students for a wide variety of careers in a number of distinct academic, industrial, and professional areas relating to psychology, philosophy and linguistics. In particular, these careers pertain to the impact of knowledge and information technology on the professions, including those in Media and Communications, Software Development, and Education (among many others), in which a broad background in computer science must be combined with a deep understanding of the human mind. The BAS in Computer and Cognitive Science is intended to address the need for properly trained computer scientists who have sufficient understanding of these other disciplines to be able to solve the many open problems in applications, research, and development that must be addressed if we are to realize the full potential of information processing technologies in these domains. Employment opportunities for students going through such a program are excellent at major information technology companies, software houses, and research labs, as well as in the standard career structures in the areas identified above.

For more information: [https://www.seas.upenn.edu/prospective-students/undergrad/majors/bachelor-of-applied-science/](https://www.seas.upenn.edu/prospective-students/undergrad/majors/bachelor-of-applied-science/)

**Computer and Cognitive Science (ASCC) Major Requirements**

40 course units are required. Read more about the Undergraduate Student Handbook [here](http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming</td>
<td>1</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Programming Languages and Techniques II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 140</td>
<td>Introduction to Cognitive Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS 240</td>
<td>Introduction to Computer Systems</td>
<td>1</td>
</tr>
<tr>
<td>CIS 320</td>
<td>Introduction to Algorithms</td>
<td>1</td>
</tr>
<tr>
<td>CIS 421</td>
<td>Artificial Intelligence</td>
<td>1</td>
</tr>
</tbody>
</table>

CIS Elective 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS 499</td>
<td>Senior Capstone Project</td>
<td>1</td>
</tr>
</tbody>
</table>

**Math**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 160</td>
<td>Mathematical Foundations of Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS 262</td>
<td>Automata, Computability, and Complexity</td>
<td>1</td>
</tr>
</tbody>
</table>

**Natural Science**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 140</td>
<td>Principles of Physics I (without laboratory)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 141</td>
<td>Principles of Physics II (without laboratory)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Concentration**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 8 course units</td>
<td>8</td>
</tr>
<tr>
<td>Select 2 Social Science courses</td>
<td>2</td>
</tr>
<tr>
<td>Select 2 Humanities courses</td>
<td>2</td>
</tr>
<tr>
<td>Select 2 Social Science or Humanities or Technology in Business &amp; Society courses</td>
<td>2</td>
</tr>
<tr>
<td>Select 3 course units of free electives</td>
<td>3</td>
</tr>
<tr>
<td>Total Course Units</td>
<td>40</td>
</tr>
</tbody>
</table>

1 A CIS elective is a CIS or NETS engineering course. The SEAS handbook defines all CIS and NETS classes numbered 1xx-5xx as engineering courses, with the following exceptions that cannot be used: CIS 105 Computational Data Exploration, CIS 106 Visualizing the Past., CIS 125 Technology and Policy, CIS 160 Mathematical Foundations of Computer Science, CIS 261 Discrete Probability, Stochastic Processes, and Statistical Inference, CIS 262 Automata, Computability, and Complexity. ESE 350 Embedded Systems/Microcontroller Laboratory can also be used to satisfy the CIS elective requirement. Please note: Students may count at most 1 cu of 1xx credit as a CIS Elective.

2 Science labs are not required. Labs taken can be used as Natural Science credit.

3 The Social Science & Humanities Depth, Writing & Ethics Requirement can be satisfied with the 7 total course units.

**Concentration**

Department approval is required.

- Option 1: Any approved minor, or sequence of approved courses. Remaining must be Math, Natural Science or Engineering. (Minors are strongly encouraged.)
- Option 2: Any 8 course units from Math, Natural Science, Engineering, or from the following specified tech electives:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 106</td>
<td>Introduction to Formal Linguistics</td>
<td>1</td>
</tr>
<tr>
<td>PHIL 231</td>
<td>Epistemology</td>
<td>1</td>
</tr>
<tr>
<td>PHIL 244</td>
<td>Introduction to Philosophy of Mind</td>
<td>1</td>
</tr>
</tbody>
</table>
For ASCC Majors, Nat Sci may also include the following Cog Sci Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 230</td>
<td>Sound Structure of Language</td>
<td>1</td>
</tr>
<tr>
<td>LING 250</td>
<td>Introduction to Syntax</td>
<td>1</td>
</tr>
<tr>
<td>LING 520</td>
<td>Phonetics I</td>
<td>1</td>
</tr>
<tr>
<td>LING 530</td>
<td>Phonology I</td>
<td>1</td>
</tr>
<tr>
<td>LING 531</td>
<td>Phonology II</td>
<td>1</td>
</tr>
<tr>
<td>LING 550</td>
<td>Syntax I</td>
<td>1</td>
</tr>
<tr>
<td>LING 551</td>
<td>Syntax II</td>
<td>1</td>
</tr>
<tr>
<td>LING 603</td>
<td>Topics in Phonology</td>
<td>1</td>
</tr>
<tr>
<td>LING 630</td>
<td>Seminar in Morphology</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 109</td>
<td>Introduction to Brain and Behavior</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 111</td>
<td>Perception</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 151</td>
<td>Language and Thought</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

## Computer Engineering, BSE

Computer Engineering is the discipline that designs and engineers computer systems from digital circuits, through compilers and runtime systems, to networking and world-wide distributed systems. As an engineering discipline, the computer engineer must appreciate the physical aspects of computations (energy, delay, area, reliability, costs) and be able to expertly navigate the multidimensional tradeoff space associated with implementing computations. Since today’s high performance programmable computing devices mean enormous computational tasks can be performed entirely in software, the computer engineer must manage computational capabilities and functionalities which migrate between hardware and software driven by advancing technology and these engineering tradeoffs. Recent advances in manufacturing make it economical to construct systems containing billions of components and millions of lines of code, and these systems are increasingly invaluable in life-critical and real-time systems; computer engineering is the discipline that seeks to understand how to design and manage systems of this complexity while providing adequate guarantees of safety and trustworthiness for such systems.

For more information: [https://www.seas.upenn.edu/prospective-students/undergrad/majors/computer-engineering/](https://www.seas.upenn.edu/prospective-students/undergrad/majors/computer-engineering/)

## Computer Engineering (CMPE) Major Requirements

40 course units are required. Read more about the Undergraduate Student Handbook ([http://www.seas.upenn.edu/undergraduate/handbook](http://www.seas.upenn.edu/undergraduate/handbook)).
Computer Science, BSE

Computer scientists and engineers have revolutionized society and created the computer and telecommunications industries that are so important to human life and the world’s economy. As a result of this revolution, expertise in computer science is essential in many new areas, including computer and network service and consulting companies, financial institutions, health industries, natural science labs and medical research labs, and other contexts where intensive manipulation of information is important. As a result, opportunities for computer scientists and engineers have expanded greatly, both in specialized fields as well as in numerous dual-career opportunities in which computer expertise is combined with advanced degrees in business, communication, engineering, law, medicine, and science.

For more information: https://www.seas.upenn.edu/prospective-students/undergrad/majors/computer-science/

Computer Science (CSCI) Major Requirements

40 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming</td>
<td>1</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Programming Languages and Techniques II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 240</td>
<td>Introduction to Computer Systems</td>
<td>1</td>
</tr>
<tr>
<td>CIS 262</td>
<td>Automata, Computability, and Complexity</td>
<td>1</td>
</tr>
<tr>
<td>CIS 320</td>
<td>Introduction to Algorithms</td>
<td>1</td>
</tr>
<tr>
<td>Select one of the following CIS Project elective courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS 341</td>
<td>Compilers and Interpreters</td>
<td>1</td>
</tr>
<tr>
<td>CIS 350</td>
<td>Software Design/Engineering</td>
<td></td>
</tr>
<tr>
<td>CIS 450</td>
<td>Database and Information Systems</td>
<td></td>
</tr>
<tr>
<td>CIS 455</td>
<td>Internet and Web Systems</td>
<td></td>
</tr>
<tr>
<td>CIS 460</td>
<td>Interactive Computer Graphics</td>
<td></td>
</tr>
<tr>
<td>CIS 553</td>
<td>Networked Systems</td>
<td></td>
</tr>
<tr>
<td>ESE 350</td>
<td>Embedded Systems/Microcontroller Laboratory</td>
<td></td>
</tr>
<tr>
<td>CIS 371</td>
<td>Computer Organization and Design</td>
<td>1</td>
</tr>
<tr>
<td>CIS 380</td>
<td>Computer Operating Systems</td>
<td>1</td>
</tr>
<tr>
<td>CIS 400</td>
<td>Senior Project</td>
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<tr>
<td>CIS 401</td>
<td>Senior Project</td>
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<tr>
<td>CIS Elective</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 160</td>
<td>Mathematical Foundations of Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS 261</td>
<td>Discrete Probability, Stochastic Processes, and Statistical Inference</td>
<td>1</td>
</tr>
<tr>
<td>ESE 301</td>
<td>Engineering Probability</td>
<td></td>
</tr>
</tbody>
</table>

The Social Science & Humanities Depth, Writing & Ethics Requirements can be satisfied with the 7 total course units.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
### Technical Electives

(Department Approval Required)

Two Engineering courses required. Remaining course can be from:

- Option 1: Any approved minor or minor equiv; or a sequence of approved courses.
- Option 2: Any Math, Natural Science, or Engineering, or the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Epistemology</td>
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</tr>
<tr>
<td>PHIL 244</td>
<td>Introduction to Philosophy of Mind</td>
<td>1</td>
</tr>
<tr>
<td>OIDD 220</td>
<td>Introduction to Operations Management</td>
<td>1</td>
</tr>
<tr>
<td>OIDD 321</td>
<td>Introduction to Management Science</td>
<td>1</td>
</tr>
<tr>
<td>OIDD 325</td>
<td>Computer Simulation Models</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Computer Science, BAS

Computer scientists and engineers have revolutionized society and created the computer and telecommunications industries that are so important to human life and the world’s economy. As a result of this revolution, expertise in computer science is essential in many new areas, including computer and network service and consulting companies, financial institutions, health industries, natural science labs and medical research labs, and other contexts where intensive manipulation of information is important. As a result, opportunities for computer scientists and engineers have expanded greatly, both in specialized fields as well as in numerous dual-career opportunities in which computer expertise is combined with advanced degrees in business, communication, engineering, law, medicine, and science.

For more information: [https://www.seas.upenn.edu/prospective-students/undergrad/majors/computer-science/](https://www.seas.upenn.edu/prospective-students/undergrad/majors/computer-science/)

### Computer Science (ASCS) Major Requirements

40 course units are required. Read more about the Undergraduate Student Handbook [http://www.seas.upenn.edu/undergraduate/handbook](http://www.seas.upenn.edu/undergraduate/handbook).

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<thead>
<tr>
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<tbody>
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<tr>
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<td>Programming Languages and Techniques II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 240</td>
<td>Introduction to Computer Systems</td>
<td>1</td>
</tr>
<tr>
<td>CIS 320</td>
<td>Introduction to Algorithms</td>
<td>1</td>
</tr>
<tr>
<td>CIS Electives</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

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1 A CIS elective is a CIS or NETS engineering course. The SEAS handbook defines all CIS and NETS classes numbered 1xx5xx as engineering courses, with the following exceptions that cannot be used: CIS 100, 101, 106, 125, 160, 261. ESE 350 Embedded Systems/Microcontroller Laboratory can also be used to satisfy the CIS elective requirement. Please note: Students may count at most 1 cu of 1xx credit as a CIS elective.

2 For CSCI Majors, Natural Science may also include the following Cognitive Science Courses: LING 250 Introduction to Syntax, PSYC 111 Perception, (these courses cannot be used by CSCI majors in the SSH category).

3 One year of laboratory course work is required which can be used as one of the 4 course units. One way to satisfy this requirement is by taking PHYS 150 Principles of Physics I: Mechanics and Wave Motion and PHYS 151 Principles of Physics II: Electromagnetism and Radiation.

4 Two of the six must be Engineering courses.

5 The Social Science & Humanities Depth, Writing and Ethics requirements can be satisfied with the 7 total course units.
### CIS Project Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Engineering</td>
<td>2</td>
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<tr>
<td>EAS 499</td>
<td>Senior Capstone Project</td>
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### Math

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 160</td>
<td>Mathematical Foundations of Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS 262</td>
<td>Automata, Computability, and Complexity</td>
<td>1</td>
</tr>
</tbody>
</table>

### Math Electives

Select 2 of the following:

- PHYS 140 Principles of Physics I (without laboratory)
- PHYS 141 Principles of Physics II (without laboratory)
- EAS 091 Advanced Placement/International Baccalaureate Credit (Engineering Students Only)
- or CHEM 101 General Chemistry I
- BIOL 101 Introduction to Biology A
- or BIOL 121 Introduction to Biology - The Molecular Biology of Life

### Natural Science Electives

Select 8 course units, with departmental approval.

### Concentration

- Select 8 course units, with departmental approval.
- Select 2 Social Science courses
- Select 2 Humanities courses
- Select 2 Social Science or Humanities or Technology in Business & Society courses
- EAS 203 Engineering Ethics

### Free Elective

Select 3 course units of free electives

Total Course Units: 40

---

1. A CIS elective is a CIS or NETS engineering course. The SEAS handbook defines all CIS and NETS classes numbered 1xx-5xx as engineering courses, with the following exceptions that cannot be used: CIS 105 Computational Data Exploration, CIS 106 Visualizing the Past, CIS 125 Technology and Policy, CIS 160 Mathematical Foundations of Computer Science, CIS 261 Discrete Probability, Stochastic Processes, and Statistical Inference, CIS 262 Automata, Computability, and Complexity.


3. Science labs are not required. Labs taken can be used as Natural Science credit.

4. For ASCS Majors, Nat Sci may also include the following Cog Sci Courses:
   - LING 250 Introduction to Syntax
   - LING 230 Sound Structure of Language
   - LING 520 Phonetics I
   - LING 530 Phonology I
   - LING 531 Phonology II
   - LING 550 Syntax I
   - LING 551 Syntax II
   - LING 603 Topics in Phonology
   - LING 630 Seminar in Morphology
   - PHIL 109 Introduction to Brain and Behavior
   - PSYC 111 Perception
   - PSYC 151 Language and Thought

   (MINORS ARE STRONGLY ENCOURAGED)

5. OPTION 1: Any approved minor, or sequence of approved courses. Remaining must be Math, Nat Sci or Engineering.

6. OPTION 2: Any 8 CU's from Math, Nat Sci, Engineering, or from the following specified Tech Electives: LING 106 Introduction to Formal Linguistics; PHIL 231 Epistemology; OIDD 220 Introduction to Operations Management; OIDD 321 Introduction to Management Science; OIDD 325 Computer Simulation Models

7. The Social Science & Humanities Depth, Writing & Ethics Requirement can be satisfied with the 7 total course units.
Digital Media Design, BSE

The Digital Media Design (DMD) program is an interdisciplinary major in the School of Engineering and Applied Science at Penn. As a full-fledged Bachelors in Engineering and Science (BSE) degree, it combines major coursework in computer graphics within the Computer & Information Science Department, Communication theory courses from the Annenberg School and Fine Arts courses from Penn’s School of Design. The program was designed for students who have an interest in computer graphics, animation, games, and the design of virtual reality environments and interactive technologies. The Digital Media Design Program was established in response to what we perceived as a growing rift within the computer graphics and animation industry.

For more information: [https://www.seas.upenn.edu/prospective-students/undergrad/majors/digital-media-design/](https://www.seas.upenn.edu/prospective-students/undergrad/majors/digital-media-design/)

Digital Media Design (DMD) Major Requirements

40 course units are required. Read more about the Undergraduate Student Handbook ([http://www.seas.upenn.edu/undergraduate/handbook](http://www.seas.upenn.edu/undergraduate/handbook)).

<table>
<thead>
<tr>
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<tbody>
<tr>
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<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming</td>
<td>1</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Programming Languages and Techniques II</td>
<td>1</td>
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<tr>
<td>CIS 240</td>
<td>Introduction to Computer Systems</td>
<td>1</td>
</tr>
<tr>
<td>CIS 320</td>
<td>Introduction to Algorithms</td>
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<tr>
<td>CIS 460</td>
<td>Interactive Computer Graphics</td>
<td>1</td>
</tr>
<tr>
<td>CIS 462</td>
<td>Computer Animation</td>
<td>1</td>
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<tr>
<td>or CIS 455</td>
<td>Internet and Web Systems</td>
<td>1</td>
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<tr>
<td>CIS 461</td>
<td>Advanced Computer Graphics</td>
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<tr>
<td>CIS 497</td>
<td>DMD Senior Project</td>
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<td>CIS 200 level or above</td>
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<td>CIS Elective</td>
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<td>Math &amp; Natural Science</td>
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<td>MATH 104</td>
<td>Calculus, Part I</td>
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<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
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</tr>
<tr>
<td>CIS 160</td>
<td>Mathematical Foundations of Computer Science</td>
<td>1</td>
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<tr>
<td>CIS 262</td>
<td>Automata, Computability, and Complexity</td>
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<tr>
<td>EAS 205</td>
<td>Applications of Scientific Computing</td>
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<tr>
<td>or MATH 312</td>
<td>Linear Algebra</td>
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<tr>
<td>or MATH 313</td>
<td>Computational Linear Algebra</td>
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<td>Math Elective</td>
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**Natural Science Core**

Select two of the following:

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<tr>
<td>PHYS 140 &amp; PHYS 150</td>
<td>Principles of Physics I (without laboratory) and Principles of Physics I: Mechanics and Wave Motion</td>
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<tr>
<td>MEAM 110 &amp; MEAM 147</td>
<td>Introduction to Mechanics and Introduction to Mechanics Lab</td>
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<tr>
<td>PHYS 141 or PHYS 151</td>
<td>Principles of Physics II (without laboratory) or Principles of Physics II: Electromagnetism and Radiation</td>
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**Electives**

Math or Natural Science 1

Natural Science 2

**DMD Electives**

<table>
<thead>
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<th>Code</th>
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<tr>
<td>FNAR 123</td>
<td>Drawing I</td>
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<tr>
<td>or FNAR 124</td>
<td>Drawing Investigations</td>
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<tr>
<td>FNAR 235</td>
<td>3-D Computer Modeling</td>
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<tr>
<td>or FNAR 236</td>
<td>Digital Figure Modeling</td>
<td></td>
</tr>
</tbody>
</table>

Select 7 DMD Electives 1 7

**Social Sciences and Humanities** 2

Select 2 Social Science courses. 2

Select 2 Humanities courses. 2

Select 1 Social Science or Humanities course. 1

Select 2 Social Science or Humanities or Technology in Business & Society courses. 2

**Free Elective**

Select 2 free electives 3 2

**Total Course Units**

40

1. Select courses from offerings in the following categories: COMM; FNAR, CIMS, THAR, MKTG, EDUC (Advisor approval is required).
2. The Social Science & Humanities Depth, Writing & Ethics Requirement can be satisfied with the 7 total course units.
3. Approval is required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Electrical Engineering, BSE

Electrical engineering connects the physical world with the information world. Electrical engineers apply physics and chemistry in modern nanotechnology devices, encode and manipulate information in circuits and networks, and mathematically understand and reason with large amounts of data in real time. This makes electrical engineering one of the broadest forms of engineering, resulting in a multitude of possible careers. The societal impact of electrical engineering can be found in numerous domains, from smartphones, 5G wireless, and medical imaging to electric/autonomous cars and the Internet of Things. Electrical engineering includes the engineering of electronics, magnets, photons, electromagnetic waves, quantum states, and electro-mechanical structures. Electrically engineering systems provide communication, sensing, actuation, display, storage, conversion, control, and computation.
The electrical engineering discipline includes both the design and implementation of physical realizations (devices, circuits, antennas) and the mathematical tools for optimizing the exploitation of these systems (control theory, information theory, digital logic, signal processing).

For more information: https://www.seas.upenn.edu/prospective-students/undergrad/majors/electrical-engineering/

**Electrical Engineering (EE) Major Requirements**

40 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td></td>
<td><strong>Engineering</strong></td>
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</tr>
<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming</td>
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<tr>
<td>or ENGR 105</td>
<td>Introduction to Scientific Computing</td>
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</tr>
<tr>
<td>ESE 111</td>
<td>Atoms, Bits, Circuits and Systems</td>
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<tr>
<td>ESE 215</td>
<td>Electrical Circuits and Systems</td>
<td>1.5</td>
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<tr>
<td>ESE 218</td>
<td>Electronic, Photonic, and Electromechanical Devices</td>
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<tr>
<td>ESE 224</td>
<td>Signal and Information Processing</td>
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<tr>
<td></td>
<td><strong>Area Course: (A) Advance Computing Elective</strong></td>
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<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
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<td>or ESE 240</td>
<td>Introduction to Computer Systems</td>
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<td><strong>Area Course: (B) Intermediate or Advanced ESE Elective</strong></td>
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<td></td>
<td><strong>Area Course: (C) Advanced ESE Courses</strong></td>
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<td><strong>Circuits and Computer Engineering</strong></td>
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<tr>
<td>ESE 319</td>
<td>Fundamentals of Solid-State Circuits</td>
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<tr>
<td>ESE 350</td>
<td>Embedded Systems/Microcontroller Laboratory</td>
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<tr>
<td>ESE 370</td>
<td>Circuit-Level Modeling, Design, and Optimization for Digital Systems</td>
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<tr>
<td>ESE 419</td>
<td>Analog Integrated Circuits</td>
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<tr>
<td>ESE 570</td>
<td>Digital Integrated Circuits and VLSI-Fundamentals</td>
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<tr>
<td>ESE 578</td>
<td>RFIC (Radio Frequency Integrated Circuit) Design</td>
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<td></td>
<td><strong>Nanodevices and Nanosystems:</strong></td>
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<tr>
<td>ESE 310</td>
<td>Electric and Magnetic Fields I</td>
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<td>ESE 321</td>
<td>Physics and Models of Semiconductor Devices</td>
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<tr>
<td>ESE 460</td>
<td>Principles of Microfabrication Technology</td>
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<tr>
<td>ESE 510</td>
<td>Electromagnetic and Optical Theory</td>
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<tr>
<td>ESE 521</td>
<td>The Physics of Solid State Energy Devices</td>
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<tr>
<td>ESE 525</td>
<td>Nanoscale Science and Engineering</td>
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<td>ESE 526</td>
<td>Photovoltaic Systems Engineering</td>
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<td></td>
<td><strong>Information and Decision Systems</strong></td>
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<tr>
<td>ESE 303</td>
<td>Stochastic Systems Analysis and Simulation</td>
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<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ESE 325</td>
<td>Fourier Analysis and Applications in Engineering, Mathematics, and the Sciences</td>
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<tr>
<td>ESE 407</td>
<td>Introduction to Networks and Protocols</td>
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<tr>
<td>ESE 500</td>
<td>Linear Systems Theory</td>
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<td>ESE 504</td>
<td>Introduction to Optimization Theory</td>
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<tr>
<td>ESE 505</td>
<td>Control of Systems</td>
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<tr>
<td>ESE 512</td>
<td>Dynamical Systems for Engineering and Biological Applications</td>
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<tr>
<td>ESE 527</td>
<td>Design of Smart Systems</td>
<td></td>
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<tr>
<td>ESE 528</td>
<td>Estimation and Detection Theory</td>
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<tr>
<td>ESE 531</td>
<td>Digital Signal Processing</td>
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<tr>
<td>ESE 590</td>
<td>Systems Methodology</td>
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<th>Course Units</th>
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<tr>
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<tr>
<td>or ESE 291</td>
<td>Introduction to Electrical and Systems Engineering Research and Design</td>
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<tr>
<td>ESE 319</td>
<td>Fundamentals of Solid-State Circuits</td>
<td></td>
</tr>
<tr>
<td>ESE 350</td>
<td>Embedded Systems/Microcontroller Laboratory</td>
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<tr>
<td>BE 470</td>
<td>Medical Devices</td>
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<tr>
<td>ESE 450</td>
<td>Senior Design Project I - EE and SSE</td>
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<td>ESE 451</td>
<td>Senior Design Project II - EE and SSE</td>
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<td><strong>Professional Electives</strong></td>
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<td>Engineering Elective</td>
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<td>Math, Science, or Engineering Electives</td>
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<td>Professional Elective - Select from the following:</td>
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<tr>
<td>ESE 400</td>
<td>Engineering Economics</td>
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<tr>
<td>EAS 545</td>
<td>Engineering Entrepreneurship I</td>
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<tr>
<td>EAS 595</td>
<td>Foundations of Leadership</td>
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<tr>
<td>MGMT 237</td>
<td>Management of Technology</td>
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<td><strong>Math and Natural Science</strong></td>
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<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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<td>Calculus, Part III</td>
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<td>PHYS 140</td>
<td>Principles of Physics I (without laboratory)</td>
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<td>PHYS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
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<td>PHYS 170</td>
<td>Honors Physics I: Mechanics and Wave Motion</td>
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<td>Introduction to Mechanics</td>
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<td>Select one of the following:</td>
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<td>ESE 112</td>
<td>Engineering Electromagnetics</td>
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<tr>
<td>PHYS 151</td>
<td>Principles of Physics II: Electromagnetism and Radiation</td>
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<td>PHYS 171</td>
<td>Honors Physics II: Electromagnetism and Radiation</td>
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<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
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</tbody>
</table>

or BIOL 101 | Introduction to Biology A
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Materials Science and Engineering (MSE) Major Requirements

40 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tr>
<td>ENGR 105</td>
<td>Introduction to Scientific Computing</td>
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<td>MSE 215</td>
<td>Introduction to Functional Materials: From Macro to Nanoscale</td>
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<tr>
<td>MSE 220</td>
<td>Introduction to Materials Science and Engineering</td>
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<td>MSE 250</td>
<td>Nano-scale Materials Lab</td>
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<td>MSE 260</td>
<td>Energetics of Macro and Nano-scale Materials</td>
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<td>MSE 330</td>
<td>Self-Assembly of Soft Materials</td>
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<td>MSE 360</td>
<td>Structure at the Nanoscale</td>
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<td>MSE 393</td>
<td>Materials Selection</td>
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<tr>
<td>MSE 405</td>
<td>Mechanical Behavior of Macro/Nanoscale Materials</td>
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<tr>
<td>MSE 440</td>
<td>Phase Transformations</td>
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<td>MSE 460</td>
<td>Computational Materials Science</td>
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<td>MATH 104</td>
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<td>MATH 240</td>
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<td>ENGR 241</td>
<td>Calculus, Part IV</td>
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<td>ESE 301</td>
<td>Engineering Probability (recommended)</td>
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<td>PHYS 140</td>
<td>Principles of Physics I (without laboratory)</td>
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<tr>
<td>or MEAM 110</td>
<td>Introduction to Mechanics</td>
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<tr>
<td>PHYS 141</td>
<td>Principles of Physics II (without laboratory)</td>
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<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
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<td>CHEM 053</td>
<td>General Chemistry Laboratory I</td>
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<td>CHEM 102</td>
<td>General Chemistry II</td>
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<td>CHEM 054</td>
<td>General Chemistry Laboratory II</td>
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<td>MSE 221</td>
<td>Quantum Physics of Materials</td>
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</tr>
<tr>
<td>Natural Science</td>
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<td>Technical Electives</td>
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<tr>
<td>Engineering, Math or Natural Science Electives</td>
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<tr>
<td>Social Sciences and Humanities</td>
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<tr>
<td>EAS 203</td>
<td>Engineering Ethics</td>
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<tr>
<td>Select 1 Social Science course</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 2 Humanities courses</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Select 3 course units of free electives</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1 Note: ENM 251 Analytical Methods for Engineering can be taken with department permission.
2 Note: MEAM 110 Introduction to Mechanics can be taken with department permission.
4 The Social Science & Humanities Depth and Writing Requirement can be satisfied with the 7 total course units.

Concentrations

- Nanoscale Materials Science (http://www.mse.seas.upenn.edu/about-ugrad/ug-concentrations.php)

Note: MSE students automatically receive this concentration as the courses above are part of the MSE core curriculum.

Areas of Specialization

To develop a specialization, the faculty recommends completing 3 courses. Students are welcome to have multiple areas of specialization. At present specializations are not designated on official transcripts.

For more information, visit: http://www.mse.seas.upenn.edu/about-ugrad/ug-concentrations.php.

- Biomaterials and Biomimetics
- Electronic and Optical Materials
- Energy Conversion and Storage
- Materials Modelling and Simulation
- Product Design, Manufacturing, and Materials

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Mechanical Engineering and Applied Mechanics, BSE

Mechanical Engineering & Applied Mechanics (MEAM) is the study of forces, deformations and motions of solid bodies and fluids, heat generation and transport, and applications to analysis, design, and manufacture of components, machines, and systems. Students in mechanical engineering follow a program which contains basic
groundwork in all aspects of mechanical engineering, but flexibility in the curriculum allows students to pursue elective programs in fields such as aeronautics, robotics, computers, electronics, automatic controls, and materials.

For more information: https://www.seas.upenn.edu/prospective-students/undergrad/majors/mechanical-engineering-and-applied-mechanics/

**Mechanical Engineering and Applied Mechanics (MEAM) Major Requirements**

40 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAM 203</td>
<td>Thermodynamics I</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 210</td>
<td>Statics and Strength of Materials</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 211</td>
<td>Engineering Mechanics: Dynamics</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 247</td>
<td>Mechanical Engineering Laboratory I</td>
<td>0.5</td>
</tr>
<tr>
<td>MEAM 248</td>
<td>Mechanical Engineering Lab I</td>
<td>0.5</td>
</tr>
<tr>
<td>MEAM 302</td>
<td>Fluid Mechanics</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 321</td>
<td>Vibrations of Mechanical Systems</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 333</td>
<td>Heat and Mass Transfer</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 347</td>
<td>Mechanical Engineering Design Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 348</td>
<td>Mechanical Engineering Design Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 354</td>
<td>Mechanics of Solids</td>
<td>1</td>
</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 240</td>
<td>Calculus, Part III</td>
<td>1</td>
</tr>
<tr>
<td>ENM 251</td>
<td>Analytical Methods for Engineering</td>
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</tr>
<tr>
<td>or MATH 241</td>
<td>Calculus, Part IV</td>
<td>1</td>
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<tr>
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<tr>
<td>MEAM 110</td>
<td>Introduction to Mechanics</td>
<td>1</td>
</tr>
<tr>
<td>or PHYS 150</td>
<td>Principles of Physics I: Mechanics and Wave Motion</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 147</td>
<td>Introduction to Mechanics Lab ¹</td>
<td>0.5</td>
</tr>
<tr>
<td>PHYS 151</td>
<td>Principles of Physics II: Electromagnetism and Radiation</td>
<td>1.5</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 053</td>
<td>General Chemistry Laboratory I</td>
<td>0.5</td>
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<tr>
<td>Math or Natural Science</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>MEAM 445</td>
<td>Mechanical Engineering Design Projects (Design Project I)</td>
<td>1</td>
</tr>
<tr>
<td>MEAM 446</td>
<td>Mechanical Engineering Design Projects (Design Project II)</td>
<td>1</td>
</tr>
<tr>
<td>ENGR 105</td>
<td>Introduction to Scientific Computing</td>
<td>1</td>
</tr>
<tr>
<td>MEAM Upper Level ²</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Professional Elective²</td>
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<td>4</td>
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<tr>
<td>Social Sciences and Humanities³</td>
<td></td>
<td>5</td>
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<tr>
<td>EAS 203</td>
<td>Engineering Ethics</td>
<td>1</td>
</tr>
<tr>
<td>Select 1 Social Science course</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Select 1 Social Science course

Select 2 Humanities courses

Select 2 Social Science or Humanities course

Select 1 Social Science or Humanities course

Select 2 Social Science or Humanities or Technology in Business & Society courses

Free Elective

Select 3 course units of free electives

Total Course Units 40

¹ MEAM 147 Introduction to Mechanics Lab lab is required if MEAM 110 Introduction to Mechanics is taken.
² A max of (3) 100 level courses permitted.
³ The Social Science & Humanities Depth and Writing Requirement can be satisfied with advanced dual degree requirements (with approval).

The Social Science & Humanities Depth and Writing Requirement can be satisfied with the 7 total course units.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Networked and Social Systems Engineering, BSE**

The Rajendra and Neera Singh Program in Networked and Social Systems Engineering (NETS), formerly called Market and Social Systems Engineering (MKSE), is the world’s first course of study to fully integrate the disciplines needed to design and analyze the complex networks that are reshaping our society. This program prepares students to shape the technologies that underpin Internet-based search and electronic commerce, financial networks, social networks, and even such exchanges as the power grid. Graduates of this program will be prepared to engineer networks that work for both end-users and investors. Other graduates may become the policy-makers who are urgently needed to regulate these networks for the protection of commercial property and societal good.

For more information: https://www.seas.upenn.edu/prospective-students/undergrad/majors/networked-social-systems-engineering/

**Networked and Social Systems Engineering (NETS) Major Requirements**

40 course units are required. Read more about the Undergraduate Student Handbook (http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAM 110</td>
<td>Introduction to Mechanics</td>
<td>1</td>
</tr>
<tr>
<td>Engr 105</td>
<td>Introduction to Scientific Computing</td>
<td>1</td>
</tr>
<tr>
<td>MEAM Upper Level ²</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Professional Elective²</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences and Humanities³</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>EAS 203</td>
<td>Engineering Ethics</td>
<td>1</td>
</tr>
<tr>
<td>Select 1 Social Science course</td>
<td></td>
<td>1</td>
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### Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming (or equivalent)</td>
<td>1</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Programming Languages and Techniques II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 320</td>
<td>Introduction to Algorithms</td>
<td>1</td>
</tr>
<tr>
<td>ESE 210</td>
<td>Introduction to Dynamic Systems</td>
<td>1</td>
</tr>
<tr>
<td>ESE 303</td>
<td>Stochastic Systems Analysis and Simulation</td>
<td>1</td>
</tr>
<tr>
<td>ESE 304</td>
<td>Optimization of Systems</td>
<td>1</td>
</tr>
<tr>
<td>NETS 112</td>
<td>Networked Life</td>
<td>1</td>
</tr>
<tr>
<td>NETS 150</td>
<td>Market and Social Systems on the Internet</td>
<td>1</td>
</tr>
<tr>
<td>NETS 212</td>
<td>Scalable and Cloud Computing</td>
<td>1</td>
</tr>
<tr>
<td>NETS 312</td>
<td>Theory of Networks</td>
<td>1</td>
</tr>
<tr>
<td>NETS 412</td>
<td>Algorithmic Game Theory</td>
<td>1</td>
</tr>
<tr>
<td>CIS 400</td>
<td>Senior Project</td>
<td>1</td>
</tr>
<tr>
<td>or ESE 450</td>
<td>Senior Design Project I - EE and SSE</td>
<td>1</td>
</tr>
<tr>
<td>CIS 401</td>
<td>Senior Project</td>
<td>1</td>
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<tr>
<td>or ESE 451</td>
<td>Senior Design Project II - EE and SSE</td>
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</table>

### Math and Natural Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus, Part II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 240</td>
<td>Calculus, Part III</td>
<td>1</td>
</tr>
<tr>
<td>CIS 160</td>
<td>Mathematical Foundations of Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>EAS 205</td>
<td>Applications of Scientific Computing.</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 312</td>
<td>Linear Algebra</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one of the following: 1

- EAS 301 | Climate Policy and Technology
- STAT 430 | Probability
- PHYS 150 | Principles of Physics I: Mechanics and Wave Motion
  or PHYS 170 | Honors Physics I: Mechanics and Wave Motion
- PHYS 151 | Principles of Physics II: Electromagnetism and Radiation
  or PHYS 171 | Honors Physics II: Electromagnetism and Radiation

### Information Systems Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS 203</td>
<td>Engineering Ethics</td>
<td>1</td>
</tr>
</tbody>
</table>

Select 2 Social Science or Humanities or Technology in Business & Society courses 2

### Systems Science and Engineering, BSE

Systems Engineers provide technical management for societal-scale problems that often encompass the connections between the physical and the information world. Examples of the many cutting-edge applications include autonomous robotics, smart buildings, national power grid management, global networks, service optimization, and biological systems. Systems engineering is the set of reusable mathematics, intellectual tools, and methodology for attacking large-scale engineering problems. These common tools are adaptable for problems in different engineering domains (e.g., electrical, mechanical, biological, chemical, and computing) and help us understand, design, and manage systems that contain elements from multiple domains. Systems engineering deals with how we extract useful, abstract models from lower level systems, use these models to analyze and predict behavior, and use the analysis to control behavior and optimize/synthesize solutions.

System engineering helps us understand what happens when we compose many elements, each with their own behavior, and how to design and constrain the individual elements to engineer desired behavior for the composed system.

For more information: [https://www.seas.upenn.edu/prospective-students/undergrad/majors/systems-science-and-engineering/](https://www.seas.upenn.edu/prospective-students/undergrad/majors/systems-science-and-engineering/)

### Systems Science and Engineering (SSE) Major Requirements

40 course units are required. Read more about the Undergraduate Student Handbook [http://www.seas.upenn.edu/undergraduate/handbook](http://www.seas.upenn.edu/undergraduate/handbook).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming (or equivalent)</td>
<td>1</td>
</tr>
<tr>
<td>or ENGR 105</td>
<td>Introduction to Scientific Computing</td>
<td>1</td>
</tr>
<tr>
<td>ESE 111</td>
<td>Atoms, Bits, Circuits and Systems</td>
<td>1</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>ESE 204</td>
<td>Decision Models</td>
<td>1</td>
</tr>
<tr>
<td>ESE 210</td>
<td>Introduction to Dynamic Systems</td>
<td>1</td>
</tr>
<tr>
<td>ESE 224</td>
<td>Signal and Information Processing</td>
<td>1.5</td>
</tr>
<tr>
<td>ESE 303</td>
<td>Stochastic Systems Analysis and Simulation</td>
<td>1</td>
</tr>
</tbody>
</table>

### Technical Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 101</td>
<td>Intermediate Microeconomics</td>
<td>1</td>
</tr>
<tr>
<td>ECON 212</td>
<td>Game Theory</td>
<td>1</td>
</tr>
</tbody>
</table>

Select 2 Humanities courses 2

### Ethics Requirement: Select one of the following courses: 1

- CIS 125 | Technology and Policy
- EAS 203 | Engineering Ethics

Select 2 Social Science or Humanities or Technology in Business & Society courses 2

### Free Elective

Select 3 course units of free electives 3

Total Course Units 40

1 Approval of the advisor and undergrad chair required. At least 3 course units required from an approved Depth area of choice available on the NETS website, plus 3 additional courses from any Depth Area and/or CIS, ESE, CMPE, OIDD, MATH, STAT, ECON.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Select 3 from the following: 3

- CIS 240 Introduction to Computer Systems
- CIS 450 Database and Information Systems
- ESE 407 Introduction to Networks and Protocols
- ESE 420 Agent-Based Modeling and Simulation
- ESE 504 Introduction to Optimization Theory
- ESE 505 Control of Systems
- ESE 512 Dynamical Systems for Engineering and Biological Applications
- ESE 520 Agent-Based Modeling and Simulation
- ESE 528 Estimation and Detection Theory
- NETS 212 Scalable and Cloud Computing
- NETS 312 Theory of Networks
- NETS 412 Algorithmic Game Theory

System Design
Select one of the following: 1

- CIS 350 Software Design/Engineering
- CIS 441 Embedded Software for Life-Critical Applications
- ESE 527 Design of Smart Systems
- ESE 590 Systems Methodology

Select one of the following: 1

- ESE 290/291 Introduction to Electrical and Systems Engineering Research Methodology
- ESE 350 Embedded Systems/Microcontroller Laboratory
- ESE 505 Control of Systems
  or BE 470 Medical Devices
- ESE 450 Senior Design Project I - EE and SSE
- ESE 451 Senior Design Project II - EE and SSE

Math and Natural Science

- MATH 104 Calculus, Part I 1
- MATH 114 Calculus, Part II 1
- MATH 240 Calculus, Part III 1
- ESE 301 Engineering Probability 1
- ESE 302 Engineering Applications of Statistics 1

Select one of the following: 1

- PHYS 140 Principles of Physics I (without laboratory)
- PHYS 150 Principles of Physics I: Mechanics and Wave Motion
- PHYS 170 Honors Physics I: Mechanics and Wave Motion
- MEAM 110 Introduction to Mechanics

Select one of the following: 1.5

- ESE 112 Engineering Electromagnetics
- PHYS 141 Principles of Physics II (without laboratory)
- PHYS 151 Principles of Physics II: Electromagnetism and Radiation
- PHYS 171 Honors Physics II: Electromagnetism and Radiation

Select one of the following: 1

- CHEM 101 General Chemistry I
- BIOL 101 Introduction to Biology A

- BIOL 121 Introduction to Biology - The Molecular Biology of Life
- MATH 312 Linear Algebra
  or EAS 205 Applications of Scientific Computing.
- Natural Science Lab 2

Professional Electives

Technology Management Electives
Choose 1 from the following: 1

- ESE 400 Engineering Economics
- EAS 545 Engineering Entrepreneurship I
- EAS 595 Foundations of Leadership
- MGMT 237 Management of Technology

Societal Problem Application
Select 3 Societal Problem Electives 3

Social Sciences and Humanities 4

- EAS 203 Engineering Ethics
- Select 1 Social Science course
- Select 2 Humanities courses
- Select 1 Social Science or Humanities course
- Select 2 Social Science or Humanities or Technology in Business & Society courses

Free Elective
Select 3 course units of free electives 3

Total Course Units 40

1. If not taken by the end of freshman year, must be replaced by another department approved Engineering course.

2. Natural Science Lab - 1.0 cu total; PHYS 150 Principles of Physics I: Mechanics and Wave Motion, or PHYS 050 Physics Laboratory I or MEAM 147 Introduction to Mechanics Lab; PHYS 151 Principles of Physics II: Electromagnetism and Radiation or PHYS 051 Physics Laboratory II; BIOL 101 Introduction to Biology A; CHEM 053 General Chemistry Laboratory I can each count 0.5 cu toward this requirement.

3. Approval required; A complete list of approved SPA electives can be found on the ESE undergraduate webpage.

4. The Social Science & Humanities Depth and Writing Requirement can be satisfied with the 7 total course units.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Minors

- Chemical and Biomolecular Engineering, Minor (p. 191)
- Computer Science, Minor (p. 187)
- Data Science, Minor (p. 191)
- Digital Media Design, Minor (p. 190)
- Electrical Engineering, Minor (p. 189)
- Energy & Sustainability, Minor (p. 187)
- Engineering Entrepreneurship, Minor (p. 188)
• Material Science & Engineering, Minor (p. 189)
• Mechanical Engineering and Applied Mechanics, Minor (p. 188)
• Nanotechnology, Minor (p. 190)
• Systems Science and Engineering, Minor (p. 189)

Computer Science, Minor

Computer scientists and engineers have revolutionized society and created the computer and telecommunications industries that are so important to human life and the world’s economy. As a result of this revolution, expertise in computer science is essential in many new areas, including computer and network service and consulting companies, financial institutions, health industries, natural science labs and medical research labs, and other contexts where intensive manipulation of information is important. As a result, opportunities for computer scientists and engineers have expanded greatly, both in specialized fields as well as in numerous dual-career opportunities in which computer expertise is combined with advanced degrees in business, communication, engineering, law, medicine, and science.

SEAS Second Major or Minor Option

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: [http://www.cis.upenn.edu/current-students/undergraduate/minor.php](http://www.cis.upenn.edu/current-students/undergraduate/minor.php)

Computer Science Minor (CSCI)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming</td>
<td>1</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Programming Languages and Techniques II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 160</td>
<td>Mathematical Foundations of Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 One CIS Elective must be 200 level or above.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Energy & Sustainability, Minor

The minor in Energy and Sustainability provides students with broad coverage of technical and societal issues in energy and sustainability. It is designed to help students become leaders in developing technologies for a more sustainable energy future.

SEAS Second Major or Minor Option

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: [http://www.seas.upenn.edu/undergraduate/degrees/minor-energy.php](http://www.seas.upenn.edu/undergraduate/degrees/minor-energy.php)

Energy and Sustainability Minor (ENSU)

Students participating in the minor are expected to have taken at least one semester of intro chemistry, mathematics and physics.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>ENGR 250</td>
<td>Energy Systems, Resources and Technology</td>
<td>1</td>
</tr>
</tbody>
</table>

Fundamental Engineering Science

Engineering Thermodynamics

Select one of the following:

- CBE 230 Material and Energy Balances of Chemical Processes
- CBE 231 Thermodynamics of Fluids
- MEAM 203 Thermodynamics I
- MSE 260 Energetics of Macro and Nano-scale Materials

Basic Principles in Solid State Physics

- MSE 221 Quantum Physics of Materials
- or ESE 321 Physics and Models of Semiconductor Devices

Energy and Sustainability Systems & Technology

- ENGR 250 Energy Systems, Resources and Technology

Energy and Sustainability Policy, Regulation and Societal Impact

Select one of the following:

- EAS 301 Climate Policy and Technology
- EAS 306 Electricity and Systems Markets
- EAS 401 Energy and Its Impacts: Technology, Environment, Economics, Sustainability
- EAS 402 Renewable Energy and Its Impacts: Technology, Environment, Economics, Sustainability
- EAS 403 Energy Systems and Policy

Energy and Sustainability Electives

Select 2-3 course units of the following:

- CBE 375 Engineering and the Environment
- CBE 545 Electrochemical Energy Conversion and Storage
- CBE 546 Fundamentals of Industrial Catalytic Processes
- ENGR 503 Engineering in Oil, Gas and Coal, from Production to End Use
- CBE 543 Sust Dev/Water Res Sys
- ESE 521 The Physics of Solid State Energy Devices
- MEAM 503 Direct Energy Conversion: from Macro to Nano
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Engineering Entrepreneurship, Minor

Penn Engineering offers a Minor in Engineering Entrepreneurship (EENT), complementing the core engineering disciplines. This Minor is designed for students majoring in engineering and applied science. However, it is open to all University undergraduates subject to available class space. Non-engineering students should check with their home schools to determine their eligibility to take the EENT minor. All courses for the EENT Minor must be taken for grade (no Pass/Fail).

SEAS Second Major or Minor Option
Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: https://www.seas.upenn.edu/entrepreneurship/

Engineering Entrepreneurship Minor (EENT)
This minor is designed for students majoring in engineering and applied science. However, it is open to all University undergraduates subject to class availability. Non-engineering students should check with their home school to determine their eligibility to take the EENT minor. All courses must be taken for grade (no Pass/Fail).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAS 545</td>
<td>Engineering Entrepreneurship I</td>
<td>1</td>
</tr>
<tr>
<td>EAS 546</td>
<td>Engineering Entrepreneurship II</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select four of the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BE 470</td>
<td>Medical Devices</td>
<td></td>
</tr>
<tr>
<td>BE 502</td>
<td>From Biomedical Science to the Marketplace</td>
<td></td>
</tr>
<tr>
<td>EAS 203</td>
<td>Engineering Ethics</td>
<td></td>
</tr>
<tr>
<td>or LGST 100 Ethics and Social Responsibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAS 595</td>
<td>Foundations of Leadership</td>
<td></td>
</tr>
<tr>
<td>ESE 400/540</td>
<td>Engineering Economics</td>
<td></td>
</tr>
</tbody>
</table>

Total Course Units 6

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Mechanical Engineering and Applied Mechanics, Minor

Mechanical Engineering & Applied Mechanics (MEAM) is the study of forces, deformations and motions of solid bodies and fluids, heat generation and transport, and applications to analysis, design, and manufacture of components, machines, and systems. Students in mechanical engineering follow a program which contains basic groundwork in all aspects of mechanical engineering, but flexibility in the curriculum allows students to pursue elective programs in fields such as aeronautics, robotics, computers, electronics, automatic controls, and materials.

SEAS Second Major or Minor Option
Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: http://www.me.upenn.edu/prospective-students/undergraduates/majors-minors.php

MEAM, Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 6 MEAM Electives</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Total Course Units 6
Completion of 6 course units with a grade of "C" or better. No pass/fail permitted. All MEAM courses (except MEAM 445 Mechanical Engineering Design Projects and MEAM 446 Mechanical Engineering Design Projects) can be used. Only (2) 100 level courses are permitted. Up to (2) approved Cognate courses can be substituted with department approval from the following list: BE 200 Introduction to Biomechanics, BE 330 Self Assembly of Soft Materials, BE 510 Biomechanics and Biotransport, CBE 430 Polymers and Biomaterials, CBE 535 Interfacial Phenomena, MSE 330 Self-Assembly of Soft Materials, MSE 393 Materials Selection, MSE 405 Mechanical Behavior of Macro/Nanoscale Materials, MSE 530 Thermodynamics and Phase Equilibria.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Material Science & Engineering, Minor

The Materials Science and Engineering (MSE) program reflects the explosive growth of interest in the nano and bio sectors of engineering science and technology. MSE prepares students to use fundamental scientific principles to synthesize, manipulate, design and characterize the structural and functional properties of advanced engineering materials. The program offers students advantages seldom found in other MSE programs: the opportunity to tailor the curriculum to their own interests, guaranteed research experience and an excellent student-faculty ratio.

SEAS Second Major or Minor Option

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

Material Science & Engineering Minor (CSCI)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 220</td>
<td>Introduction to Materials Science and Engineering</td>
<td>1</td>
</tr>
<tr>
<td>MSE 221</td>
<td>Quantum Physics of Materials</td>
<td>1</td>
</tr>
<tr>
<td>MSE 215</td>
<td>Introduction to Functional Materials: From Macro to Nanoscale</td>
<td>1</td>
</tr>
<tr>
<td>MSE 260</td>
<td>Energetics of Macro and Nano-scale Materials</td>
<td>1</td>
</tr>
<tr>
<td>MSE 330</td>
<td>Self-Assembly of Soft Materials</td>
<td>1</td>
</tr>
<tr>
<td>MSE 440</td>
<td>Phase Transformations</td>
<td>1</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Systems Science and Engineering, Minor

System engineering (SSE) helps us to understand what happens when we compose many elements, each with their own behavior, and helps us understand how to design and constrain the individual elements to engineer desired behavior for the composed system. Students can pursue a SSE minor by completing six courses that includes decision making, data processing and modeling, simulation, and design of systems.

SEAS Second Major or Minor Option

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: http://www.ese.upenn.edu/current-students/undergraduates/minors.php

Systems Science and Engineering, Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESE 204</td>
<td>Decision Models</td>
<td>1</td>
</tr>
<tr>
<td>ESE 210</td>
<td>Introduction to Dynamic Systems</td>
<td>1</td>
</tr>
<tr>
<td>ESE 224</td>
<td>Signal and Information Processing</td>
<td>1.5</td>
</tr>
<tr>
<td>ESE 303</td>
<td>Stochastic Systems Analysis and Simulation</td>
<td>1</td>
</tr>
</tbody>
</table>

Electives

Select 1 Information Systems Elective \(^1\) 1
Select 1 Information Systems of Systems Design Elective \(^1\) 1

Total Course Units 6.5

\(^1\) Approved elective lists can be found on the most recent SSE worksheet.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Electrical Engineering, Minor

Electrical engineering (EE) connects the physical world with the information world. Electrical engineers can apply physics and chemistry in modern nanotechnology devices, can encode and manipulate information in circuits and networks, and can mathematically understand and reason with large amounts of data in real time. Students can pursue an EE minor by completing six courses that includes the conception,
design, analysis, and implementation of devices, circuits, and signal processing.

**SEAS Second Major or Minor Option**

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: [http://www.ese.upenn.edu/current-students/undergraduates/minors.php](http://www.ese.upenn.edu/current-students/undergraduates/minors.php)

### Electrical Engineering Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESE 215</td>
<td>Electrical Circuits and Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>ESE 218</td>
<td>Electronic, Photonic, and Electromechanical Devices</td>
<td>1.5</td>
</tr>
<tr>
<td>ESE 224</td>
<td>Signal and Information Processing</td>
<td>1.5</td>
</tr>
<tr>
<td>ESE 150</td>
<td>Digital Audio Basics</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>7.5</td>
</tr>
</tbody>
</table>

1. An intermediate or Advanced ESE elective can be taken with department approval.
2. Advance ESE course required. An approved list can be found on the most recent EE worksheet.

### Digital Media Design, Minor

The DMD minor is a programming-intensive exploration into interactive computer graphics. The interested student is encouraged but not required to take courses in Fine Arts (in the SEAS SSH category, for example) to gain the artistic knowledge and skills that would augment the DMD technology emphasis. Suggested relevant Fine Arts courses include Digital Design Foundations and 3D Modeling. The DMD minor also encourages exploration of the connections of computer graphics programming with human cognition and interactive experiences. A capstone EAS499 Integrative Project is required to link the DMD minor with the student's major.

**SEAS Second Major or Minor Option**

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: [http://cg.cis.upenn.edu/dmd-minor.html](http://cg.cis.upenn.edu/dmd-minor.html)

### Digital Media Design Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 106</td>
<td>Visualizing the Past.</td>
<td>1</td>
</tr>
<tr>
<td>CIS 140</td>
<td>Introduction to Cognitive Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS 110</td>
<td>Introduction to Computer Programming ¹</td>
<td>1</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 121</td>
<td>Programming Languages and Techniques II</td>
<td>1</td>
</tr>
<tr>
<td>CIS 160</td>
<td>Mathematical Foundations of Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>CIS 460</td>
<td>Interactive Computer Graphics</td>
<td>1</td>
</tr>
<tr>
<td>Select one CIS course 300 level or above ²</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EAS 499</td>
<td>Senior Capstone Project</td>
<td>1</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

¹ CIS 110 Introduction to Computer Programming must be taken prior to CIS 120 Programming Languages and Techniques I.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Nanotechnology, Minor

Nanotechnology is an interdisciplinary field that underpins next generation energy, communications, and health care solutions. The Nanotechnology minor provides the foundation to contribute to these advances. The program is accessible to engineering and physical science students.

**SEAS Second Major or Minor Option**

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: [http://www.seas.upenn.edu/undergraduate/degrees/minors.php](http://www.seas.upenn.edu/undergraduate/degrees/minors.php)

### Nanotechnology Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS 210</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Basic Science and Engineering Electives

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBE 231</td>
<td>Thermodynamics of Fluids</td>
<td>1</td>
</tr>
</tbody>
</table>
Biotechnology and Biophysics Electives

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 350</td>
<td>Introduction to Biotransport Processes</td>
<td>1</td>
</tr>
<tr>
<td>CBE 150</td>
<td>Introduction to Biotechnology</td>
<td></td>
</tr>
<tr>
<td>CBE 479</td>
<td>Biotechnology and Biochemical Engineering</td>
<td></td>
</tr>
<tr>
<td>CBE 480</td>
<td>Laboratory in Biotechnology and Genetic Engineering</td>
<td></td>
</tr>
<tr>
<td>PHYS 280</td>
<td>Physical Models of Biological Systems</td>
<td></td>
</tr>
</tbody>
</table>

Nano/Micro Fabrication Devices Electives

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 398</td>
<td>Quantum Computer and Information Science</td>
<td>1</td>
</tr>
<tr>
<td>ESE 460</td>
<td>Principles of Microfabrication Technology</td>
<td></td>
</tr>
<tr>
<td>ESE/MEAM 550</td>
<td>Advance Transportation Seminar, Air Transportation Planning</td>
<td></td>
</tr>
<tr>
<td>ESE/MSE 525</td>
<td>Nanoscale Science and Engineering</td>
<td></td>
</tr>
<tr>
<td>MSE 465/565</td>
<td>Fabrication and Characterization of Micro and Nanostructured Devices</td>
<td></td>
</tr>
</tbody>
</table>

Nano Electives

Select two NANO electives

Total Course Units 6

1 Program approval required.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Chemical and Biomolecular Engineering, Minor

Chemical Engineers apply concepts from the physical sciences (chemistry and physics) and life sciences (biochemistry and microbiology) to the design and optimization of processes for the efficient production of products ranging from fuels and chemicals to pharmaceuticals to advanced materials. Penn’s chemical engineering department provides students with both a strong foundation in engineering fundamentals and exposure to modern chemical engineering technologies. The program’s versatility allows our students to excel in diverse careers in the chemical industries, research, medicine, law, government, and education.

SEAS Second Major or Minor Option

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: [http://www.seas.upenn.edu/undergraduate/degrees/minors.php](http://www.seas.upenn.edu/undergraduate/degrees/minors.php)

Chemical and Biomolecular, Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 6 CBE Courses</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

1 The Minor in Chemical and Biomolecular Engineering consists of six engineering courses in CBE selected with the approval of the Undergraduate Curriculum chair.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Data Science, Minor

Data Science applies core concepts in computer science, statistics and mathematics to problems in a wide variety of fields, from physical, social, biomedical, and behavioral sciences to arts and humanities. The minor targets students with strong analytical abilities and some existing programming experience, and requires courses in statistics, data-centric programming, data management, and data analysis. It also points to courses across the University that deal with data in areas of importance to Data Science.

SEAS Second Major or Minor Option

Students interested in a second major (College students only) or minor with SEAS are required to meet with the Undergraduate Curriculum Chair from the major/minor department you wish to declare to discuss requirements and obtain approval on the Second Major or Minor form. The approved form must be returned to the SEAS Research and Academic Services Office, 109 Towne Building.

For more information: [http://www.seas.upenn.edu/undergraduate/degrees/minors.php](http://www.seas.upenn.edu/undergraduate/degrees/minors.php)

Data Science Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 120</td>
<td>Programming Languages and Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>CIS 419</td>
<td>Applied Machine Learning</td>
<td>1</td>
</tr>
</tbody>
</table>
Academic Opportunities

Penn Engineering offers a number of academic opportunities for undergraduate students.

Global Opportunities

Experience in an international setting is an opportunity that Penn Engineering strongly encourages students to obtain. Spending time in another country allows students to develop their intercultural abilities, and increase their independence and confidence as they immerse themselves in a new environment – all while fulfilling their major requirements. Students can study abroad for a semester or a year, take part in a Global Service Learning project, enroll in a Global Immersion Course, or complete a summer internship.

Opportunities include:

• Study Abroad
• Global Service Learning
• Global Immersion

For more information, visit: http://www.seas.upenn.edu/undergraduate/degrees/study-abroad.php.

Research Opportunities

Our extraordinary faculty-to-student ratio provides great opportunities for undergraduate students to work in state-of-the-art research laboratories during the academic year and in the summer. Below you can see examples of outstanding student research, along with helpful information to guide undergraduates toward finding research positions at Penn Engineering.

For more information, including summer and additional research programs available, visit the Penn Engineering Research section (p. 168).

Submatriculation

Penn undergraduates may begin an engineering master’s program while still completing their undergraduate program via the submatriculation application procedure.

For more information, visit the Submatriculation section (p. 256).
Dual Degrees

You may combine your BAS or BSE degree with a second degree in one of Penn's other undergraduate schools. A Dual Degree is not to be confused with a Dual Major (http://www.seas.upenn.edu/undergraduate/handbook/programs/dual-majors.php), where a student earns two majors within Penn Engineering, or with a Second Major (http://www.seas.upenn.edu/undergraduate/degrees/two-majors.php) where an engineering student also earns a major within the College.

For more information, visit: http://www.seas.upenn.edu/undergraduate/degrees/dual-degrees.php.
SCHOOL OF NURSING

Penn Nursing offers a number of resources and experiences not found at most other schools, including a state-of-the-art simulation lab with mannequins that respond as patients would, classrooms with the latest hospital-based electronic medical records (EMR) technology, and clinical experiences in The Children’s Hospital of Philadelphia and the Hospital of the University of Pennsylvania, two of the nation’s best hospitals. Penn Nursing is a premier academic and research institution renowned for advancing the frontiers of nursing science and patient care. Our students learn from the thought leaders in nursing research, education, and practice who ensure Penn Nursing remain one of the top schools of nursing in the world. At Penn Nursing, students become part of the next generation of healthcare leaders, prepared to care for patients, to conduct landmark research, and to make new strides in healthcare management and health policy.

Learn more about our history: http://www.nursing.upenn.edu/about/history/

Learn more about our school leadership: http://www.nursing.upenn.edu/about/our-leadership/

Mission

The mission of the University of Pennsylvania School of Nursing is to make a significant impact on health by advancing science, promoting equity, demonstrating practice excellence, and preparing leaders in the discipline of nursing.

Philosophy

The mission of the School of Nursing is aimed at meeting the health needs of society in a global and multicultural world. To this end, scholarship, research, education, and practice are integrated to create a culture of inquiry that values intellectual curiosity and diversity, and where faculty, clinicians, staff, and students thrive and learn from one another.

Scholarship and Research

We believe that integrating the arts and sciences is the basis for nursing knowledge and the framework for nursing practice and scholarship. Nursing knowledge encompasses empirical, philosophical, historical, ethical, and personal ways of knowing and is fundamental to the advancement of professional practice. Scholarship encompasses more than research, but also the integration of research into practice and health policy formation and the advancement and dissemination of nursing knowledge. Research is integral in every educational program and strengthened by participating in and contributing to the rich scholarly environment of the University and across national and international health policy organizations.

Nursing is scientifically based and carried out autonomously, as well as interdependently. The focus is development, dissemination, and utilization of knowledge about nursing actions that promote positive changes in patients, systems of care, and the larger society. Nurses collaborate with individuals, families, groups, communities, and other professions to achieve health and well-being for all people.

The School of Nursing is responsive to numerous influences that shape health care, including evolving models of care, consumer advocacy, demographic changes, and advances in science and technology. The faculty are committed to a scholarly agenda that pushes the boundaries of nursing science, in turn influencing education and shaping policy and practice.

Education

Education at the University of Pennsylvania facilitates the intellectual, personal and social development of students as they identify and attain academic and professional goals. Our educational environment fosters independence, ethical behavior, creative and critical thinking, increased breadth of knowledge, and sensitive interactions concerning cultures and viewpoints.

Programs, from baccalaureate to post-doctoral and lifelong learning, are enriched by the varied needs and perspectives of a culturally diverse population, as well as pressing needs for nursing leaders in a rapidly changing world. These leaders will be the clinical experts, health policy shapers, and nursing scholars of the future.

The baccalaureate program, including traditional and second degree students, focuses on professional nursing practice across the continuum of health care, with particular emphasis on vulnerable populations. The curriculum is dynamic and includes leadership skills, interdisciplinary collaboration, and content and clinical experiences that emphasize evidence-based practice. The curriculum also reflects changes in science and technology.

The Master's programs focus on advanced practice nursing and administration, with an emphasis on specialty and subspecialty practice in concert with changing societal needs. Graduate nurses are prepared for advanced practice that creatively combines knowledge and skills in critical thinking and expert interventions across the lifespan. Special attention is given to clinical decision-making and management skills, as well as methods of evaluation of quality and cost of care.

Pre- and post-doctoral education is dedicated to advancing the discipline of nursing through research. The goal is to equip students with a foundation in nursing and a field of concentration to make substantive contributions to scholarship. Strong faculty mentorship is integral to the development of a critical cadre of future researchers, academicians, and leaders, nationally and internationally.

Practice

The primary goal of nursing practice is to optimize care and outcomes for patients and their family members. The practice of nursing is the foundation for informing educational pedagogies and for the generation of discipline-specific research. Practice is defined as the diverse and varied construction, application, and evaluation of knowledge and the action within the discipline of nursing, particularly for the recipients of nursing care. We believe it is the responsibility of academic nursing to serve as the fulcrum of modeling the intentional integration of education, research, and clinical care to improve the delivery of quality health services.

Nursing is an evidence-based, caring profession that improves the health and quality of life for individuals, families, and communities throughout the world. Nursing possesses a unique body of knowledge that guides its practice in both autonomous and collaborative health care settings. Penn Nursing serves as the model for nurses who care for society's needs in a global and multicultural context. Thus at Penn, we seek to promote health and alleviate suffering in every part of the world by preparing nurses to be responsive to the health-related issues and preferences, values, and needs of all societies. Our goals are to improve and maintain optimal health, prevent disease, enhance the quality of recovery from illness,
and support patients and families to cope with acute and chronic health problems. Penn Nursing serves as a model to direct the advancement of the translation of evidence-based knowledge toward culturally competent models of care.

Revised Mission and Philosophy approved by the School of Nursing Faculty Senate 2/3/03.

Revised Mission and Philosophy approved by the School of Nursing Faculty Senate 5/7/12.

Revised Practice statement approved by the School of Nursing Faculty Senate 4/8/13.

The Office of Nursing Research (http://nursing.livewhale.net/research/onr), along with our four research centers (http://nursing.livewhale.net/research/research-centers) and partnerships across Penn, provide students with resources and support that are virtually unparalleled in our field. Students, from undergraduates to doctoral students, have numerous opportunities to engage in research and work alongside some of the most recognized researchers in their fields.

For more information, visit: https://www.nursing.upenn.edu/research/.

Accreditation is a hallmark of educational quality, and we are proud to share our credentials on our website: http://www.nursing.upenn.edu/about/accreditation/.

Penn Nursing students benefit from a dual advising structure. All students are assigned a faculty advisor and have access to the professional staff advisors in the Office of Student Affairs.

For more information, visit: http://www.nursing.upenn.edu/student-services/advising/accelerated/.

Curriculum

Baccalaureate Program Objectives Leveled by Year

The faculty has defined behaviors that each student must achieve before progressing to the next level. The objectives are leveled by year: level 1 references freshman year; level 2 references sophomore year, and so on. Students are encouraged to refer to these objectives at the mid-point of the semester and again at the end of the semester to actively participate in the learning and self-evaluation processes.

End of Program. Synthesize knowledge from the humanities and the natural and social sciences as the basis for continuing personal, intellectual, social, and professional development.

Level 3. Apply knowledge from the humanities and the natural and social sciences in the development of the role of nurse in patient care situations in acute care settings.

Level 2. Articulate the relevance of knowledge from the humanities and the natural and social sciences to the evolving role of the nurse.

Level 1. Demonstrate knowledge of the interrelationship of the humanities and the natural and social sciences as a basis for the development of nursing practice and as a source of personal development.

End of Program. As a generalist, use theoretical and scientific bases for nursing to deliver nursing care to clients as individuals, families, communities, and organizations in a variety of settings at any level of wellness, illness, and risk.

Level 3. Apply theoretical and scientific bases for nursing practice related to individuals and families with potential or actual health-related problems in acute care settings.

Level 2. Demonstrate the use of theoretical and scientific bases for nursing practice related to risk assessment and health promotion activities to individuals within selected communities and healthcare agencies.

Level 1. Identify theoretical and scientific bases for nursing practice.

End of Program. Apply research findings to evaluate and improve nursing care and the healthcare system.

Level 3. Appraise the relevance, quality, and applicability of research in decision making related to patient care.

Level 2. Discuss the research implications for various nursing practice environments.

Level 1. Recognize the relationship between research and nursing practice.

End of Program. Assume responsibility for providing nursing care in a collaborative relationship with individuals and groups in a variety of settings.

Level 3. Participate in providing nursing care in a collaborative relationship with individuals and families in complex healthcare settings.

Level 2. Participate in providing nursing care in a collaborative relationship with individuals, selected communities, and healthcare agencies.

Level 1. Observe the process of how nurses collaborate with individuals.

End of Program. Participate in collaborative relationships with colleagues through referral, consultation, planning, and evaluation.

Level 3. Initiate a collaborative relationship with colleagues to facilitate consultation, referrals, planning, and evaluation in a complex healthcare setting.

Level 2. Participate in a collaborative relationship with colleagues by consultation, planning, and evaluating selected communities and healthcare agencies.

Level 1. Identify various interdisciplinary roles in healthcare.

End of Program. Demonstrate leadership and management skills through direction and support of clients and colleagues as individuals, families, communities, and organizations.
Level 3. Integrate an understanding of leadership and management skills through the direction and support of colleagues, individuals, and families in acute care settings.

Level 2. Provide peer support and management of individual clients in selected communities and healthcare agencies.

Level 1. Define leadership and management skills using professional organizations as a model.

End of Program. Participate as an agent of change in scientific, social, and political action for the advancement of research, healthcare, and policy at any level from local to international.

Level 3. Initiate change for the advancement of research and healthcare in an acute care setting.

Level 2. Participate as an agent of change to effect modification in health promotion behavior and level of wellness in selected local communities and healthcare agencies.

Level 1. Recognize the need for change related to healthcare reform and policymaking at the national level.

End of Program. Communicate coherently, comprehensively, and systematically in written and oral forms as they pertain to nursing care, collaboration, research, and policy.

Level 3. Analyze written and oral communication patterns and recommend modification if necessary as they pertain to nursing care, collaboration, and research.

Level 2. Demonstrate therapeutic and professional oral communication with individuals, groups, and peers in selected local communities and healthcare agencies.

Level 1. Demonstrate effective written communication skills.

End of Program. Perform clinical skills appropriate to generalist nursing practice, with competence and judgment within specific settings.

Level 3. Demonstrate advanced nursing skills with competence and judgment in acute care settings.

Level 2. Demonstrate and expected level of judgment in basic nursing skills in selected communities and healthcare agencies.

Level 1. Identify components of professional nursing practice.

BSN Undergraduate Curriculum
Organizing Framework and Vision
Class of 2015 and Beyond
(Accelerated BSN Class of December 2014 and Beyond)

Our Mission
Penn Nursing is committed to teach the art and science of nursing and to create opportunities for service, practice, leadership, and research. This is achieved through talented faculty, internationally recognized scholarship, respect for the diversity of our own community (of faculty, staff, and students), and a commitment to individualizing the pedagogical and material resources necessary for success.

Our Vision
Penn baccalaureate nursing graduates are broadly educated and socially engaged. They demonstrate the capacity for clinical expertise, leadership at the bedside and around the globe, and translating the science of the profession into practice. Our graduates have matured in the intellectual and social environment of both the University and the School of Nursing. This environment is built upon the values of civic engagement, critical inquiry, interdisciplinary knowledge, and the integration of research and practice. It has prepared our graduates to create and realize their own vision and ambition for themselves and their profession.

Our Values
- Respect for the diversity of individuals and their ideas
- Dedication to rigorous clinical inquiry as the basis of clinical judgment
- Commitment to collaboration with individuals, families, communities, and colleagues
- Responsible and engaged advocacy
- Recognition of the intersections of history, social context, culture, and economics in shaping a global society that seeks equity and access for all
- Respect for nursing science and its substantive contribution to health care
- Organizing Framework - One University, One School, One Curriculum

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- Respect for nursing science and its substantive contribution to health care
- Organizing Framework - One University, One School, One Curriculum

Penn's baccalaureate curriculum brings structure to the School's mission, vision, and values by centering on the primacy of nursing practice situated in caring relationships that facilitate health and healing. The baccalaureate curriculum builds on this conceptualization of nursing as it moves students toward increasingly contextualized understandings of individuals, families, communities, and populations living with health and illness. It also moves students into increasingly complex situations and care environments as they experience the dynamic nature of nursing’s embeddedness in health care systems, social structures, and society.

The baccalaureate curriculum concentrates on four intersecting core themes that characterize the complex and contextual nature of nursing practice: engagement, inquiry, judgment, and voice. The competencies derived from this framework are not intended to be achieved in a sequential manner. Rather, this framework explicates competencies that are fluid, adapt to various learning experiences when presented in the curriculum, and essential to the formation of a graduate nurse's professional identity. The application of these themes is demonstrated in the following examples:

Engagement: The student understands the relationships among:
- Caring relationships with individuals, families, and patient populations
- Collegial intra-disciplinary, interdisciplinary, and multidisciplinary collaborative relationships
- Observer and participant in policies and politics
- Situational advocacy and civic commitment to social and political change

Inquiry: The student understands the relationships among:
- Knowledge use, acquisition, and development
• Scientific ways of knowing patients and families and multidimensional and contextual ways of knowing
• Knowledge and implementation of humanistic understandings in practice and research
• Evidence-based practices and the social and political processes of practice with less clear scientific rationales
• Knowledge of how to use and manipulate technological information systems to acquire meaningful data
• Knowledge use and ongoing clinical knowledge development
• Measures of quality in clinical care environments

Judgment: The student understands the relationships among:
• Acquisition of knowledge and skill and the integration of both within relational practices with individuals, families, communities, populations, and healthcare systems
• Knowledge of individuals and families and collective knowledge about communities, populations, and systems
• Core nursing knowledge and integrated knowledge
• Situated judgment and clinical know-how

Voice: The student understands the relationships among:
• Observer, advocate, and moral agent
• Facilitation of patient and family learning and advocacy affecting social and political practices
• Informal methods of dialogue, discourse, and debate and those necessary for formal writing and publication and for joining a community of scholars
• Vision for self and the profession

Requirements for the Bachelor of Science in Nursing Degree

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Nursing Major Requirements</td>
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<tr>
<td></td>
<td>Critical Writing Seminar Requirement</td>
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<tr>
<td></td>
<td>Language Requirement</td>
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<td>Distribution Requirements by Sector</td>
<td>6</td>
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<tr>
<td></td>
<td>Arts and Letters</td>
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<tr>
<td></td>
<td>Society and Social Structures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Histories and Traditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Global and Cultural Studies</td>
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</tr>
<tr>
<td></td>
<td>Reasoning, Systems, and Relationships</td>
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</tr>
<tr>
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<td>Free Elective</td>
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<tr>
<td></td>
<td>Total Course Units</td>
<td>40.5</td>
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</table>

More information including individual course requirements can be found in the BSN Handbook (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/degree-requirements). (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/degree-requirements)

Students who are receiving their second bachelor's degree in nursing (known as "second degree students" or "BSN/MSN students") are not required to complete the liberal arts component while at Penn. All plans of study include an 11 c.u. waiver for liberal arts requirements because students who have already completed one undergraduate degree are exempt from all sector requirements, the language requirement, the writing requirement, and free electives. If you have questions regarding your plan of study or the requirements specific to your program, please reach out to the Office of Academic Affairs: http://www.nursing.upenn.edu/student-services/advising/.

Majors

• Nursing, BSN (p. 197)
• Nutrition, BSN (p. 200)

Nursing, BSN

Penn Nursing combines the resources and opportunities of a large university with the intimacy and personal attention of a small college. Our traditional four-year BSN is a direct-entry program for graduating high school seniors.

At Penn Nursing, you will learn from a passionate faculty (http://www.nursing.upenn.edu/about/our-faculty) whose accomplishments are recognized worldwide. You will benefit from the academic opportunities (http://www.nursing.upenn.edu/academics/bachelor-of-science-in-nursing-bsn) of an Ivy League university while enjoying a fun and fulfilling campus life (http://www.nursing.upenn.edu/about/our-students/student-life). You will gain clinical experience (http://www.nursing.upenn.edu/practice/practice-partners) in some of the nation’s top hospitals, located just steps from your classrooms. And you will have the chance to participate in faculty-driven research (http://www.nursing.upenn.edu/research), supported by state-of-the-art technology (http://www.nursing.upenn.edu/academics/a-penn-nursing-education/learning-through-simulation). Penn Nursing graduates are the leaders shaping the future of health care practice, policy, research, and education.

The nursing program begins in your freshman year with a combination of science, nursing, and liberal arts courses, and students are encouraged to take advantage of our flexible curriculum and take courses offered within Penn's four undergraduate schools. Clinicals begin in the spring of your sophomore year, and students will have experiences in primary care, acute care, women's health, and mental health settings working with patients from newborns to older adults.

For more information: http://www.nursing.upenn.edu/admissions/undergraduate/Pages/default.aspx

Nursing, BSN Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Nursing Major Requirements</td>
<td></td>
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<tr>
<td></td>
<td>Writing Requirement</td>
<td>1</td>
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<tr>
<td></td>
<td>Select a Writing Intensive Course</td>
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<tr>
<td></td>
<td>Language Requirement</td>
<td>4</td>
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<tr>
<td></td>
<td>Satisfy by exemption or if language proficiency completed in less than 4 semesters, use remaining course units as free electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribution by Sectors</td>
<td></td>
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<td>Arts &amp; Letters Sector</td>
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<tr>
<td></td>
<td>Society and Social Structures Sector</td>
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</tbody>
</table>
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

The following sample Plan of Study is just one possibility for undergraduate study. This plan may not be compatible with several academic options you might choose (e.g., study abroad, submatriculation, dual degree, etc.). If you are interested in pursuing any of the special academic options available to you during the course of your undergraduate experience and want to know how this will alter your plan of study, please contact your faculty advisor and/or the Office of Student Services at 215-898-6687 or advisor@nursing.upenn.edu. Please note that all plans of study are subject to curricular change.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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</tr>
<tr>
<td>NURS 061</td>
<td>Biologically-Based Chemistry</td>
<td>0.5</td>
</tr>
<tr>
<td>NURS 068</td>
<td>Integrated Cell Biology and Microbiology</td>
<td>1</td>
</tr>
<tr>
<td>NURS 101</td>
<td>The Nature of Nursing Practice</td>
<td>0.5</td>
</tr>
<tr>
<td>Critical Writing Requirement</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Language Requirement (or free elective if level IV proficiency met)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Course Units</strong></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NURS 065</td>
<td>Fundamentals of Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>NURS 163</td>
<td>Integrated Anatomy, Physiology, and Physical Assessment I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 102</td>
<td>Situating the Practice of Nursing</td>
<td>0.5</td>
</tr>
<tr>
<td>Sector Requirement (e.g. Reasoning, Systems, &amp; Relationships)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Language Requirement (or free elective if level IV proficiency met)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Course Units</strong></td>
<td></td>
<td>5.5</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NURS 164</td>
<td>Integrated Human Anatomy, Physiology &amp; Physical Assessment II</td>
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<tr>
<td>NURS 103</td>
<td>Psychological and Social Diversity in Health and Wellness</td>
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</tr>
<tr>
<td>Sector Requirement (e.g. Arts and Letters)</td>
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<tr>
<td>Language Requirement (or free elective if level IV proficiency met)</td>
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<td></td>
</tr>
<tr>
<td><strong>Course Units</strong></td>
<td></td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NURS 165</td>
<td>Integrated Pathophysiology, Pharmacology, and Therapeutics</td>
<td>2</td>
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<tr>
<td>NURS 215</td>
<td>Nursing of Women and Infants</td>
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<tr>
<td>Sector Requirement (e.g. Histories and Traditions)</td>
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<td>Language Requirement (or free elective if level IV proficiency met)</td>
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</tr>
<tr>
<td><strong>Course Units</strong></td>
<td></td>
<td>5.5</td>
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</tbody>
</table>
### Third Year

#### Fall
- **NURS 245 & NURS 255** Nursing of Young and Middle Aged Adults and Nursing of Older Adults 3
- Select one of the following: 1
  - **NURS 334** Public Policy and the Nation's Health (or approved Health Policy course)
  - **NURS 330** Theoretical Foundations of Health Care Ethics (or approved Health Care Ethics course)
- **NURS 230** Statistics for Research and Measurement 1

#### Spring
- **NURS 225 & NURS 235** Pediatric Nursing and Psychiatric Nursing 3
- Select one of the following: 1
  - **NURS 334** Public Policy and the Nation's Health (or approved Health Policy course)
  - **NURS 330** Theoretical Foundations of Health Care Ethics (or approved Health Care Ethics course)
- **NURS 547** Scientific Inquiry for Evidence-based Practice 1

### Fourth Year

#### Fall
- **NURS 380** Nursing in the Community 2
- Select 1 course from NURS 355-NURS 368 1
- Sector Requirement (e.g. Global and Cultural Studies) 1

#### Spring
- **NURS 390** Leadership in the Complex Healthcare System 3
- **NURS 389** Research/Inquiry-Based Service Residency 0.5
- Nursing Elective 1
- Free Elective 1

### BSN Plan of Study: Accelerated Summer Start

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 061</td>
<td>Biologically-Based Chemistry</td>
<td>0.5</td>
</tr>
<tr>
<td>NURS 065</td>
<td>Fundamentals of Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>NURS 068</td>
<td>Integrated Cell Biology and Microbiology</td>
<td>1</td>
</tr>
<tr>
<td>NURS 131</td>
<td>Human Anatomy and Physiology - Part A</td>
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</tr>
<tr>
<td>NURS 132</td>
<td>Human Anatomy and Physiology - Part B</td>
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<tr>
<td>NURS 230</td>
<td>Statistics for Research and Measurement</td>
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<tr>
<td>Liberal Arts Waiver</td>
<td></td>
<td>11</td>
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</tbody>
</table>

### First Year

#### Summer
- **NURS 103** Psychological and Social Diversity in Health and Wellness 1
- **NURS 159** Pathways To Practice 1
- **NURS 160** Physical Assessment 1
- **NURS 165** Integrated Pathophysiology, Pharmacology, and Therapeutics 2

### Second Year

#### Fall
- **NURS 215** Nursing of Women and Infants 1.5
- **NURS 225 & NURS 235** Pediatric Nursing and Psychiatric Nursing 3
- **NURS 547** Scientific Inquiry for Evidence-based Practice 1

### Transfer Credit

Please note: This is an estimation of potential transfer credit and does not constitute final approval until all final transcripts are submitted, course completion and grades are verified, etc.

<table>
<thead>
<tr>
<th>Course</th>
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<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 061</td>
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<tr>
<td>NURS 065</td>
<td>Fundamentals of Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>NURS 068</td>
<td>Integrated Cell Biology and Microbiology</td>
<td>1</td>
</tr>
<tr>
<td>NURS 131</td>
<td>Human Anatomy and Physiology - Part A</td>
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</tr>
<tr>
<td>NURS 132</td>
<td>Human Anatomy and Physiology - Part B</td>
<td>1.5</td>
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<tr>
<td>NURS 230</td>
<td>Statistics for Research and Measurement</td>
<td>1</td>
</tr>
<tr>
<td>Liberal Arts Waiver</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>

### Total Course Units
40.5

1. Sector requirements can be taken in any order. For more information on sector requirements, refer to p.26 of the BSN Handbook (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook).
2. Free electives and language requirement courses may be taken pass/fail. For more detailed information on pass/fail policies, refer to the Pass/Fail section in the BSN handbook (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/courses-exam-related-policies/#pass-fail).
3. Check with your advisor for additional approved Health Policy courses.
4. Check with your advisor for additional approved Health Care Ethics courses.
Our Bachelor of Science in Nutrition major is an interdisciplinary collaboration with Penn's School of Arts & Sciences. You will study concepts like dietary behaviors and metabolism, as well as scientific approaches to the physiological roles of nutrients in the diet, from the cellular to human level. You will explore the role of nutrition in cancer, cardiovascular diseases, diabetes, and obesity, which together account for nearly seventy percent of global mortality. We believe that the next generation of nurse researchers and clinicians need a well-rounded background in nutrition science, social sciences, and public health, and we built this innovative program with these goals in mind.

The major consists of 14 course units: six basic science courses (such as cellular biology, anatomy and physiology, and chemistry), four fundamental nutrition science courses, and four electives. Penn Nursing BSN undergrads can add this as a second major.

For more information: [https://www.nursing.upenn.edu/nutrition-major/](https://www.nursing.upenn.edu/nutrition-major/)

### Nutrition, BSN Requirements

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>NURS 101</td>
<td>The Nature of Nursing Practice</td>
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</tr>
<tr>
<td>NURS 102</td>
<td>Situating the Practice of Nursing</td>
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</tr>
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<td>NURS 103</td>
<td>Psychological and Social Diversity in Health and Wellness</td>
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</tr>
<tr>
<td>NURS 215</td>
<td>Nursing of Women and Infants</td>
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</tr>
<tr>
<td>NURS 225</td>
<td>Pediatric Nursing</td>
<td>1.5</td>
</tr>
<tr>
<td>NURS 235</td>
<td>Psychiatric Nursing</td>
<td>1.5</td>
</tr>
<tr>
<td>NURS 245</td>
<td>Nursing of Young and Middle Aged Adults</td>
<td>1.5</td>
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<tr>
<td>NURS 255</td>
<td>Nursing of Older Adults</td>
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<tr>
<td>NURS 355-NURS 369</td>
<td>Select a Nursing Case Study from among</td>
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<tr>
<td>NURS 380</td>
<td>Nursing in the Community</td>
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<tr>
<td>NURS 390</td>
<td>Leadership in the Complex Healthcare System</td>
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### Non-Nursing Major Requirements

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<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>Writing Requirement</td>
<td>Select a Writing Intensive Course</td>
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<tr>
<td>Language Requirement</td>
<td>Satisfy by exemption or if language proficiency completed in less than 4 semesters, use remaining course units as free electives</td>
<td>4</td>
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### Distribution by Sectors

<table>
<thead>
<tr>
<th>Sector</th>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Letters</td>
<td>NURS 061</td>
<td>Biologically-Based Chemistry</td>
</tr>
<tr>
<td>History &amp; Tradition</td>
<td>NURS 068</td>
<td>Integrated Cell Biology and Microbiology</td>
</tr>
<tr>
<td>Global &amp; Cultural Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoning, Systems, &amp; Relationships</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Sciences</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes

1. All plans of study are subject to curricular change. Students must consult with an academic advisor prior to making revisions to the plan of study to ensure that the necessary curricular requirements are being met and to prevent delays in academic progression.

2. There is some flexibility as to when these courses can be taken (fall vs. spring). Please consult with an advisor about your options and course offerings.

3. Clinical experiences may include evenings, weekends, and 12 hour shifts. Most clinical rotations are accessible by public transportation; however, a car may be necessary for transportation to some clinical sites.

4. 5.5 course units is the maximum course load for undergraduate nursing students. Students who wish to exceed this limit must seek approval from the Office of Student Services prior to the advance registration period for the semester in question. If approved, the Office of Student Services will increase the maximum course load accordingly in Penn in Touch.

5. 5.5 course units is the maximum course load for undergraduate nursing students. Students who wish to exceed this limit must seek approval from the Office of Student Services prior to the advance registration period for the semester in question. If approved, the Office of Student Services will increase the maximum course load accordingly in Penn in Touch.
NURS 163 Integrated Anatomy, Physiology, and Physical Assessment I 2
NURS 164 Integrated Human Anatomy, Physiology & Physical Assessment II 2
NURS 165 Integrated Pathophysiology, Pharmacology, and Therapeutics 2

Non-Clinical Courses
Health Policy Requirement 1 1
NURS 230 Statistics for Research and Measurement 1
NURS 547 Scientific Inquiry for Evidence-based Practice 1
Select one of the following: 1
NURS 330 Theoretical Foundations of Health Care Ethics
PHIL 072 Biomedical Ethics
SOCI 118 Sociology of Bioethics
NURS 389 Research/Inquiry-Based Service Residency 0.5

Nursing Elective
Select a Nursing Elective 1

Nutrition Major Requirements
Required Basic Science Courses
NURS 061 Biologically-Based Chemistry
NURS 068 Integrated Cell Biology and Microbiology
NURS 163 Integrated Anatomy, Physiology, and Physical Assessment I
NURS 165 Integrated Pathophysiology, Pharmacology, and Therapeutics

Required Nutrition Science Courses
NURS 065 Fundamentals of Nutrition
NURS 312 Nutritional Aspects of Disease
NURS 523 Advanced Nutrition: Molecular Basis of Nutrition
NURS 524 Advanced Human Nutrition and Micronutrient Metabolism

Elective Courses
Select four course units

Total Course Units 40.5

1 See the BSN Handbook (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/degree-requirements) for a list of approved Health Policy courses.

Minors

- Global Health, Minor (p. 203)
- Nutrition, Minor (p. 203)

BSN students are also eligible to complete no more than half of an MSN minor while enrolled as an undergraduate student. For more information, visit: https://www.nursing.upenn.edu/academics/master-of-science-in-nursing-msn/minors/.

Global Health, Minor

This minor offers students the option to focus their studies on the domestic or international level. Opportunities are provided via clinical experiences, and students gain advanced multicultural knowledge and skills. It is our goal that graduates will rise to professional leadership roles, serving as catalysts to disseminate new research and clinical skills as they work among diverse social and cultural groups.

For more information: https://www.nursing.upenn.edu/global-health-minor/

The Global Health Minor requires a total of 6 course units.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 315/515</td>
<td>Sociocultural Influences on Health</td>
<td>1</td>
</tr>
<tr>
<td>PUBH 519</td>
<td>Issues in Global Health</td>
<td>1</td>
</tr>
<tr>
<td>Select 1 Global Health Experiential course</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Elective Courses

Select 3 course units 1

Total Course Units 3

1 See the website (https://www.nursing.upenn.edu/global-health-minor/plan-of-study-undergrad) for a list of approved elective courses.

Health Communications, Minor

The Health Communication minor is a collaboration between the School of Nursing and the Annenberg School for Communication. This program expands students’ knowledge of the communication process, theory, and behavior, and it prepares them for roles as professionals who develop cutting edge models for health behavior intervention or implement patient education and health communications programs locally, nationally, and globally.

For more information: http://www.nursing.upenn.edu/health-communications-minor/

The Health Communications Minor requires a total of 6 course units.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required NURS Course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
History, Health and the Humanities, Minor

A number of universities have forged bridges between the humanities and sciences to nourish students intellectually, build self-awareness, consider social justice-related phenomena through a new lens, and help them develop empathy. The School of Nursing has launched a new minor in History, Health and the Humanities for undergraduate students. This innovative initiative provides students with the tools and perspectives to study clinical issues in ways different than the lens provided by natural or social sciences. It amplifies the humanities component of the Judgement, Inquiry, Voice, and Engagement pillars that define the "Penn Advantage." It offers formalized opportunities for writing, both reflective and analytical, beyond that available in the required nursing curriculum.

Student enrolled in this minor will be considered Bates’ Center associates and will be invited to lunches, dinners, and other events with visiting scholars and faculty.

For more information: https://www.nursing.upenn.edu/academics/bachelor-of-science-in-nursing-bsn/minors/

The History, Health and the Humanities Minor requires a total of 6 course units.

For more information contact the director of the History, Health and the Humanities minor, Cynthia Connolly PhD RN FAAN at cac1@nursing.upenn.edu.

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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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Nursing and Health Services Management, Minor

The delivery of health care increasingly involves decisions that entail considerations beyond clinical or medical issues. With the rise of managed care in the United States, it is critical for health professionals to understand not only the clinical factors that affect patients but also the business environment in which healthcare institutions function. This program, a partnership between the School of Nursing and The Wharton School, helps students understand both the nature of the economic and managerial constraints that healthcare organizations face, and how to effectively manage these constraints to provide the best possible health care for patients.

For more information: http://www.nursing.upenn.edu/nursing-and-health-services-management-minor/

The Nursing and Health Services Management Minor requires a total of 8 course units.

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See the website (http://www.nursing.upenn.edu/health-communications-minor/plan-of-study) for a list of approved elective courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Nutrition, Minor

Jointly sponsored by the Schools of Nursing and Arts and Sciences, the Nutrition Minor presents a broad view of the field and illustrates the pervasiveness of nutrition-related issues in such diverse fields as anthropology, economics, folklore, history, physiology, psychology, health care, and public policy.

For more information: http://www.nursing.upenn.edu/nutrition-minor/

The Nutrition Minor requires a total of 6 course units.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Core Courses</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core A - Basic Nutrition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NURS 065 Fundamentals of Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td>NURS 112 Nutrition: Science &amp; Applications</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core B - Scientific Basis of Nutrition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following Options:</td>
<td>1</td>
</tr>
<tr>
<td>Option 1</td>
<td>NURS 068 Integrated Cell Biology and Microbiology</td>
<td></td>
</tr>
<tr>
<td>Option 2</td>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 017 The Biology of Food</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 101 Introduction to Biology A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 121 Introduction to Biology - The Molecular Biology of Life</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Core C - Advanced Nutrition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NURS 524 Advanced Human Nutrition and Micronutrient Metabolism</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Elective Courses</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 course units</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Course Units</td>
<td>6</td>
</tr>
</tbody>
</table>

1. It is strongly recommended that Core A & B courses be taken prior to the Elective courses.
2. See the website (http://www.nursing.upenn.edu/nutrition-minor/ plans-of-study) for a list of approved elective courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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Academic Opportunities

Penn Nursing offers a wide variety of supplemental academic opportunities designed to enhance your academic experience and professional development.

For more information, visit: http://www.nursing.upenn.edu/student-services/advising/opportunities/.

Benjamin Franklin Scholars Program - Nursing (http://www.nursing.upenn.edu/academics/a-penn-nursing-education/undergraduate-honors-program)

The Benjamin Franklin Scholars (BFS) Program for Nursing (http://www.nursing.upenn.edu/academics/a-penn-nursing-education/undergraduate-honors-program) seeks to foster the development of the next generation of nurse achievers - scholars, leaders, and researchers - through intellectual rigor, academic excellence, and outstanding achievements. Scholars are required to complete four Benjamin Franklin Seminars - small, intensive classes in a wide range of disciplines across the liberal arts and sciences - and a Capstone Honors course in the Nursing school.

Dual Degrees (http://www.nursing.upenn.edu/academics/dual-degrees)

We recognize the value of interdisciplinary learning, which is why student at all levels - undergraduate, masters, and doctoral - can pursue a dual degree with other schools across campus. Our Dual Degree (http://www.nursing.upenn.edu/academics/dual-degrees) page provides a complete listing of our approved programs.

Global Opportunities (http://www.nursing.upenn.edu/global-health/student-opportunities)

Penn Nursing offers a variety of international experiences for students in the BSN and MSN programs, which range from short-term opportunities that focus on comparative healthcare in international contexts, to full-semester clinical experiences.

Hillman Scholars Program in Nursing Innovation (http://www.nursing.upenn.edu/academics/accelerated-options/bsn-phd-hillman-scholars)

The Hillman Scholars Program in Nursing Innovation (http://www.nursing.upenn.edu/academics/accelerated-options/bsn-phd-hillman-scholars) is an integrated BSN-to-PhD program designed to educate a new cadre of nurse scientists and leaders to develop innovative solutions in healthcare. The program is available for current Penn Nursing undergraduate students, as well as students applying to the Accelerated Second Degree BSN program.

Minors (p. 201)

Penn Nursing offers a variety of minors in such in-demand areas as global health, palliative care, health services management, and oncology. Adding a minor allows students to complement their major by diving more deeply into a specific area of inquiry.

Nutrition Major (p. 200)

Our Nutrition major (http://www.nursing.upenn.edu/nutrition-major) is an interdisciplinary collaboration with Penn's School of Arts & Sciences.
You will study concepts like dietary behaviors and metabolism, as well as scientific approaches to the physiological roles of nutrients in the diet, from the cellular to human level.

**Research Opportunities** ([http://www.nursing.upenn.edu/research/student-research](http://www.nursing.upenn.edu/research/student-research))

Students have numerous opportunities to engage with research at Penn Nursing, whether that means participating in one of the school-supported research centers, applying for a prestigious fellowship through the Center for Undergraduate Research and Fellowships ([http://www.upenn.edu/curf](http://www.upenn.edu/curf)) (CURF), or working one-on-one with a faculty mentor on a student-driven research project.

**Submatriculation** ([http://www.nursing.upenn.edu/academics/a-penn-nursing-education/submatriculation](http://www.nursing.upenn.edu/academics/a-penn-nursing-education/submatriculation))

One of the most popular options at Penn Nursing, submatriculation allows undergraduate students the opportunity to apply to a graduate program and begin coursework while completing the BSN degree. Students can apply to any of the MSN / DNP majors ([http://www.nursing.upenn.edu/academics](http://www.nursing.upenn.edu/academics)) here at Penn Nursing, or to Penn Law.

**School Policies**

The majority of Penn Nursing policies can be found in the Policies and Procedures (p. 260) section of the Catalog.

The following additional policies apply specifically to School of Nursing students:


  The curricula leading to degrees in nursing require students to engage in diverse and complex experiences directed to the practice, refinement and full acquisition of essential nursing competencies and functions. Unique combinations of cognitive, behavioral, sensory, communication, psychomotor, and communication abilities are required to perform these functions in a satisfactory manner and to consistently demonstrate these competencies. In addition to being essential to the successful completion of the requirements for the respective nursing degree, these competencies and functions are necessary to ensure the health and safety of patients, fellow students, faculty and other health care providers. This statement describes the minimum competencies and functions necessary for entrance to, continuation in, and graduation from the nursing degree programs of the School of Nursing at the University of Pennsylvania. Candidates for nursing degrees must be able to meet these minimum standards with or without reasonable accommodation.


  This document serves as the official policy for student use of social media at the SON. These guidelines apply to all students creating or contributing to any kind of social media affiliated with the SON.

Please check back periodically to make sure you’re up to date. We trust that you will adhere to these policies. If, for any reason an incident occurs that violates the policy, we expect you to bring it to our attention immediately so we can work together toward a resolution.


  The School of Nursing recognizes the importance of educating its students about the problems of substance abuse because this significant health risk, and in many cases, criminal matter, is unfortunately prevalent among healthcare providers. Aside from impacting upon the personal and psychological integrity of the abusers, substance abuse may significantly impact the ability of healthcare providers to administer safe, competent patient care. Recognizing that substance abuse is both a disease and a professional hazard, the School of Nursing has incorporated substance abuse topical content areas into its curriculum. The School of Nursing has likewise established this substance abuse policy.

  This policy impacts upon and augments the student’s ability to maintain personal and professional integrity, and facilitates the student’s success both clinically and didactically. It promotes a healthy learning environment for the student. In the clinical setting, this policy enhances patient safety. It also fosters the development of professional nurses who are well educated about the prevalence and adverse outcomes of substance abuse.
THE WHARTON SCHOOL

Founded in 1881 as the first collegiate business school, the Wharton School (https://www.wharton.upenn.edu) of the University of Pennsylvania is recognized globally for its leadership and ongoing innovation across every major discipline of business education. With a broad global community and one of the most published business school faculties, Wharton creates economic and social value around the world. The School has 5,000 undergraduate (https://undergrad.wharton.upenn.edu), MBA (https://mba.wharton.upenn.edu), executive MBA (https://executivemba.wharton.upenn.edu), and doctoral (https://doctoral.wharton.upenn.edu) students; more than 9,000 participants in executive education (http://executiveeducation.wharton.upenn.edu) programs annually and a powerful alumni network (https://alumni.wharton.upenn.edu) of 96,000 graduates.

Learn more about our history: www.wharton.upenn.edu/about-wharton

Learn more about our school leadership: www.wharton.upenn.edu/senior-leadership

The Wharton School of the University of Pennsylvania was a remarkable innovation when Joseph Wharton, a self-educated 19th-century industrialist, first proposed its establishment more than 135 years ago.

Wharton believed the role of business was to advance society as a whole, creating new wealth and economic opportunity for all people. He approached the Trustees of the University of Pennsylvania in 1880 to establish a new kind of institution specifically designed to prepare leaders for business and public service.

His suggestion was a radical one, but also remarkably prescient. With the admission in 1881 of the first class of students — just 13 undergraduates — Joseph Wharton and the University of Pennsylvania created a successful formula that forever changed the landscape of business and education. Now, more than 1 million students graduate each year from more than 13,000 graduate and undergraduate business programs around the world.

The Wharton School remains a leader in business education through a steadfast commitment to our founder’s vision of applying unparalleled intellectual resources to prepare young men and women for leadership in the global society. With programs on every continent, Wharton continues to educate and empower the best minds in business.

Research provides an individualized method of learning and an in-depth treatment of a topic of personal interest with input from a faculty expert. Research experience is helpful if applying for distinguished international fellowships and is important if going on to graduate studies in an analytical discipline. Research skills are useful for decision-making in the private and public sectors and are required in academic positions. Below you can find a variety of research opportunities and scholarship programs.

• Courses (https://undergrad-inside.wharton.upenn.edu/research/courses)—Create “tools” in a research-methods course.
• Research assistantships (https://undergrad-inside.wharton.upenn.edu/research/assistantships)—Learn by executing research-related tasks while working on a project for a faculty member.
• Summer programs (https://undergrad-inside.wharton.upenn.edu/research/summer-programs)—Gain hands-on experience from proposal to presentation through a project commensurate with program duration.
• Scholars programs (https://undergrad-inside.wharton.upenn.edu/scholars-programs)—Gain hands-on, in-depth experience from proposal to presentation via a senior thesis and other activities.
• Wharton PhD Submatriculation Program (http://doctoral-inside.wharton.upenn.edu/submatriculation)—Submatriculate into a PhD program in Accounting, Finance, Health Care Systems, Insurance and Risk Management, Management, Marketing, Operations and Information Management, Business and Public Policy, or Statistics.

For more information, visit: https://undergrad-inside.wharton.upenn.edu/research/.

The University of Pennsylvania Wharton School is accredited by AACSB – the International Association for Management Education.

1916: AACSB founded initially as the Association of Collegiate Schools of Business (ACSB); constitution is adopted June 17, 1916. Founding members include the following: Columbia University • Cornell University • Dartmouth College • Harvard University • New York University • Northwestern University • Ohio State University • Tulane University • University of California, Berkeley • University of Chicago • University of Illinois • University of Nebraska • University of Pennsylvania • University of Pittsburgh • University of Texas • University of Wisconsin–Madison • Yale University

For more information, visit: http://www.aacsb.edu/.

The goal of the Wharton Undergraduate Division academic advising team is to help students make informed decisions about their educational plans and professional/life goals that are consistent with their interests, abilities, and values.

Advising by appointment, walk-in advising, and specialized advising (https://undergrad-inside.wharton.upenn.edu/advising-services/#specialized_advising) are services available in G95 Huntsman Hall to current Wharton undergraduate students.

Professional advisors (https://undergrad-inside.wharton.upenn.edu/advising-services), concentration advisors (https://undergrad-inside.wharton.upenn.edu/concentration-advisors), and peer advising fellows (https://undergrad-inside.wharton.upenn.edu/peer-advising) are available to assist students.

For more information, visit: https://undergrad-inside.wharton.upenn.edu/advising-services/.

**Curriculum**

All Wharton single-degree undergraduate students must complete a minimum of 37 course units and meet the curricular requirements described below. Students enrolled in a coordinated dual-degree (https://undergrad-inside.wharton.upenn.edu/coordinated-dual-degree) program should check with their program advisor to learn about their unique requirements. For a Wharton single-degree undergraduate student, the standard course load is 4 to 5 CUs per semester (see a sample course sequence (https://undergrad-inside.wharton.upenn.edu/sample-curriculum-2017)).

The requirements of the Wharton single-degree curriculum are delineated on the academic planning worksheet (https://undergrad-inside.wharton.upenn.edu/download/academic-planning-
Concentrations worksheet-2017/?wpdmdl=3785). Details about these requirements are available via the links below.

Students are encouraged to see an academic advisor (https://undergrad-inside.wharton.upenn.edu/advising-services) for any questions about the requirements of their academic program.

**First-Year Foundations**

**Economics** (https://undergrad-inside.wharton.upenn.edu/requirements-2017/econ-010)
1 required course: ECON 010

**Math** (https://undergrad-inside.wharton.upenn.edu/requirements/math)
Select 1 of the following: MATH 104 or MATH 110

**Writing** (https://undergrad-inside.wharton.upenn.edu/requirements/writing)
1 required course: Critical Writing Seminar

**Business**

**Leadership Journey** (https://undergrad-inside.wharton.upenn.edu/requirements-2017/leadership-journey)
3 required courses: WH 101, WH 201, WH 301
1 senior capstone course or project

11 required courses: ACCT 101, ACCT 102, BEPP 250, STAT 101, STAT 102, FNCE 100, FNCE 101, LGST 100 or LGST 101, MGMT 101, MKTG 101, OIDD 101

1 required course unit

**Technology, Innovation, and Analytics** (https://undergrad-inside.wharton.upenn.edu/requirements-2017/technology-innovation-analytics)
1 required course unit

**Business Breadth** (https://undergrad-inside.wharton.upenn.edu/requirements/business-breadth)
3 required course units

**Concentration (Business Depth)** (https://undergrad-inside.wharton.upenn.edu/concentrations)
4 required course units

**Liberal Arts & Sciences**

**Cross-Cultural Perspectives** (https://undergrad-inside.wharton.upenn.edu/requirements-2017/cross-cultural-perspectives)
3 required course units

**Foreign Language Requirement** (https://undergrad-inside.wharton.upenn.edu/requirements-2017/foreign-language-requirement)

**General Education Distribution** (https://undergrad-inside.wharton.upenn.edu/requirements-2017/general-education-distribution)
6 required course units with at least 1 course unit in each of the following categories:
- Humanities
- Natural Science, Math, and Engineering
- Social Science

**Unrestricted**

**Electives** (https://undergrad-inside.wharton.upenn.edu/requirements-2017/unrestricted-electives)
5 required course units

**Concentrations**

All students graduate from Wharton with a Bachelor of Science in Economics; however, each student is required to choose a concentration, which consists of four upper-level courses that explore a particular area of business in depth.

- Accounting, BS (p. 207)
- Actuarial Science, BS (p. 207)
- Behavioral Economics, BS (p. 208)
- Business Analytics, BS (p. 209)
- Business Economics and Public Policy, BS (p. 210)
- Environmental Policy & Management, BS (p. 211)
- Finance, BS (p. 212)
- Global Analysis, BS (p. 213)
- Health Care Management and Policy, BS (p. 214)
- Individualized, BS (p. 215)
- Legal Studies & Business Ethics, BS (p. 216)
- Management
  - Entrepreneurship and Innovation Track, BS (p. 217)
  - General Track, BS (p. 218)
  - Multinational Management Track, BS (p. 219)
  - Organizational Effectiveness Track, BS (p. 220)
  - Strategic Management Track, BS (p. 221)
- Managing E-Commerce, BS (p. 222)
- Marketing & Communication, BS (p. 223)
- Marketing & Operations Management, BS (p. 224)
- Marketing, BS (p. 225)
- Operations, Information & Decisions
  - Decision Processes Track, BS (p. 227)
• General Track, BS (p. 228)
• Information Systems Track, BS (p. 229)
• Operations Management/Management Science Track, BS (p. 229)

• Real Estate, BS (p. 230)
• Retailing, BS (p. 231)
• Social Impact & Responsibility, BS (p. 232)
• Statistics, BS (p. 233)

Accounting, BS

Although strong quantitative skills and attention to detail are important qualities for an accounting concentration, students need to acquire other skills as well. Many students find the accounting concentration to be useful preparation for careers in consulting, investment banking, general management, public accounting, and securities analysis.

For more information: https://accounting.wharton.upenn.edu/

Accounting Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 212</td>
<td>Financial Measurement and Disclosure(X)</td>
<td>1</td>
</tr>
<tr>
<td>Select three of the following:</td>
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<td></td>
</tr>
<tr>
<td>ACCT 242</td>
<td>Accounting and Business Analysis</td>
<td></td>
</tr>
<tr>
<td>ACCT 243</td>
<td>Accounting for Mergers, Acquisitions, and Complex Financial Structures</td>
<td></td>
</tr>
<tr>
<td>ACCT 297</td>
<td>Taxes and Business Strategy</td>
<td></td>
</tr>
<tr>
<td>ACCT 399</td>
<td>Supervised Study</td>
<td></td>
</tr>
<tr>
<td>FNCE 207</td>
<td>Corporate Valuation</td>
<td></td>
</tr>
</tbody>
</table>

Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Other Wharton Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>First-Year Foundations</strong></td>
<td></td>
</tr>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business ¹</td>
<td>1</td>
</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Writing</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Critical Writing Seminar</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Business</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Business Breadth (non-concentration courses)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Leadership Journey</strong></td>
<td></td>
</tr>
<tr>
<td>WH 101</td>
<td>Business and You</td>
<td>0.5</td>
</tr>
<tr>
<td>WH 201</td>
<td>Management Communication: Persuasive Speaking and Writing for Business</td>
<td>0.5</td>
</tr>
<tr>
<td>WH 301</td>
<td>Teamwork and Interpersonal Influence</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td><strong>Fundamentals</strong></td>
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<tr>
<td>ACCT 101</td>
<td>Accounting and Financial Reporting</td>
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</tr>
<tr>
<td>ACCT 102</td>
<td>Strategic Cost Analysis</td>
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</tr>
<tr>
<td>BEPP 250</td>
<td>Managerial Economics</td>
<td>1</td>
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<tr>
<td>FNCE 100</td>
<td>Corporate Finance</td>
<td>1</td>
</tr>
<tr>
<td>FNCE 101</td>
<td>Monetary Economics and the Global Economy</td>
<td>1</td>
</tr>
<tr>
<td>LGST 100</td>
<td>Ethics and Social Responsibility</td>
<td>1</td>
</tr>
<tr>
<td>or LGST 101</td>
<td>Law and Social Values</td>
<td></td>
</tr>
<tr>
<td>MGMT 101</td>
<td>Introduction To Management</td>
<td>1</td>
</tr>
<tr>
<td>MKTG 101</td>
<td>Introduction to Marketing</td>
<td>1</td>
</tr>
<tr>
<td>OIDD 101</td>
<td>An Introduction to Operations, Information and Decisions</td>
<td>1</td>
</tr>
<tr>
<td>STAT 101</td>
<td>Introductory Business Statistics</td>
<td>1</td>
</tr>
<tr>
<td>STAT 102</td>
<td>Introductory Business Statistics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Global Economy, Business &amp; Society</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One course unit required</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Technology, Innovation &amp; Analytics</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One course unit required</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Liberal Arts &amp; Sciences</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second semester-level foreign language</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>General Education Distribution</strong></td>
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</tr>
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<td></td>
<td>Select 6 courses with at least 1 course unit in each of the following categories:</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Humanities</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Natural Science, Math &amp; Engineering</strong></td>
<td></td>
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<tr>
<td></td>
<td><strong>Social Science</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Cross-Cultural Perspectives</strong></td>
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<td>Select 3 courses ²</td>
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<td></td>
<td><strong>Unrestricted Electives</strong></td>
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<td></td>
<td><strong>Total Course Units</strong></td>
<td>33</td>
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</table>

¹ For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

² Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Actuarial Science, BS

Actuarial science stands at the intersection of risk and money. Actuaries are experts in evaluating the likelihood and financial consequences of future events, designing creative ways to reduce the cost of undesirable events, and decreasing the impact of tragic events that do occur. They are in great demand by insurance companies, consulting firms, and financial institutions.

This concentration provides an intriguing blend of mathematics and business management for students with a strong mathematics aptitude. Ideally, students graduating from Wharton with an actuarial science concentration will be prepared to pass or will have passed many of
the professional examinations given by the Society of Actuaries or the Casualty Actuarial Society.

For more information: https://statistics.wharton.upenn.edu/programs/actuarialprogram/

### Actuarial Science Concentration

<table>
<thead>
<tr>
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<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
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<td>BEPP/STAT 452</td>
<td>Fundamentals of Actuarial Science I.</td>
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<td>BEPP/STAT 453</td>
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<td>Select one ASCI elective</td>
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<td>Total Course Units</td>
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### Other Wharton Requirements

<table>
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<th>Course Units</th>
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</thead>
<tbody>
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<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
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<tr>
<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td>Critical Writing Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Breadth (non-concentration courses)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Leadership Journey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WH 101</td>
<td>Business and You</td>
<td>0.5</td>
</tr>
<tr>
<td>WH 201</td>
<td>Management Communication: Persuasive</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Speaking and Writing for Business</td>
<td></td>
</tr>
<tr>
<td>WH 301</td>
<td>Teamwork and Interpersonal Influence</td>
<td>0.5</td>
</tr>
<tr>
<td>Capstone Course/Project</td>
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<td>0.5</td>
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<tr>
<td>Fundamentals</td>
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<tr>
<td>ACCT 101</td>
<td>Accounting and Financial Reporting</td>
<td>1</td>
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<td>ACCT 102</td>
<td>Strategic Cost Analysis</td>
<td>1</td>
</tr>
<tr>
<td>BEPP 250</td>
<td>Managerial Economics</td>
<td>1</td>
</tr>
<tr>
<td>FNCE 100</td>
<td>Corporate Finance</td>
<td>1</td>
</tr>
<tr>
<td>FNCE 101</td>
<td>Monetary Economics and the Global Economy</td>
<td>1</td>
</tr>
<tr>
<td>LGST 100</td>
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<td>1</td>
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<tr>
<td>or LGST 101</td>
<td>Law and Social Values</td>
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<tr>
<td>MGMT 101</td>
<td>Introduction To Management</td>
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<td>MKTG 101</td>
<td>Introduction to Marketing</td>
<td>1</td>
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<tr>
<td>OIDD 101</td>
<td>An Introduction to Operations, Information</td>
<td>1</td>
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<tr>
<td></td>
<td>and Decisions</td>
<td></td>
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<td>STAT 101</td>
<td>Introductory Business Statistics</td>
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<tr>
<td>STAT 102</td>
<td>Introductory Business Statistics</td>
<td>1</td>
</tr>
<tr>
<td>Global Economy, Business &amp; Society</td>
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### Behavioral Economics, BS

This new collaborative field, behavioral economics, has provided an understanding of how people’s decisions deviate from “optimal” choices and the consequences of such deviations for consumers, managers, firms, and policy. This joint concentration between the Operations, Information, and Decisions Department and the Business Economics and Public Policy Department explores the behavioral aspects of economics and decision making.

This concentration provides students with the opportunity to develop an understanding of (a) the rational actor model, (b) modifications to that model that reflect the psychology of human behavior, and (c) implications of those modifications for decision-makers, markets, and public policy.

For more information: https://bepp.wharton.upenn.edu/programs/undergraduate/program-information1/behavioral-economics/
Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<td>ECON 010</td>
<td>Introduction to Economics for Business</td>
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</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
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Writing

<table>
<thead>
<tr>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>Critical Writing Seminar</td>
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Business

Business Breadth (non-concentration courses)

<table>
<thead>
<tr>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>Leadership Journey</td>
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<td>WH 101 Business and You</td>
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<tr>
<td>WH 201 Management Communication: Persuasive Speaking and Writing for Business</td>
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<tr>
<td>WH 301 Teamwork and Interpersonal Influence</td>
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Capstone Course/Project

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<td>ACCT 102 Strategic Cost Analysis</td>
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<td>BEPP 250 Managerial Economics</td>
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<td>FNCE 100 Corporate Finance</td>
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<td>FNCE 101 Monetary Economics and the Global Economy</td>
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<td>LGST 100 Ethics and Social Responsibility</td>
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<tr>
<td>or LGST 101 Law and Social Values</td>
<td>1</td>
</tr>
<tr>
<td>MGMT 101 Introduction To Management</td>
<td>1</td>
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<tr>
<td>MKTG 101 Introduction to Marketing</td>
<td>1</td>
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<td>OIDD 101 An Introduction to Operations, Information and Decisions</td>
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<tr>
<td>STAT 101 Introductory Business Statistics</td>
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Global Economy, Business & Society

<table>
<thead>
<tr>
<th>Title</th>
<th>Course Units</th>
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<tr>
<td>One course unit required</td>
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Technology, Innovation & Analytics

<table>
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Liberal Arts & Sciences

Second semester-level foreign language

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<tr>
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Select 6 courses with at least 1 course unit in each of the following categories:

- Humanities
- Natural Science, Math & Engineering
- Social Science
- Cross-Cultural Perspectives

Select 3 courses

Unrestricted Electives

<table>
<thead>
<tr>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>Select five courses</td>
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</tbody>
</table>

Total Course Units

Other Wharton Requirements

1 For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2 Two can double-count as General Education Distribution courses.

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Business Analytics, BS

The Business Analytics joint concentration between the OID and STAT departments is designed to build deep competency in the skills needed to implement and oversee data-driven business decisions, including (i) collecting, managing, and describing datasets, (ii) forming inferences and predictions from data, and (iii) making optimal and robust decisions. Business analytics makes extensive use of statistical analysis, and the applications of business analytics span all functional areas.

Students choosing the Business Analytics concentration are ideally suited for the growing set of careers broadly defined under the header of “data science” with responsibilities for managing and analyzing data. In addition, the concentration provides an excellent complement to students who choose to focus on one of the functional areas of business (e.g., accounting, finance, marketing, operations).

For more information: https://oid.wharton.upenn.edu/programs/undergraduate/business-analytics-joint-concentration/

Business Analytics Concentration

<table>
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<tr>
<th>Code</th>
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<td>Select one BUAN Course-Data Collection</td>
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<td>Select one BUAN Course-Optimization</td>
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<tr>
<td>Select one BUAN Course-Elective</td>
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<tr>
<td>Other Wharton Requirements</td>
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</table>

Total Course Units

Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business</td>
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<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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<tr>
<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
<td>1</td>
</tr>
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Writing

<table>
<thead>
<tr>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Writing Seminar</td>
<td>1</td>
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Business

Business Breadth (non-concentration courses)

<table>
<thead>
<tr>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Journey</td>
<td>3</td>
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</tbody>
</table>

2018-19 Catalog | Generated 08/30/18
### Business Economics and Public Policy, BS

The Business Economics and Public Policy concentration offers a wide range of courses for students interested in the role of economics in business, competition and public policy. Our courses specialize in market structure and competition, insurance and risk management, behavioral economics, energy, public finance, business & international politics, and business and development. A concentration in Business Economics and Public Policy is vital for students planning a career in consulting, the public sector, industries with a high social impact factor, and anyone with a general interest in how economics interacts with law, policy, and politics.

For more information: https://bepp.wharton.upenn.edu/programs/undergraduate/program-information1/bepp-program/

### BEPP Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td></td>
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<td>BEPP 284</td>
<td>Game Theory for Business and Life</td>
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<td>BEPP 305</td>
<td>Risk Management</td>
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<td>BEPP 208</td>
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<td>BEPP 210</td>
<td>Firms, Markets and Public Policy.</td>
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<td>BEPP 212</td>
<td>Economic Analysis of Law.</td>
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<td>BEPP 214</td>
<td>Nonprofit Sector: Economic Challenges and Strategic Responses.</td>
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<td>BEPP 220</td>
<td>Behavioral Economics, Markets, and Public Policy</td>
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<td>BEPP 230</td>
<td>Urban Fiscal Policy</td>
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<td>BEPP 233</td>
<td>Consumers, Firms and Markets in Developing Countries</td>
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<td>BEPP 236</td>
<td>International Housing Comparisons</td>
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<td>BEPP 261</td>
<td>Risk Analysis and Environmental Management</td>
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<td>BEPP 263</td>
<td>Environmental &amp; Energy Economics and Policy</td>
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<td>BEPP 280</td>
<td>Applied Data Analysis.</td>
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<td>BEPP 289</td>
<td>Nations, Politics, and Market</td>
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<td>BEPP 322</td>
<td>Business Insurance and Estate Planning</td>
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<td>The Economics and Financing of Health Care Delivery</td>
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<td>HCMG 215</td>
<td>Management and Economics of Pharmaceutical and Biotech Industries</td>
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<td>HCMG 250</td>
<td>Health Policy: Health Care Reform and the Future of the American Health System</td>
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<tr>
<td>HCMG 352</td>
<td>Health Services Delivery: A Managerial Economic Approach</td>
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</table>

For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

Two can double-count as General Education Distribution courses.

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---

### BEPP Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>WH 101</td>
<td>Business and You</td>
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<tr>
<td>WH 201</td>
<td>Management Communication: Persuasive Speaking and Writing for Business</td>
<td>0.5</td>
</tr>
<tr>
<td>WH 301</td>
<td>Teamwork and Interpersonal Influence</td>
<td>0.5</td>
</tr>
<tr>
<td>Capstone Course/Project</td>
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<td>0.5</td>
</tr>
<tr>
<td>ACCT 101</td>
<td>Accounting and Financial Reporting</td>
<td>1</td>
</tr>
<tr>
<td>ACCT 102</td>
<td>Strategic Cost Analysis</td>
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</tr>
<tr>
<td>BEPP 250</td>
<td>Managerial Economics</td>
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<tr>
<td>FNCE 100</td>
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<tr>
<td>FNCE 101</td>
<td>Monetary Economics and the Global Economy</td>
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<tr>
<td>LGST 100</td>
<td>Ethics and Social Responsibility</td>
<td>1</td>
</tr>
<tr>
<td>or LGST 101</td>
<td>Law and Social Values</td>
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</tr>
<tr>
<td>MGMT 101</td>
<td>Introduction To Management</td>
<td>1</td>
</tr>
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<td>Introduction to Marketing</td>
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<td>STAT 102</td>
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</tr>
</tbody>
</table>

*Global Economy, Business & Society*

One course unit required 1

*Technology, Innovation & Analytics*

One course unit required 1

*Liberal Arts & Sciences*

Second semester-level foreign language

*General Education Distribution*

Select 6 courses with at least 1 course unit in each of the following categories:

- Humanities
- Natural Science, Math & Engineering
- Social Science

*Cross-Cultural Perspectives*

Select 3 courses 2

*Unrestricted Electives*

Select five courses

Total Course Units 33

---

1 For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2 Two can double-count as General Education Distribution courses.
At least two of the electives need to be BEPP courses and could include the remaining two BEPP Fundamentals. Additional course substitutions require the approval of the BEPP department’s undergraduate advisor.

Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business</td>
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<td>ACCT 102</td>
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<td>FNCE 100</td>
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<td>FNCE 101</td>
<td>Monetary Economics and the Global Economy</td>
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<td>LGST 100</td>
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<tr>
<td>or LGST 101</td>
<td>Law and Social Values</td>
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<td>OIDD 290</td>
<td>Decision Processes</td>
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</tr>
<tr>
<td>OIDD 314</td>
<td>Enabling Technologies</td>
<td>1</td>
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<tr>
<td>STAT 101</td>
<td>Introductory Business Statistics</td>
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</tr>
<tr>
<td>STAT 102</td>
<td>Introductory Business Statistics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Global Economy, Business &amp; Society</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>One course unit required</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Technology, Innovation &amp; Analytics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>One course unit required</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Liberal Arts &amp; Sciences</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Second semester-level foreign language</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>General Education Distribution</td>
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</tr>
<tr>
<td></td>
<td>Select 6 courses with at least 1 course unit in each of the</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>following categories:</td>
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</tbody>
</table>

Environmental Policy & Management, BS

The concentration in environmental policy and management examines the relationship between business and the natural environment, including human health and safety as well as addressing a range of policy issues. This concentration provides an in-depth foundation for those interested in pursuing careers in the growing environmental sector of the economy, whether in private business, government, or environmental consulting. It takes an interdisciplinary approach, drawing on faculty and courses from several Wharton departments.

Students are encouraged to pursue additional coursework on environmental and technological risks in parallel with the Wharton program through the School of Arts and Sciences and the School of Engineering and Applied Science.

For more information: https://igel.wharton.upenn.edu/education/wharton-undergrad-concentration/

Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business</td>
<td>1</td>
</tr>
</tbody>
</table>
The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

### Finance, BS

The finance concentration develops the skills necessary to work at a high level of expertise in all areas of finance, including:

- Asset management
- Commercial and investment banking in an international context
- The financial management ("treasury function") of commercial and industrial enterprises and of financial institutions
- The financial aspects of venture capital, mergers, and acquisitions
- Most aspects of management consulting in both domestic and international sectors

Concentrating in finance also equips students well for careers in law and government in addition to the private sector.

For more information: finance.wharton.upenn.edu

### Finance Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>FNCE 203</td>
<td>Advanced Corporate Finance</td>
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<tr>
<td>FNCE 205</td>
<td>Investment Management</td>
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<tr>
<td>FNCE 206</td>
<td>Financial Derivatives</td>
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<tr>
<td>FNCE 207</td>
<td>Corporate Valuation</td>
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</tr>
<tr>
<td>FNCE 208</td>
<td>International Corporate Finance</td>
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</tr>
<tr>
<td>FNCE 209</td>
<td>Real Estate Investment: Analysis and Financing</td>
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<tr>
<td>FNCE 219</td>
<td>International Financial Markets</td>
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<td>FNCE 220</td>
<td>International Banking</td>
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<td>FNCE 230</td>
<td>Urban Fiscal Policy</td>
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<tr>
<td>FNCE 235</td>
<td>Fixed Income Securities</td>
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<tr>
<td>FNCE 238</td>
<td>Capital Markets</td>
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<tr>
<td>FNCE 239</td>
<td>Behavioral Finance</td>
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<tr>
<td>FNCE 250</td>
<td>Venture Capital and the Finance of Innovation</td>
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<tr>
<td>FNCE 251</td>
<td>The Finance of Buyouts and Acquisitions</td>
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<tr>
<td>FNCE 254</td>
<td>Impact Investing</td>
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<tr>
<td>FNCE 256</td>
<td>Finance Energy</td>
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<td>FNCE 383</td>
<td>Strategic Equity Finance</td>
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<tr>
<td>FNCE 385</td>
<td>ASP - Fin-Tech</td>
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<tr>
<td>FNCE 386</td>
<td>ASP - Hedge Funds</td>
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<tr>
<td>FNCE 387</td>
<td>ASP - Shareholder Activism</td>
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<tr>
<td>FNCE 397</td>
<td>Finance In The Middle East &amp; North Africa</td>
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<tr>
<td>FNCE 399</td>
<td>Supervised Study in Finance</td>
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</table>

Total Course Units: 37

---

1. For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2. Two can double-count as General Education Distribution courses.
### Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First-Year Foundations</strong></td>
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</tr>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business</td>
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</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
<td></td>
</tr>
<tr>
<td><strong>Writing</strong></td>
<td>Critical Writing Seminar</td>
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</tr>
<tr>
<td><strong>Business</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Business Breadth (non-concentration courses)</strong></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Leadership Journey</strong></td>
<td></td>
<td></td>
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<tr>
<td>WH 101</td>
<td>Business and You</td>
<td>0.5</td>
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<td>WH 201</td>
<td>Management Communication: Persuasive Speaking and Writing for Business</td>
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<tr>
<td>WH 301</td>
<td>Teamwork and Interpersonal Influence</td>
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<tr>
<td><strong>Capstone Course/Project</strong></td>
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<tr>
<td><strong>Fundamentals</strong></td>
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<td>ACCT 101</td>
<td>Accounting and Financial Reporting</td>
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<td>ACCT 102</td>
<td>Strategic Cost Analysis</td>
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<td>BEPP 250</td>
<td>Managerial Economics</td>
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<tr>
<td>FNCE 100</td>
<td>Corporate Finance</td>
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<tr>
<td>FNCE 101</td>
<td>Monetary Economics and the Global Economy</td>
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<tr>
<td>LGST 100</td>
<td>Ethics and Social Responsibility</td>
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<tr>
<td>or LGST 101</td>
<td>Law and Social Values</td>
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<tr>
<td>MGMT 101</td>
<td>Introduction To Management</td>
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</tr>
<tr>
<td>MKTG 101</td>
<td>Introduction to Marketing</td>
<td>1</td>
</tr>
<tr>
<td>OIDD 101</td>
<td>An Introduction to Operations, Information and Decisions</td>
<td>1</td>
</tr>
<tr>
<td>STAT 101</td>
<td>Introductory Business Statistics</td>
<td>1</td>
</tr>
<tr>
<td>STAT 102</td>
<td>Introductory Business Statistics</td>
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</tr>
<tr>
<td><strong>Global Economy, Business &amp; Society</strong></td>
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<td>One course unit required</td>
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<tr>
<td><strong>Technology, Innovation &amp; Analytics</strong></td>
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<tr>
<td>One course unit required</td>
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<td>1</td>
</tr>
<tr>
<td><strong>Liberal Arts &amp; Sciences</strong></td>
<td></td>
<td></td>
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<tr>
<td>Second semester-level foreign language</td>
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<td></td>
</tr>
<tr>
<td><strong>General Education Distribution</strong></td>
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</tr>
<tr>
<td>Select 6 courses with at least 1 course unit in each of the following categories:</td>
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</tr>
<tr>
<td>Humanities</td>
<td></td>
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<tr>
<td>Natural Science, Math &amp; Engineering</td>
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</tr>
<tr>
<td>Social Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-Cultural Perspectives</td>
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</tr>
<tr>
<td>Select 3 courses</td>
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<tr>
<td><strong>Unrestricted Electives</strong></td>
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<tr>
<td>Select five courses</td>
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<tr>
<td>Total Course Units</td>
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<td>33</td>
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</table>

1. For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2. Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

---

### Global Analysis, BS

The global analysis (GLAN) secondary concentration permits Wharton students to extend their understanding of the global economy as it applies to firms. One may think of it as a broad concentration in international business.

**For more information:** [https://undergrad-inside.wharton.upenn.edu/concentrations/glan/](https://undergrad-inside.wharton.upenn.edu/concentrations/glan/)

#### Global Analysis Concentration

Secondary concentration only.

Study Abroad for at least one semester.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td><strong>Secondary Concentration Requirements</strong></td>
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<tr>
<td>Select one Upper Level Language course</td>
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<tr>
<td>Select three GLAN courses</td>
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<tr>
<td><strong>Primary Concentration</strong></td>
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<tr>
<td><strong>Other Wharton Requirements</strong></td>
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<tr>
<td>Total Course Units</td>
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<td>37</td>
</tr>
</tbody>
</table>

1. One course unit from the secondary concentration will double count as a Business Breadth Requirement.

Three course units from the secondary concentration will double count as Unrestricted Electives.

---

### Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First-Year Foundations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business</td>
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<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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</tr>
<tr>
<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
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</tr>
<tr>
<td><strong>Writing</strong></td>
<td>Critical Writing Seminar</td>
<td>1</td>
</tr>
<tr>
<td><strong>Business</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Business Breadth (non-concentration courses)</strong></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Leadership Journey</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WH 101</td>
<td>Business and You</td>
<td>0.5</td>
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</tbody>
</table>
### Health Care Management and Policy, BS

The concentration in health care management and policy focuses on the management, financing, and economics of the health care sector. Students learn about health care markets and factors that significantly influence decision making both at the policy level and at the level of the firm or organization. The health care sector includes government agencies, non-profit institutions, major private corporations, medical practices and partnerships, and many small and early-stage health care service and product firms.

This concentration prepares students for careers as managers in health care companies or health care service firms such as consulting, banking or health care IT companies, or government agencies. Students planning careers in the health professions such as medicine, nursing, or dentistry have found the concentration very useful in understanding the context in which they will be working.

For more information: hcmg.wharton.upenn.edu

### Health Care Management and Policy Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>HCMG 101</td>
<td>Health Care Systems</td>
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<tr>
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<td>Select three of the following:</td>
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<tr>
<td>HCMG 202</td>
<td>The Economics and Financing of Health Care Delivery</td>
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<tr>
<td>HCMG 203</td>
<td>Clinical Issues in Health Care Management: Doctors, Patients and Managers in Modern Society</td>
<td></td>
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<tr>
<td>HCMG 204</td>
<td>Comparative Health Care Systems</td>
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<tr>
<td>HCMG 212</td>
<td>Health Care Quality and Outcomes: Measurement and Management</td>
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<tr>
<td>HCMG 213</td>
<td>Health Care Strategy and Management: the Business of Health Care</td>
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<tr>
<td>HCMG 215</td>
<td>Management and Economics of Pharmaceutical and Biotech Industries</td>
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<tr>
<td>HCMG 216</td>
<td>Health Insurance and Health Care Strategy</td>
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<tr>
<td>HCMG 250</td>
<td>Health Policy: Health Care Reform and the Future of the American Health System</td>
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<td>HCMG 352</td>
<td>Health Services Delivery: A Managerial Economic Approach</td>
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<tr>
<td>HCMG 391</td>
<td>Health Care Entrepreneurship</td>
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**Other Wharton Requirements**

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<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ECON 001</td>
<td>Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.</td>
<td>1</td>
</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
<td>1</td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Critical Writing Seminar 1

Business
Business Breadth (non-concentration courses) 3

Leadership Journey
WH 101 Business and You 0.5
WH 201 Management Communication: Persuasive Speaking and Writing for Business 0.5
WH 301 Teamwork and Interpersonal Influence 0.5
Capstone Course/Project 0.5

Fundamentals
ACCT 101 Accounting and Financial Reporting 1
ACCT 102 Strategic Cost Analysis 1
BEPP 250 Managerial Economics 1
FNCE 100 Corporate Finance 1
FNCE 101 Monetary Economics and the Global Economy 1
LGST 100 Ethics and Social Responsibility or LGST 101 Law and Social Values 1
MGMT 101 Introduction To Management 1
MKTG 101 Introduction to Marketing 1
OIDD 101 An Introduction to Operations, Information and Decisions 1
STAT 101 Introductory Business Statistics 1
STAT 102 Introductory Business Statistics 1

Global Economy, Business & Society
One course unit required

Technology, Innovation & Analytics
One course unit required

Liberal Arts & Sciences
Second semester-level foreign language

General Education Distribution
Select 6 courses with at least 1 course unit in each of the following categories: 6
- Humanities
- Natural Science, Math & Engineering
- Social Science
- Cross-Cultural Perspectives
Select 3 courses 2

Unrestricted Electives
Select five courses 5
Total Course Units 33

For more information: http://undergrad.wharton.upenn.edu/academics/

Individualized Concentration (WIDV)

Select four WIDV courses 1
Other Wharton Requirements 33
Total Course Units 37

1 WIDV must be approved by faculty member and Wharton Undergraduate Division.

Other Wharton Requirements

First-Year Foundations
ECON 010 Introduction to Economics for Business 1 1
MATH 104 Calculus, Part I 1
or MATH 110 Calculus for Wharton Students 1

Writing
Critical Writing Seminar 1

Business
Business Breadth (non-concentration courses) 3

Leadership Journey
WH 101 Business and You 0.5
WH 201 Management Communication: Persuasive Speaking and Writing for Business 0.5
WH 301 Teamwork and Interpersonal Influence 0.5

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Individualized, BS

Students have the option to design an individualized concentration if they cannot find a standard concentration that aligns with their interests. An individualized concentration consists of four CUs that are united by a common theme. An established concentration may also be tailored, with approval from the concentration advisor, to specific student interests by replacing a required course with one not on the list of courses that traditionally defines the concentration.

Students should note that (1) at least three of the courses must be business courses, and (2) a faculty member from the Wharton academic department most closely associated with the individualized concentration must sign off on the proposal.

Individualized concentration proposals are considered by the Undergraduate Division Petitions Committee. Students who wish to pursue an individualized concentration should complete the following steps:

1. Consult with an academic adviser in the Undergraduate Division to discuss your proposal prior to submission.
2. Fill out the Individualized Concentration Proposal form.
3. Submit the completed form to the front desk in the Wharton Undergraduate Division (G95 Huntsman Hall).

For more information: http://undergrad.wharton.upenn.edu/academics/
Legal Studies & Business Ethics, BS

The Legal Studies and Business Ethics Concentration focuses on the social values, moral concerns, and legal considerations that are essential aspects of business decision making in our global market system. The courses students take in this program help them explore how responsible business leaders can engage ethically and effectively with diverse cultures, corporate stakeholders, government regulators, and legal systems. Of special value to students seeking to broaden their business education, this concentration will help them acquire essential, non-quantitative reasoning skills that are required when leaders face difficult choices under conditions of empirical uncertainty and/or moral ambiguity – a frequent occurrence in fast-moving market economies.

Students pursuing this concentration will gain a number of analytic skills, including:

- Identifying moral and legal issues hidden within complex, culturally rich fact patterns
- Reasoning from moral principles to specific ethical and legal conclusions
- Reasoning by analogy between like cases and situations
- Arguing from authoritative rules and precedents to specific, logically consistent recommendations for action

For more information: https://lgst.wharton.upenn.edu/programs/undergraduate/

Legal Studies & Business Ethics Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>LGST 202</td>
<td>Law of Corporate Management and Finance</td>
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<td>LGST 204</td>
<td>Real Estate Law</td>
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<td>LGST 205</td>
<td>Law of Marketing and Antitrust</td>
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<tr>
<td>LGST 206</td>
<td>Negotiations</td>
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<tr>
<td>LGST 207</td>
<td>The Sports Industry: Business and Legal Aspects</td>
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<tr>
<td>LGST 208</td>
<td>The Law at Work: Employment Law for Managers</td>
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<td>LGST 211</td>
<td>Economic Analysis of Law</td>
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<tr>
<td>LGST 213</td>
<td>Legal Aspect of Entrepreneurship</td>
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<td>LGST 214</td>
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<tr>
<td>LGST 215</td>
<td>Environmental Management: Law &amp; Policy</td>
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<tr>
<td>LGST 216</td>
<td>Emerging Economies</td>
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<tr>
<td>LGST 218</td>
<td>Diversity and the Law</td>
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<td>LGST 219</td>
<td>Law and Policy in International Business</td>
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<tr>
<td>LGST 220</td>
<td>International Business Ethics</td>
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<tr>
<td>LGST 221</td>
<td>Constitutional Law and Free Enterprise</td>
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<td>LGST 222</td>
<td>Internet Law &amp; Policy</td>
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<td>LGST 223</td>
<td>Securities Regulation</td>
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<td>LGST 224</td>
<td>Human Rights and Globalization</td>
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<td>LGST 226</td>
<td>Markets, Morality &amp; the Future of Capitalism</td>
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<td>LGST 227</td>
<td>Literature of Success</td>
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<td>LGST 228</td>
<td>Sports Law</td>
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<tr>
<td>LGST 230</td>
<td>Social Impact and Responsibility: Foundations</td>
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<td>LGST 241</td>
<td>Theories of the Business Enterprise</td>
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<tr>
<td>LGST 292</td>
<td>Advanced Negotiations</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Other Wharton Requirements

<table>
<thead>
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<th>Code</th>
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<th>Course Units</th>
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<tr>
<td></td>
<td><strong>First-Year Foundations</strong></td>
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<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business ¹</td>
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<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
</tr>
<tr>
<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Writing</strong></td>
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<tr>
<td></td>
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<tr>
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<td><strong>Business</strong></td>
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<tr>
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<td><strong>Leadership Journey</strong></td>
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<tr>
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<td>Teamwork and Interpersonal Influence</td>
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<tr>
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<td>Accounting and Financial Reporting</td>
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</tr>
<tr>
<td>ACCT 102</td>
<td>Strategic Cost Analysis</td>
<td>1</td>
</tr>
<tr>
<td>BEPP 250</td>
<td>Managerial Economics</td>
<td>1</td>
</tr>
<tr>
<td>FNCE 100</td>
<td>Corporate Finance</td>
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<td>FNCE 101</td>
<td>Monetary Economics and the Global Economy</td>
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<tr>
<td>LGST 100</td>
<td>Ethics and Social Responsibility</td>
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<tr>
<td>or LGST 101</td>
<td>Law and Social Values</td>
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<td>Introduction To Management</td>
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<tr>
<td>MKTG 101</td>
<td>Introduction to Marketing</td>
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<tr>
<td>OIDD 101</td>
<td>An Introduction to Operations, Information and Decisions</td>
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<td>STAT 101</td>
<td>Introductory Business Statistics</td>
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<tr>
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<td>Second semester-level foreign language</td>
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<td>Natural Science, Math &amp; Engineering</td>
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<td>Social Science</td>
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<tr>
<td></td>
<td>Cross-Cultural Perspectives</td>
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<td>Select 3 courses</td>
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<td><strong>Unrestricted Electives</strong></td>
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¹ For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

² Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Management: Entrepreneurship and Innovation Track, BS

The Management–Entrepreneurship and Innovation concentration combines theory with practice, providing you with the skills and analytic tools to test theories, models, and strategies learned in the classroom on real ventures. Whether you want to start your own business, join a startup, scale a growing venture, or pursue a career in innovation management, the concentration prepares you for a variety of exciting options. Entrepreneurial and innovative skills are actively sought by competitive and profitable growing businesses.


Management Concentration - Entrepreneurship and Innovation Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>MGMT 230</td>
<td>Entrepreneurship ¹</td>
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<tr>
<td>or MGMT 235</td>
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</table>

Select three course units of the following:

- MGMT 212 Social Entrepreneurship
- MGMT 214 Market Dynamics and Technical Change
- MGMT 231 Entrepreneurial Venture Initiation
- MGMT 233 Strategies and Practices of Family-Controlled Companies
- MGMT 237 Management of Technology
- MGMT 251 Consulting to Growth Companies
- MGMT 264 Venture Capital and Entrepreneurial Management
- MGMT 265
- MGMT 291 Negotiations
- FNCE 250 Venture Capital and the Finance of Innovation
- FNCE 251 The Finance of Buyouts and Acquisitions
- HCMG 391 Health Care Entrepreneurship
LGST 213  Legal Aspect of Entrepreneurship
MKTG 227  Digital Marketing and Electronic Commerce
MKTG 234  Idea Generation & the Systematic Approach for Creativity
MKTG 262  New Product Development
OIDD 236  Scaling Operations in Technology Ventures: Linking Strategy and Execution
OIDD 314  Enabling Technologies
OIDD 415  Product Design
REAL 396  Real Estate Entrepreneurship

Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>LGST 100</td>
<td>Ethics and Social Responsibility</td>
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<tr>
<td>MGMT 101</td>
<td>Introduction To Management</td>
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<td>Introductory Business Statistics</td>
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<tr>
<td>STAT 102</td>
<td>Introductory Business Statistics</td>
</tr>
</tbody>
</table>

Total Course Units: 37

1  MGMT 235 is open to M&T students only.
2  Students may petition to substitute other courses toward the requirements of the major. Such requests will be expected to demonstrate that the student is pursuing a coherent plan of entrepreneurship and innovation studies at Wharton. Petitions should be sent in writing to the Entrepreneurship and Innovation academic advisor, Nellie Gaynor at nelliebk@wharton.upenn.edu. Other courses cannot exceed 1.0 cu equivalent of Wharton coursework. Only 1 cu of Independent Study Project or Advanced Student Project including Global Modular Courses or MKTG890, Global Consulting Practicum, can be counted toward the major and must have approval by the department.

Other Wharton Requirements

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<tr>
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<tr>
<td>STAT 102</td>
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</tbody>
</table>

Global Economy, Business & Society

One course unit required

Technology, Innovation & Analytics

One course unit required

Liberal Arts & Sciences

Second semester-level foreign language

General Education Distribution

Select 6 courses with at least 1 course unit in each of the following categories:

- Humanities
- Natural Science, Math & Engineering
- Social Science

Cross-Cultural Perspectives

Select 3 courses

Unrestricted Electives

Select five courses

Total Course Units: 33

1  For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.
2  Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Management: General Track, BS

The Management Department offers courses and experience to students who want careers in management or to take on major challenges and responsibilities in private, public, and not-for-profit organizations.

For more information: https://mgmt.wharton.upenn.edu/programs/undergraduate/management-concentration/

Management Concentration - General Track

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MGMT 104</td>
<td>Industrial Relations and Human Resource Management</td>
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<td>MGMT 111</td>
<td>Multinational Management</td>
</tr>
<tr>
<td>MGMT 223</td>
<td>Business Strategy</td>
</tr>
<tr>
<td>MGMT 230</td>
<td>Entrepreneurship</td>
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</tbody>
</table>
MGMT 238 Organizational Behavior
or MGMT 27:Power and Politics in Organizations

Select two electives: 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
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<td>MGMT 205</td>
<td>Multinational Corporate Strategies</td>
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<tr>
<td>MGMT 208</td>
<td>Globalization and International Political Economy</td>
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<td>MGMT 209</td>
<td>The Political Environment of the Multinational Firm</td>
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<tr>
<td>MGMT 211</td>
<td>Competitive Strategy</td>
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<td>MGMT 212</td>
<td>Social Entrepreneurship</td>
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<tr>
<td>MGMT 223</td>
<td>Business Strategy</td>
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<td>MGMT 225</td>
<td>Value Creation and Value Capture in American Business History</td>
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<tr>
<td>MGMT 231</td>
<td>Entrepreneurial Venture Initiation</td>
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<tr>
<td>MGMT 233</td>
<td>Strategies and Practices of Family-Controlled Companies</td>
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<tr>
<td>MGMT 237</td>
<td>Management of Technology</td>
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<td>MGMT 240</td>
<td>Group Dynamics</td>
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<tr>
<td>MGMT 241</td>
<td>Knowledge for Social Impact: Analyzing Current Issues &amp; Approaches</td>
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<td>MGMT 242</td>
<td>Corporate Governance, Executive Compensation and the Board</td>
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<td>MGMT 247</td>
<td>Employment Law</td>
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<td>MGMT 249</td>
<td>Mergers and Acquisitions</td>
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<td>MGMT 251</td>
<td>Consulting to Growth Companies</td>
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<td>Venture Capital and Entrepreneurial Management</td>
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<td>MGMT 272</td>
<td>Power and Politics in Organizations</td>
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<td>MGMT 276</td>
<td>Cultivating Judgment Skills: Forecasting in Business Politics</td>
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<td>MGMT 288</td>
<td>Managing and Competing in China</td>
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<td>MGMT 291</td>
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<td>MGMT 292</td>
<td>Adv Topic Negotiation</td>
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Other Wharton Requirements 33

Total Course Units 37

Other Wharton Requirements

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<thead>
<tr>
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<tbody>
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<tr>
<td>or MATH 110</td>
<td>Calculus for Wharton Students</td>
<td></td>
</tr>
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</table>

Writing

Critical Writing Seminar 1

Business

Business Breadth (non-concentration courses) 3

Leadership Journey

WH 101 Business and You 0.5

WH 201 Management Communication: Persuasive Speaking and Writing for Business 0.5

WH 301 Teamwork and Interpersonal Influence 0.5

Fundamentals

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ACCT 101</td>
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<td>ACCT 102</td>
<td>Strategic Cost Analysis</td>
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<td>BEPP 250</td>
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<td>FNCE 100</td>
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<td>Monetary Economics and the Global Economy</td>
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<td>LGST 100</td>
<td>Ethics and Social Responsibility or LGST 101</td>
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<td>Law and Social Values</td>
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MGMT 101 Introduction To Management 1

MKTG 101 Introduction to Marketing 1

OIDD 101 An Introduction to Operations, Information and Decisions 1

STAT 101 Introductory Business Statistics 1

STAT 102 Introductory Business Statistics 1

Global Economy, Business & Society

One course unit required

Technology, Innovation & Analytics

One course unit required

Liberal Arts & Sciences

Second semester-level foreign language

General Education Distribution

Select 6 courses with at least 1 course unit in each of the following categories: 6

- Humanities
- Natural Science, Math & Engineering
- Social Science

Cross-Cultural Perspectives

Select 3 courses 2 3

Unrestricted Electives

Select five courses 5

Total Course Units 33

1 For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2 Two can double-count as General Education Distribution courses.

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Management: Multinational Management Track, BS

The specialization in Multinational Management provides students with the toolkit to understand how global economic, political, and social
forces influence the competitive environment of the firm. Topics include international trade, foreign investment and acquisitions, stakeholder engagement, political risk, foreign market entry, global teams, and global strategy. Students will learn how to evaluate the international environment and to operate in an increasingly complex global business landscape that shapes a variety of industries (e.g., consulting, financial services, real estate, social enterprise) and functions (e.g. strategic, technological, general or project management, business development, communications or marketing) at companies both large and small.

For more information: https://mgmt.wharton.upenn.edu/programs/undergraduate/management-specializations/multinational-management/

Management - Multinational Management Track

<table>
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<tr>
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<tr>
<td>MGMT 104</td>
<td>Industrial Relations and Human Resource Management</td>
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<td>MGMT 111</td>
<td>Multinational Management</td>
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<td>Business Strategy</td>
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<td>MGMT 230</td>
<td>Entrepreneurship</td>
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<td>or MGMT 23</td>
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<td>MGMT 238</td>
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<tr>
<td>or MGMT 272</td>
<td>Power and Politics in Organizations</td>
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Select two of the following: 2

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>MGMT 205</td>
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Other Wharton Requirements

<table>
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<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>33</td>
</tr>
<tr>
<td>Total Course Units</td>
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<td>37</td>
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Other Wharton Requirements

<table>
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</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Select 6 courses with at least 1 course unit in each of the following categories:</td>
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<tr>
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<td>2</td>
</tr>
<tr>
<td></td>
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<td>3</td>
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<tr>
<td>Select 3 courses 2</td>
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</tr>
<tr>
<td>Select five courses</td>
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</tbody>
</table>

Global Economy, Business & Society

One course unit required

Technology, Innovation & Analytics

One course unit required

Liberal Arts & Sciences

Second semester-level foreign language

General Education Distribution

Select 6 courses with at least 1 course unit in each of the following categories:

- Humanities
- Natural Science, Math & Engineering
- Social Science

Cross-Cultural Perspectives

Select 3 courses 2

Unrestricted Electives

Select five courses

Total Course Units 33

1 For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business, all of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2 Two can double-count as General Education Distribution courses.

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Management: Organizational Effectiveness Track, BS

A concentration in management prepares students to take on major managerial challenges and responsibilities in private, public, and nonprofit organizations. Students can pursue a general management concentration or choose from specialized tracks in strategic management, multinational management, organizational effectiveness, and entrepreneurship and innovation.
Management Concentration - Organizational Effectiveness Track

<table>
<thead>
<tr>
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<tbody>
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<td>MGMT 104</td>
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<td>MGMT 238</td>
<td>Organizational Behavior</td>
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<tr>
<td>or MGMT 272</td>
<td>Power and Politics in Organizations</td>
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<tr>
<td></td>
<td>Select two of the following:</td>
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<td></td>
<td>MGMT 240 Group Dynamics</td>
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<td></td>
<td>MGMT 241 Knowledge for Social Impact: Analyzing Current Issues &amp; Approaches</td>
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<td>MGMT 242 Corporate Governance, Executive Compensation and the Board</td>
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<td>MGMT 291</td>
<td>Negotiations</td>
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Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tr>
<td></td>
<td>First-Year Foundations</td>
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<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business¹</td>
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<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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<tr>
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<td></td>
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<td>Business Breadth (non-concentration courses)</td>
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<td></td>
<td>Leadership Journey</td>
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<td>WH 101</td>
<td>Business and You</td>
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<tr>
<td>WH 201</td>
<td>Management Communication: Persuasive Speaking and Writing for Business</td>
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</tr>
<tr>
<td>WH 301</td>
<td>Teamwork and Interpersonal Influence</td>
<td>0.5</td>
</tr>
<tr>
<td>Capstone Course/Project</td>
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<td></td>
<td>Fundamentals</td>
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</tr>
<tr>
<td>ACCT 101</td>
<td>Accounting and Financial Reporting</td>
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</tr>
<tr>
<td>ACCT 102</td>
<td>Strategic Cost Analysis</td>
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</tr>
<tr>
<td>BEPP 250</td>
<td>Managerial Economics</td>
<td>1</td>
</tr>
<tr>
<td>FNCE 100</td>
<td>Corporate Finance</td>
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</tr>
<tr>
<td>FNCE 101</td>
<td>Monetary Economics and the Global Economy</td>
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</tr>
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<td>LGST 100</td>
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<td>or LGST 101</td>
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<td>MKTG 101</td>
<td>Introduction to Marketing</td>
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<td>OIDD 101</td>
<td>An Introduction to Operations, Information and Decisions</td>
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<td>STAT 101</td>
<td>Introductory Business Statistics</td>
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For more information: https://mgmt.wharton.upenn.edu/programs/undergraduate/management-specializations/organizational-effectiveness/

Management Concentration - Strategic Management Track

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>STAT 102</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>Technology, Innovation &amp; Analytics</td>
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<td>1</td>
</tr>
<tr>
<td>One course unit required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liberal Arts &amp; Sciences</td>
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<tr>
<td>Second semester-level foreign language</td>
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<td>Humanities</td>
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</tr>
<tr>
<td>Natural Science, Math &amp; Engineering</td>
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<td></td>
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<tr>
<td>Social Science</td>
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<tr>
<td>Cross-Cultural Perspectives</td>
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<tr>
<td>Select 3 courses²</td>
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<tr>
<td>Unrestricted Electives</td>
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<td>Select five courses</td>
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<td>5</td>
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<tr>
<td>Total Course Units</td>
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<td>33</td>
</tr>
</tbody>
</table>

1. For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2. Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Management: Strategic Management Track, BS

The specialization in Strategic Management prepares students who are interested in competitive and corporate strategy. A deeper understanding of strategy is useful for those who want to help companies with their strategies (e.g., through consulting), need to understand the strategies of companies (e.g., to make decisions of whether to invest in certain companies), and want to create new organizations and need to develop a strategy that would provide them with a competitive advantage in the market place.

For more information: https://mgmt.wharton.upenn.edu/programs/undergraduate/management-specializations/strategic-management/
Managing E-Commerce, BS

Secondary concentration only.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIDD 311</td>
<td>Business Computer Languages</td>
<td></td>
</tr>
<tr>
<td>OIDD 469</td>
<td>Information Strategy and Economics</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

- MGMT 223: Business Strategy
- or MGMT 264: Venture Capital and Entrepreneurial Management

Select one course unit from the following:

- FNCE 250: Venture Capital and the Finance of Innovation

For more information: [https://undergrad-inside.wharton.upenn.edu/concentrations/ecom/](https://undergrad-inside.wharton.upenn.edu/concentrations/ecom/)

Managing E-Commerce Concentration

Secondary concentration only.

<table>
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<tr>
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<tbody>
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</table>

Select one of the following:

- MGMT 223: Business Strategy
- or MGMT 264: Venture Capital and Entrepreneurial Management

Select one course unit from the following:

- FNCE 250: Venture Capital and the Finance of Innovation

The secondary concentration in electronic commerce is intended to complement primary concentrations by providing students with an additional capability to understand, analyze, and participate in electronic commerce and electronic business activities in new and established firms. To pursue the concentration in electronic commerce, students must have also declared a primary concentration.

For more information: [https://undergrad-inside.wharton.upenn.edu/concentrations/ecom/](https://undergrad-inside.wharton.upenn.edu/concentrations/ecom/)

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
LGST 222  Internet Law & Policy
MGMT 223  Business Strategy
MGMT 237  Management of Technology
MGMT 264  Venture Capital and Entrepreneurial Management
MKTG 227  Digital Marketing and Electronic Commerce
OIDD 314  Enabling Technologies
OIDD 316  Systems Analysis, Design, and Implementation

Primary Concentration 4
Other Wharton Requirements 33
Total Course Units 37

1 One course unit from the secondary concentration will double count as a Business Breadth Requirement.
Three course units from the secondary concentration will double count as Unrestricted Electives.

Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<tbody>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business 1</td>
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<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
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<td>Critical Writing Seminar</td>
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<tr>
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<tr>
<td>Global Economy, Business &amp; Society</td>
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<tr>
<td>Cross-Cultural Perspectives</td>
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<tr>
<td>Select 3 courses 2</td>
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<td>3</td>
</tr>
<tr>
<td>Unrestricted Electives</td>
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<td></td>
</tr>
<tr>
<td>Select five courses</td>
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<td>5</td>
</tr>
<tr>
<td>Total Course Units</td>
<td></td>
<td>33</td>
</tr>
</tbody>
</table>

1 For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2 Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Marketing & Communication, BS
Marketing professionals must understand the communication process and the most effective methods of conveying information, regardless of whether they intend to focus on advertising, the development of web-based initiatives, or the conduct of market research. Students in this dual concentration will augment their understanding of the core concepts taught in their marketing courses and be better prepared for employment or graduate study. The dual concentration in marketing and communication allows Wharton students concentrating in marketing to take four courses in the Annenberg School of Communication and have this cluster of courses recognized on their transcript as a second concentration.

Students who wish to pursue a second concentration in communication must first declare a primary concentration in marketing. The concentration in communication may not be used as a primary or sole concentration.

For more information: https://undergrad-inside.wharton.upenn.edu/concentrations/mkcm/

Marketing & Communication - Dual Concentration

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>Technology, Innovation &amp; Analytics</td>
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<tr>
<td>One course unit required</td>
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Complete a total of four Communication courses as follows:
Select two from the following:

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>COMM 123</td>
<td>Critical Approaches to Popular Culture</td>
</tr>
<tr>
<td>COMM 125</td>
<td>Introduction to Communication Behavior</td>
</tr>
<tr>
<td>COMM 130</td>
<td>Media Industries and Society</td>
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</tbody>
</table>

Select two additional Communication courses

**Primary Marketing Concentration**

Select two courses from the following:

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<th>Title</th>
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<tbody>
<tr>
<td>COMM 123</td>
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<td>COMM 125</td>
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**Other Wharton Requirements**

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<td>First-Year Foundations</td>
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<td>ECON 010</td>
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<tr>
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<tr>
<td>Critical Writing Seminar</td>
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<tr>
<td>Business</td>
<td></td>
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<tr>
<td>Business Breadth (non-concentration courses)</td>
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</tr>
<tr>
<td>Leadership Journey</td>
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<td>Corporate Finance</td>
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<td>Monetary Economics and the Global Economy</td>
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<td>Introduction to Marketing</td>
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<td>Introductory Business Statistics</td>
</tr>
<tr>
<td>STAT 102</td>
<td>Introductory Business Statistics</td>
</tr>
</tbody>
</table>

**Global Economy, Business & Society**

One course unit required

**Technology, Innovation & Analytics**

One course unit required

**Liberal Arts & Sciences**

Second semester-level foreign language

**General Education Distribution**

Select 6 courses with at least 1 course unit in each of the following categories:

- Humanities
- Natural Science, Math & Engineering
- Social Science

**Cross-Cultural Perspectives**

Select 3 courses

**Unrestricted Electives**

Select five courses

**Total Course Units**

For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

Two can double-count as General Education Distribution courses.

---

**Marketing & Operations Management, BS**

The Marketing and Operations Management joint concentration emphasizes the importance of partnership between marketing and operations for new product development (NPD) in light of the fact that NPD is a critical company effort highly dependent on internal innovation processes. Given the complexity of these processes, the insights provided by cross-disciplinary collaboration can be particularly beneficial in many efforts, including:

- Creativity-based new product development
- Innovation in service manufacturing and new service development
- Customer response to next-generation products
- The use of conjoint analysis in engineering designs
- Platform-owner market entry
- Design-intensive innovation

For more information: [https://marketing.wharton.upenn.edu/programs/undergraduate/marketing-and-operations-management-joint-concentration/](https://marketing.wharton.upenn.edu/programs/undergraduate/marketing-and-operations-management-joint-concentration/)

**Marketing & Operations Management Concentration**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>Required OIDD Courses</td>
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</tbody>
</table>

Select two course units from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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2018-19 Catalog | Generated 08/30/18
Required MKTG Courses

Select two course units from the following:

- MKTG 221 New Product Management
- MKTG 225 Principles of Retailing
- MKTG 227 Digital Marketing and Electronic Commerce
- MKTG 234 Idea Generation & the Systematic Approach for Creativity
- MKTG 254 Pricing Policy
- MKTG 262 New Product Development
- MKTG 270 Digital Marketing, Social Media and E-Commerce
- MKTG 271 Models for Marketing Strategy
- MKTG 277 Marketing Strategy
- MKTG 288 Pricing Strategies
- MKTG 292 Creativity
- MKTG 476 Applied Probability Models for Marketing

Total Course Units: 33

1 You may not take both the mini course version (0.5 cu) and full term version (1.0 cu) of the same course topic for credit. Specifically, if you take MKTG 221 New Product Management, you may not also take MKTG 262 New Product Development. If you take MKTG 254 Pricing Policy you may not also take MKTG 288 Pricing Strategies. If you take MKTG 227 Digital Marketing and Electronic Commerce, you may not also take MKTG 270 Digital Marketing, Social Media and E-Commerce. If you take MKTG 292 Creativity you may not also take MKTG 234 Idea Generation & the Systematic Approach for Creativity.

Other Wharton Requirements

- Accounting and Financial Reporting
- Strategic Cost Analysis
- Managerial Economics
- Corporate Finance
- Monetary Economics and the Global Economy
- Ethics and Social Responsibility
- Law and Social Values
- Introduction To Management
- Introduction to Marketing
- An Introduction to Operations, Information and Decisions
- Introductory Business Statistics
- Introductory Business Statistics
- Global Economy, Business & Society
- One course unit required
- Technology, Innovation & Analytics
- One course unit required
- Second semester-level foreign language
- Business Breadth (non-concentration courses)
- Select 6 courses with at least 1 course unit in each of the following categories:
  - Humanities
  - Social Science
  - Natural Science, Math & Engineering
  - Cross-Cultural Perspectives
    - Select 3 courses
  - Unrestricted Electives
    - Select five courses

Total Course Units: 37

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Marketing, BS

Students pursuing a concentration in marketing acquire a solid grounding in applying the basic disciplines (e.g., psychology, economics, statistics) essential for understanding consumer and organizational buying patterns and developing successful marketing strategies. They also gain practical experience applying these concepts and methods via half-semester mini-courses (e.g., new product development, advertising, retailing). Many students with a marketing concentration have gone on to work in brand...
management, advertising, sales, marketing research, consulting, and entrepreneurial ventures.

For more information: marketing.wharton.upenn.edu

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 211</td>
<td>Consumer Behavior</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one of the following:

- MKTG 212 | Data and Analysis for Marketing Decisions |
- MKTG 271 | Models for Marketing Strategy                  |
- MKTG 309 | Special Topics: Experiments for Business Decision Making |
- MKTG 476 | Applied Probability Models for Marketing         |
- MKTG 940 | Measurement and Data Analysis in Marketing       |
- MKTG 941 | and Measurement and Data Analysis in Marketing  |
- MKTG 942 | Research Methods in Marketing - Part A           |
- MKTG 943 | Research Methods in Marketing - Part B           |

Select two course units from the following:

- MKTG 221 | New Product Management                            |
- MKTG 224 | Advertising Management                            |
- MKTG 225 | Principles of Retailing                           |
- MKTG 227 | Digital Marketing and Electronic Commerce         |
- MKTG 234 | Idea Generation & the Systematic Approach for Creativity |
- MKTG 241 | Entrepreneurial Marketing                         |
- MKTG 242 | Multinational Marketing                           |
- MKTG 254 | Pricing Policy                                    |
- MKTG 260 | Law of Marketing and Antitrust                     |
- MKTG 262 | New Product Development                           |
- MKTG 265 | Principles of Advertising                         |
- MKTG 266 | Marketing for Social Impact                        |
- MKTG 270 | Digital Marketing, Social Media and E-Commerce    |
- MKTG 271 | Models for Marketing Strategy                      |
- MKTG 277 | Marketing Strategy                                |
- MKTG 278 | Strategic Brand Management                        |
- MKTG 288 | Pricing Strategies                                |
- MKTG 306 | Special Topics: Retail Merchandising              |
- MKTG 309 | Special Topics: Experiments for Business Decision Making |
- MKTG 350 | Special Topics - Consumer Neuroscience            |

Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</table>
| First-Year Foundations

- ECON 010 | Introduction to Economics for Business            | 1            |
- MATH 104 | Calculus, Part I                                  | 1            |
- or MATH 110 | Calculus for Wharton Students                      |
| Writing

- Critical Writing Seminar                             | 1            |
| Business

- Business Breadth (non-concentration courses)        | 3            |
| Leadership Journey

- WH 101 | Business and You                                  | 0.5          |
- WH 201 | Management Communication: Persuasive Speaking and Writing for Business | 0.5          |
- WH 301 | Teamwork and Interpersonal Influence              | 0.5          |
- Capstone Course/Project                             | 0.5          |
| Fundamentals

- ACCT 101 | Accounting and Financial Reporting                | 1            |
- ACCT 102 | Strategic Cost Analysis                           | 1            |
- BEPP 250 | Managerial Economics                              | 1            |
- FNCE 100 | Corporate Finance                                 | 1            |
- FNCE 101 | Monetary Economics and the Global Economy         | 1            |
- LGST 100 | Ethics and Social Responsibility                  | 1            |
- or LGST 101 | Law and Social Values                             |
- MGMT 101 | Introduction To Management                        | 1            |
- MKTG 101 | Introduction to Marketing                         | 1            |
- OIDD 101 | An Introduction to Operations, Information and Decisions |
- STAT 101 | Introductory Business Statistics                  | 1            |
- STAT 102 | Introductory Business Statistics                  | 1            |
| Global Economy, Business & Society                  | 1            |
| Liberal Arts & Sciences                             | 1            |
| Second semester-level foreign language              | 1            |
| General Education Distribution                      | 1            |

Select 6 courses with at least 1 course unit in each of the following categories:

- Humanities
- Natural Science, Math & Engineering
- Social Science

Cross-Cultural Perspectives

Select 3 courses | 3 |

Total Course Units | 37 |

* This is a PhD course. Students need instructor permission and a permit from the department to enroll
** MKTG 254 and MKTG 288 cannot both be taken for credit.
*** MKTG 227 and MKTG 270 cannot both be taken for credit.
**** Special Topics courses: Subject to approval of department concentration advisor.
Unrestricted Electives
Select five courses 5
Total Course Units 33

1 For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2 Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Operations, Information & Decisions: Decision Processes Track, BS

The Decision Processes (DP) track establishes rigorous scientific foundations for describing, predicting, and improving the processes through which individuals and groups collect data and information, form judgments, and make decisions. This program examines descriptive theories and empirical research on human behavior that identify systematic biases in judgment and heuristics, or rules of thumb, that individuals and groups use to cope with complex decision-making and negotiations environments. It also examines the ways in which individuals and groups can make better decisions given their biases and information-processing limitations.

For more information: https://oid.wharton.upenn.edu/programs/undergraduate/decision-processes-track/

Operations, Information & Decisions - Decision Processes Track

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<td>OIDD 291</td>
<td>Negotiations</td>
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Other Wharton Requirements

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Writing

Critical Writing Seminar 1

Business

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Fundamentals

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<td>LGST 100</td>
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<tr>
<td>or LGST 101</td>
<td>Law and Social Values</td>
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<td>STAT 102</td>
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Global Economy, Business & Society

One course unit required 1

Technology, Innovation & Analytics

One course unit required 1

Liberal Arts & Sciences

Second semester-level foreign language

General Education Distribution

Select 6 courses with at least 1 course unit in each of the following categories: 6

<table>
<thead>
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<th>Category</th>
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<tr>
<td>Natural Science, Math &amp; Engineering</td>
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<tr>
<td>Social Science</td>
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</table>

Cross-Cultural Perspectives

Select 3 courses 2

Unrestricted Electives

Select five courses 5

Total Course Units 33

1 For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2 Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Computer-based management systems and analytic approaches to decision making are increasingly vital to effective management in a range of industries across public and private sectors. As organizations develop and implement sophisticated decision-support systems, they increase the demand for managers who have the expertise to understand, create, and profitably exploit rapidly developing management technology. There is also a growing demand for skilled professionals who can effectively manage the operations encompassing the manufacturing and distribution of products and services.

The Operations and Information Management curriculum prepares students to meet these challenges by providing a rigorous foundation of coursework across different but complementary disciplines, including decision processes, information systems, and operations management/management science.

For more information: oid.wharton.upenn.edu

### Operations, Information & Decisions - General Track

<table>
<thead>
<tr>
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<td>OIDD 220</td>
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<td>OIDD 221</td>
<td>Operations Strategy and Process Management</td>
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<td>OIDD 222</td>
<td>Internet Law &amp; Policy</td>
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<td>OIDD 224</td>
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<td>OIDD 236</td>
<td>Scaling Operations in Technology Ventures: Linking Strategy and Execution</td>
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<td>OIDD 240</td>
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<td>OIDD 261</td>
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<td>OIDD 291</td>
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<td>OIDD 292</td>
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<td>OIDD 299</td>
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</table>

Other Wharton Requirements  33

Total Course Units  37

### Business

**Business Breadth (non-concentration courses)**  3

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<th>Course</th>
<th>Description</th>
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<td>WH 101</td>
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<tr>
<td>WH 201</td>
<td>Management Communication: Persuasive Speaking and Writing for Business</td>
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### Fundamentals

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
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<tr>
<td>ACCT 101</td>
<td>Accounting and Financial Reporting</td>
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<td>Strategic Cost Analysis</td>
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<td>BEPP 250</td>
<td>Managerial Economics</td>
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<td>Corporate Finance</td>
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<td>FNCE 101</td>
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<tr>
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<td>STAT 102</td>
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</tbody>
</table>

### Global Economy, Business & Society

One course unit required  1

### Technology, Innovation & Analytics

One course unit required  1

### Liberal Arts & Sciences

Second semester-level foreign language  1

### General Education Distribution

Select 6 courses with at least 1 course unit in each of the following categories:  6

- Humanities
- Natural Science, Math & Engineering
- Social Science

### Cross-Cultural Perspectives

Select 3 courses  3

### Unrestricted Electives

Select five courses  5

Total Course Units  33

---

1. For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2. Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.
Operations, Information & Decisions: Information Systems Track, BS

The Information Systems track is designed to provide the necessary understanding of both technical and business issues relating to information systems. The program is ideal for students interested in managing information technology, either as a technologist, a general manager, or a consultant in technology-intensive industries. The program also provides a good supplement to engineering or other technologically-sophisticated students who wish to obtain greater exposure to managerial issues or students in finance or management who wish to better understand the role of technology in their core disciplines.

For more information: https://oid.wharton.upenn.edu/programs/undergraduate/information-systems-track/

Operations, Information & Decisions - Information Systems Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>OIDD 210</td>
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Other Wharton Requirements

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<tr>
<th>Code</th>
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<td>MATH 104</td>
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<td>Critical Writing Seminar</td>
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² Two can double-count as General Education Distribution courses.

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Operations, Information & Decisions: Operations Management/Management Science Track, BS

The Operations Management / Management Science track addresses central issues necessary to understand production and service operations in today's global economy. This program provides a rigorous foundation for immediate careers in consulting and analytic strategy support for companies, as well as future graduate studies in economics and business. The courses allow students to build a fundamental understanding of the tradeoffs to consider when managing the development of products and services, as well as the operations used to produce them and fulfill customer requirements.

The need to effectively manage the production of goods and services has also sparked the development of a number of useful mathematical tools. Besides their direct application to operational problems, these management science techniques have been broadly applied to a
wide variety of other economic activities, from the pricing of financial instruments to decisions concerning markdown policies in retailing.

For more information: https://oid.wharton.upenn.edu/programs/undergraduate/operations-management-management-science-track/

Operations, Information & Decisions - Operations Management/Management Science Track

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<td>First-Year Foundations</td>
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<td>or LGST 101</td>
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<td>REAL/BEPP 208</td>
<td>Housing Markets</td>
<td></td>
</tr>
<tr>
<td>REAL 215</td>
<td>Urban Real Estate Economics</td>
<td></td>
</tr>
<tr>
<td>REAL/FNCE/BEPP 230</td>
<td>Urban Fiscal Policy</td>
<td></td>
</tr>
</tbody>
</table>

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Real Estate, BS

The real estate concentration consists of one required course (REAL 209: Real Estate Investment: Analysis and Financing) and three electives. While the required course focuses on real estate finance, the electives allow students to explore a variety of issues related to real estate. These include real estate development, the legal aspects of real estate investment and financing, and the relationship between government policy and real estate development.

For more information: https://real-estate.wharton.upenn.edu/programs/undergraduate/undergraduate-concentration/
Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First-Year Foundations</td>
<td></td>
</tr>
<tr>
<td>ECON 010</td>
<td>Introduction to Economics for Business</td>
<td>1</td>
</tr>
<tr>
<td>MATH 104</td>
<td>Calculus, Part I</td>
<td>1</td>
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<tr>
<td>or MATH 110</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Writing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Critical Writing Seminar</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Business Breadth (non-concentration courses)</td>
<td>3</td>
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<tr>
<td></td>
<td>Leadership Journey</td>
<td></td>
</tr>
<tr>
<td>WH 101</td>
<td>Business and You</td>
<td>0.5</td>
</tr>
<tr>
<td>WH 201</td>
<td>Management Communication: Persuasive Speaking and Writing for Business</td>
<td>0.5</td>
</tr>
<tr>
<td>WH 301</td>
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<td>0.5</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>Fundamentals</td>
<td></td>
</tr>
<tr>
<td>ACCT 101</td>
<td>Accounting and Financial Reporting</td>
<td>1</td>
</tr>
<tr>
<td>ACCT 102</td>
<td>Strategic Cost Analysis</td>
<td>1</td>
</tr>
<tr>
<td>BEPP 250</td>
<td>Managerial Economics</td>
<td>1</td>
</tr>
<tr>
<td>FNCE 100</td>
<td>Corporate Finance</td>
<td>1</td>
</tr>
<tr>
<td>FNCE 101</td>
<td>Monetary Economics and the Global Economy</td>
<td>1</td>
</tr>
<tr>
<td>LGST 100</td>
<td>Ethics and Social Responsibility</td>
<td>1</td>
</tr>
<tr>
<td>or LGST 101</td>
<td>Law and Social Values</td>
<td></td>
</tr>
<tr>
<td>MGMT 101</td>
<td>Introduction To Management</td>
<td>1</td>
</tr>
<tr>
<td>MKTG 101</td>
<td>Introduction to Marketing</td>
<td>1</td>
</tr>
<tr>
<td>OIDD 101</td>
<td>An Introduction to Operations, Information and Decisions</td>
<td>1</td>
</tr>
<tr>
<td>STAT 101</td>
<td>Introductory Business Statistics</td>
<td>1</td>
</tr>
<tr>
<td>STAT 102</td>
<td>Introductory Business Statistics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Global Economy, Business &amp; Society</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One course unit required</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Technology, Innovation &amp; Analytics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One course unit required</td>
<td>1</td>
</tr>
</tbody>
</table>

Liberal Arts & Sciences

Second semester-level foreign language

General Education Distribution

Select 6 courses with at least 1 course unit in each of the following categories:

- Humanities
- Natural Science, Math & Engineering
- Social Science

Cross-Cultural Perspectives

Select 3 courses

Unrestricted Electives

Select five courses

Total Course Units: 33

For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Retailing, BS

The secondary concentration in retailing provides an interdisciplinary overview of the retailing industry, combining courses in core retailing skills with industry-relevant electives from Wharton and the College of Arts & Sciences.

For more information: https://marketing.wharton.upenn.edu/programs/undergraduate/retailing-secondary-concentration/

Retailing Concentration

Secondary concentration only.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 225</td>
<td>Principles of Retailing</td>
<td>0.5</td>
</tr>
<tr>
<td>OIDD 397</td>
<td>Retail Supply Chain Management</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Marketing Component

Select one course unit from the following:

- MKTG 211: Consumer Behavior
- MKTG 212: Data and Analysis for Marketing Decisions
- MKTG 224: Advertising Management
- MKTG 227: Digital Marketing and Electronic Commerce
- MKTG 234: Idea Generation & the Systematic Approach for Creativity
- MKTG 241: Entrepreneurial Marketing
- MKTG 262: New Product Development
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 265</td>
<td>Principles of Advertising</td>
<td></td>
</tr>
<tr>
<td>MKTG 270</td>
<td>Digital Marketing, Social Media and E-Commerce</td>
<td></td>
</tr>
<tr>
<td>MKTG 278</td>
<td>Strategic Brand Management</td>
<td></td>
</tr>
<tr>
<td>MKTG 288</td>
<td>Pricing Strategies</td>
<td></td>
</tr>
<tr>
<td>MKTG 292</td>
<td>Creativity</td>
<td></td>
</tr>
</tbody>
</table>

**Operations Component**

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 104</td>
<td>Industrial Relations and Human Resource Management</td>
<td></td>
</tr>
<tr>
<td>OIDD 220</td>
<td>Introduction to Operations Management</td>
<td></td>
</tr>
<tr>
<td>OIDD 291</td>
<td>Negotiations</td>
<td></td>
</tr>
<tr>
<td>OIDD 314</td>
<td>Enabling Technologies</td>
<td></td>
</tr>
<tr>
<td>REAL 209</td>
<td>Real Estate Investment: Analysis and Financing</td>
<td></td>
</tr>
<tr>
<td>REAL 321</td>
<td>Real Estate Development</td>
<td></td>
</tr>
</tbody>
</table>

**Design Component**

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIDD 415</td>
<td>Product Design</td>
<td></td>
</tr>
<tr>
<td>URBS 205</td>
<td>People and Design</td>
<td></td>
</tr>
<tr>
<td>VLST 101</td>
<td>Eye, Mind, and Image</td>
<td></td>
</tr>
</tbody>
</table>

**Primary Concentration**

33

**Other Wharton Requirements**

37

1. One course unit from the secondary concentration will double count as a Business Breadth Requirement.

Three course units from the secondary concentration will double count as Unrestricted Electives.

**Other Wharton Requirements**

**First-Year Foundations**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 010</td>
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</tbody>
</table>

**Writing**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>WH 101</td>
<td>Business and You</td>
<td>0.5</td>
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<td>0.5</td>
</tr>
<tr>
<td>WH 301</td>
<td>Teamwork and Interpersonal Influence</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**Capstone Course/Project**

0.5

**Fundamentals**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
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<tbody>
<tr>
<td>ACCT 101</td>
<td>Accounting and Financial Reporting</td>
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<td>Managerial Economics</td>
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</tr>
<tr>
<td>STAT 102</td>
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</tr>
</tbody>
</table>

**Global Economy, Business & Society**

One course unit required

**Technology, Innovation & Analytics**

One course unit required

**Liberal Arts & Sciences**

Second semester-level foreign language

**General Education Distribution**

Select 6 courses with at least 1 course unit in each of the following categories:

- Humanities
- Natural Science, Math & Engineering
- Social Science

**Cross-Cultural Perspectives**

Select 3 courses

**Unrestricted Electives**

Select five courses

Total Course Units 33

1. For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.

2. Two can double-count as General Education Distribution courses.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2018 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

**Social Impact & Responsibility, BS**

The social impact & responsibility (SIR) concentration seeks to examine the question: “How should business enterprises and business thinking be engaged to improve society in areas not always associated with business?” SIR is an interdisciplinary field that encourages students to approach their core courses and primary concentration courses from a socially oriented perspective.

For more information: lgst.wharton.upenn.edu

**Social Impact & Responsibility Concentration**

Secondary concentration only.
A 2.5 minimum concentration GPA is required.

### Secondary Concentration Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGST 230</td>
<td>Social Impact and Responsibility. Foundations</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one Focus Course

Select one Application Course

Select one Elective Course

Experiential Component

### Primary Concentration

4

### Other Wharton Requirements

33

Total Course Units 37

1 One course unit from the secondary concentration will double count as a Business Breadth Requirement.

Three course units from the secondary concentration will double count as Unrestricted Electives.

2 Approved by concentration advisor.

### Other Wharton Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
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<td>ECON 010</td>
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</tr>
<tr>
<td>Capstone Course/Project</td>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>

### Business

#### Business Breadth (non-concentration courses)

3

#### Leadership Journey

| WH 101 | Business and You                             | 0.5          |

#### Fundamentals

| ACCT 101 | Accounting and Financial Reporting          | 1            |
| ACCT 102 | Strategic Cost Analysis                     | 1            |
| BEPP 250 | Managerial Economics                        | 1            |
| FNCE 100 | Corporate Finance                           | 1            |
| FNCE 101 | Monetary Economics and the Global Economy   | 1            |
| LGST 100 | Ethics and Social Responsibility            | 1            |
| or LGST 101 | Law and Social Values                  | 1            |
| MGMT 101 | Introduction To Management                  | 1            |
| MKTG 101 | Introduction to Marketing                   | 1            |
| OIDD 101 | An Introduction to Operations, Information and Decisions | 1 |
| STAT 101 | Introductory Business Statistics            | 1            |
| STAT 102 | Introductory Business Statistics            | 1            |

### Global Economy, Business & Society

Statistics, BS

A key challenge facing managers is the interpretation of the vast amount of data generated by computing systems. As these data do not directly answer important business questions, managers must use data analysis and statistics to interpret them. Statistics courses develop the skills and insights required to make effective use of quantitative methods, select and apply techniques, and communicate statistical results. All courses provide skills that augment substantive managerial abilities, along with exposure to computer software that implements key techniques.

For more information: [statistics.wharton.upenn.edu](http://statistics.wharton.upenn.edu)

### Statistics Concentration

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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</thead>
<tbody>
<tr>
<td>STAT 430</td>
<td>Probability</td>
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</tr>
</tbody>
</table>

Select three STAT Electives

Other Wharton Requirements 33

Total Course Units 37

1 Only one math course permitted in concentration.
### Other Wharton Requirements

<table>
<thead>
<tr>
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<th>Title</th>
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</thead>
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<td>or LGST 101</td>
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<td>1</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>One course unit required</td>
<td></td>
</tr>
<tr>
<td><strong>Technology, Innovation &amp; Analytics</strong></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>One course unit required</td>
<td></td>
</tr>
<tr>
<td><strong>Liberal Arts &amp; Sciences</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second semester-level foreign language</td>
<td></td>
</tr>
<tr>
<td><strong>General Education Distribution</strong></td>
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</tr>
<tr>
<td>Select 6 courses with at least 1 course unit in each of the following categories:</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Humanities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Science, Math &amp; Engineering</td>
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<td></td>
</tr>
<tr>
<td>Social Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-Cultural Perspectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 3 courses</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Unrestricted Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select five courses</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total Course Units</strong></td>
<td></td>
<td>33</td>
</tr>
</tbody>
</table>

1. For students who take ECON 001 Introduction to Micro Economics and ECON 002 Introductory Economics: Macro in place of ECON 010 Introduction to Economics for Business of these courses can be slotted for ECON 010 on the worksheet. The second course may be used to fulfill a General Education Distribution or Unrestricted Elective requirement.
2. Two can double-count as General Education Distribution courses.

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### Minors

#### For Wharton Students

Students who wish to study a subject of interest in greater depth may choose to pursue a minor. Minors generally require six to eight courses in a particular field of study. A carefully planned program of study allows a Wharton student to complete a minor within the Wharton curriculum, capitalizing on potential overlap with General Education, Non-Business Elective, and Unrestricted Elective requirements. Students are encouraged to begin planning as early as possible to ensure the minor can be completed in a timely manner and without taking extra courses.

Wharton students have the option of pursuing either a departmental minor or a University Minor (https://undergrad-inside.wharton.upenn.edu/university-minors).

#### For Non-Wharton Students

- Statistics, Minor (p. 234)

### Statistics, Minor

The aim of statistical modeling is to empower effective decision making, and the field's unique contribution is its ability to incorporate multiple levels of uncertainty in the framing of wise decisions. Over the last few years, the development of new computational tools and the unprecedented evolution of "big data" have propelled statistical modeling to new levels. Today, statistical modeling and machine learning have reached a level of impact that no large organization can afford to ignore. The information landscape is changing as it has never changed before.

Students interested in this minor must have the prior approval of the Statistics Undergraduate Program Director to develop a curriculum for the minor that is appropriate for their interests. Wharton students are not eligible for this minor.

For more information: https://statistics.wharton.upenn.edu/programs/undergraduate/statistics-minor/

### Statistics, Minor

This minor is for students outside of Wharton. Single-degree and dual-degree students with Wharton may pursue a statistics concentration instead.
Academic Opportunities

Students at Wharton have many on-campus curricular opportunities to enrich their academic experience. As a Wharton student, you can pursue specialized interdisciplinary studies through four different coordinated dual-degree programs (p. 238). If the coordinated dual-degree programs do not meet your needs, you can pursue a dual degree (p. 237) with the College of Arts and Sciences, the School of Engineering and Applied Science or the School of Nursing. In addition to undergraduate degree options, submatriculation programs (p. 256) offer Wharton students the chance to accelerate their graduate pursuits while satisfying their undergraduate curriculum.

Academic opportunities are also available for single-degree Wharton students. Minors (p. 234) allow students to explore a topic of interest in-depth, while independent study (p. 261) options encourage students to tailor their academic experience to their intellectual interests. Additional opportunities like the Wharton Field Challenge (https://undergrad-inside.wharton.upenn.edu/field-challenge) and the Quaker Consortium (https://undergrad-inside.wharton.upenn.edu/quaker-consortium) only further enrich the academic experience at Wharton. Take time to learn more about all the academic opportunities available to you!

For more information, visit: https://undergrad-inside.wharton.upenn.edu/academic-opportunities/.

Wharton Industry Exploration Program (https://undergrad-inside.wharton.upenn.edu/wiep)

These short-term, half-credit courses focus on various industries and cities and take place during school breaks.

Wharton International Programs (https://undergrad-inside.wharton.upenn.edu/wip)

WIP (WH 298) is a short-term international business course that is fully escorted by the Wharton Undergraduate Division. The program gives undergraduate students an amazing global opportunity featuring business site visits, lectures at our partner schools, cultural excursions, and networking opportunities with undergraduate students and business contacts from the destination countries.

In addition to learning about another country’s business environment and culture, students earn 0.5 course units that can be used towards business-breadth or elective credits. Three WIP courses are offered each year.

Senior Capstone (https://undergrad-inside.wharton.upenn.edu/senior-capstone)

The Wharton Senior Capstone (WH 398) is a for-credit, interactive business simulation that provides Wharton seniors with the opportunity to draw on their business knowledge—finance, management, marketing, leadership, and social responsibility—while formulating and executing business strategy in a competitive, team-based environment.

Utilizing real-time problem solving within a dynamic simulation environment, teams design and implement strategic plans, integrate feedback from the consequences of those decisions, and interact with other teams to create shareholder and social value.

Wharton Research Scholars (https://undergrad-inside.wharton.upenn.edu/wrs)

Wharton Research Scholars is an intensive one-year research program for a select group of students who are interested in conducting research under the supervision of some of Wharton’s preeminent faculty members. As part of the program, participants complete an honors thesis.

Students apply to work on a specific project they propose in consultation with a Wharton faculty member who agrees to act as their faculty mentor. Students are allowed to have more than one faculty mentor provided at least one is a member of the Wharton faculty.

Throughout the year, students convene to discuss progress, strategies, and challenges within their projects. This interaction fosters a strong scholarly community where students can learn from each other’s experience. The research scholars also meet regularly with their faculty mentors who advise the students throughout the year. The program culminates with final presentations and publication of research papers.
on the University of Pennsylvania Libraries’ ScholarlyCommons (http://repository.upenn.edu/warton_research_scholars).
INTERDISCIPLINARY STUDIES

Interdisciplinary opportunities at Penn allow students to explore their academic interests and discover new ways of integrating knowledge.

Dual Degree

Undergraduates can receive two Bachelor's Degrees by completing the requirements for any two of the four undergraduate schools at the same time. A dual degree program has no prescribed course of study, and the student does not have to choose to participate prior to matriculation.

The application process for a dual degree varies among the undergraduate schools. Contact the advising office (p. 246) for the school to which you are applying for details on how to submit an application.

Coordinated Dual Degree Programs (p. 238)

Penn's specialized dual degree programs offer students the opportunity to pursue an integrated curriculum jointly offered by two schools within the University. Program participants graduate from Penn with two degrees.

University Minors (p. 240)

In addition to minors completed within one school, several interdisciplinary minors combine coursework from the four undergraduate schools.

Coordinated Submatriculation Programs (p. 239)

Penn offers students many opportunities to begin a graduate program while completing an undergraduate degree. Students may apply for admission as submatriculants to a variety of the University's graduate and professional areas of study. Submatriculation programs exist in the four undergraduate schools and in several of Penn's graduate schools.

Featured Interdisciplinary Programs

Penn offers a number of opportunities for students to pursue an integrated curriculum jointly offered by two or more schools within the University, and graduate with a single degree. Examples of such programs include:

Digital Media Design

The Digital Media Design (DMD) program is an interdisciplinary major in the School of Engineering and Applied Science at Penn. As a full-fledged Bachelor's in Engineering and Science (BSE) degree, it combines major coursework in computer graphics within the Computer & Information Science Department with Fine Arts courses from Penn's School of Design. The program is designed for students who have an interest in the computer programming, mathematics, and design behind computer graphics, animation, games, virtual reality environments, and interactive technologies.

View Program Requirements (p. 180)

For more information, visit: http://cg.cis.upenn.edu/dmd_program.html.

Integrated Studies Program

The Integrated Studies Program (ISP) (https://www.college.upenn.edu/integrated-studies) is the freshman curriculum for Benjamin Franklin Scholars pursuing degrees in the College of Arts and Sciences.

Deeply rooted in the liberal arts tradition of acquiring and applying expansive knowledge, this residential academic program invites highly-motivated students to examine complex themes through the integration of multiple academic disciplines and methodologies. Students are guided through the semester by some of Penn's leading faculty. By investigating the same ideas under three distinct lenses, drawing simultaneously from the humanities, social sciences, and sciences, students sharpen their focus on the similarities—and differences—between the disciplines' habits of mind.

For more information, visit: https://www.college.upenn.edu/integrated-studies/.

Moelis Advance Access Program

The Moelis Advance Access Program is a deferred admission program that gives Penn undergraduates a guaranteed pathway to the Wharton MBA while they pursue work experience. Moelis Fellows access Wharton resources and network during their deferment period and can be considered for a $10,000 fellowship per year during the 2-year full-time MBA program. Beginning in 2018, the program will accept a highly selective cohort of Penn seniors whose academic and career interests expand traditional notions of business education. The program was established with a $10 million gift from Ken Moelis, W'80, WG'81, and Julie Taffet Moelis, W'81. The program is open to all Penn undergraduates, beginning with the Class of 2018, who aspire to set the stage early for their advanced education and highly successful careers. Seniors in the College of Arts and Sciences, School of Engineering and Applied Science, School of Nursing, the Wharton School, and all coordinated dual degrees may apply.

For more information, visit: https://mba.wharton.upenn.edu/moelis-advance-access-program/.

Networked & Social Systems Engineering

The Rajendra and Neera Singh Program in Networked and Social Systems Engineering (NETS), formerly called Market and Social Systems Engineering (MKSE), is the world’s first course of study to fully integrate the disciplines needed to design and analyze the complex networks reshaping our society. This program prepares students to shape the technologies that underpin internet-based search and electronic commerce, financial networks, social networks, and even such exchanges as the power grid. Graduates of this program will be prepared to engineer networks that work for both end-users and investors. Other graduates may become the policy-makers urgently needed to regulate these networks for the protection of commercial property and societal good.

View Program Requirements (p. 184)

For more information, visit: http://www.nets.upenn.edu/.

Nutrition

The Nutrition major is an interdisciplinary collaboration between the School of Nursing and the School of Arts & Sciences, and it builds on a student’s basic science skills with a deep dive into the science of nutrition. Linkages of nutritional compounds and dietary approaches with health and disease, novel approaches to the study of nutritional impact on health, and future avenues of exploration in the field are examined.
Coordinated Dual Degree Programs

Penn's specialized dual degree programs offer students the opportunity to pursue an integrated curriculum jointly offered by two schools within the University. Program participants graduate from Penn with two degrees.

Computer and Cognitive Science
School of Arts & Sciences/School of Engineering & Applied Science
Bachelor of Science in Engineering (BSE)/BAS and Bachelor of Arts (BA)

This program combines studies in computer science and engineering with linguistics, mathematics, philosophy, or psychology, and students receive a BSE or BAS degree from Penn Engineering and Bachelor of Arts from the College of Arts and Sciences. Requirements for the program are guided by the degree sought (BAS or BSE) and include 12-16 course units in Linguistics, Mathematics, Philosophy, or Psychology and 4 course units in a Foreign Language.

For more information, visit: http://www.cis.upenn.edu/current-students/undergraduate/dual.php.

Huntsman Program in International Studies and Business
School of Arts & Sciences/The Wharton School
BA in International Studies/BS in Economics

This innovative four-year joint degree program between the School of Arts and Sciences and the Wharton School combines a business education, liberal arts, and advanced language training in one of eleven languages of focus. It prepares students for global leadership in career paths around the world in diverse areas such as consulting, finance, medicine, politics, diplomacy, the non-profit sector, and entrepreneurship. Students must apply to the program when they apply to Penn; they cannot transfer into the program. Admission is highly competitive.

For more information, visit: http://huntsman.upenn.edu/.

Jerome Fisher Program in Management & Technology
School of Engineering & Applied Science/The Wharton School
BAS/BSE and BS in Economics

The Jerome Fisher Program in Management & Technology (M&T) is sponsored jointly by the School of Engineering and the Wharton School. The impetus for this joint-degree program came from the Board of Overseers of the School of Engineering and Applied Science. The Board of Overseers, a distinguished group of corporate executives and academicians, emphasized that an understanding the engineering and technology fundamentals is as essential to the background of future leaders in business and industry as a sound knowledge of management principles. They pointed to the growing need for people who can bridge the management and technical disciplines.

Undergraduate students enrolled in the M&T Program pursue degrees from both schools concurrently, creating a truly interdisciplinary learning experience. This combination enables students not only to understand
engineering and business concepts but also the integration of the two and how this intersection distinctively shapes our world. M&T students pursue a Bachelor of Science in Economics from the Wharton School and either a Bachelor of Science in Engineering (BSE) or a Bachelor of Applied Science in Engineering (BAS) from Penn Engineering. The curriculum includes two special M&T linking courses that allow for added interdisciplinary learning opportunities. The common goal for all M&T students is the mastery of the technical and managerial skills necessary to define and solve problems in today’s complex technological society. The structure of the joint-degree program gives each student considerable flexibility in meeting this goal. Particular attention is directed to the importance and processes of innovation in our technology-based industries.

For more information, visit: http://www.upenn.edu/fisher/.

Nursing and Health Care Management Program (NHCM)
School of Nursing/The Wharton School
Bachelor of Science in Nursing/Bachelor of Science in Economics (BSN)

Nurses with excellent clinical and administrative skills are in higher demand than ever. Our Nursing and Health Care Management Program (NHCM) gives you the chance to combine two of Penn’s greatest assets: Penn Nursing and The Wharton School. In the NHCM program, you’ll study simultaneously in both schools and graduate with a Bachelor of Science in Nursing and a Bachelor of Science in Economics. Your work will include science and clinical courses along with general education courses in the Arts and Sciences. We designed the curriculum to boost expertise in patient care and deepen your knowledge of how to manage the way that care is delivered. We also use a multidisciplinary approach that integrates nursing, business, and liberal arts. Students enrolled in the program have advisors at both Nursing and Wharton and complete this integrated academic and clinical program in five years.

For more information, visit: http://www.nursing.upenn.edu/nhcm/.

Roy and Diana Vagelos Program in Life Sciences and Management (LSM)
School of Arts & Sciences/The Wharton School
Bachelor of Arts (BA)/Bachelor of Science in Economics

On the surface, bioscience and business may seem like unrelated fields. But if the full benefits of science are to be realized, discoveries made at the laboratory bench must be taken to market and made accessible to society at large—a process that demands great skill both scientifically and managerially. Given the pace of recent advances in bioscience and biotechnology, never before has the need been so great for decision makers who can understand and advance scientific innovations as well as manage and promote them. It is with this in mind that the University of Pennsylvania launched the Vagelos Life Sciences & Management (LSM) program.

LSM is an undergraduate dual-degree program administered jointly between Penn’s College of Arts & Sciences and the Wharton School. Each year, the program enrolls approximately 25 exceptional students and offers them the opportunity to pursue an interdisciplinary curriculum combining bioscience and business, leading to the completion of two degrees: a Bachelor of Arts in a life science major and a Bachelor of Science in Economics. To ensure that every student learns how to apply their knowledge, the program provides the means for them to find two required, paid internships, one centered in scientific research and the other in business or public policy. Completion of the LSM program is an ideal starting point for students intent on careers in the life sciences sector by preparing them for advanced training, and we anticipate they will then go on to pursue through MD, PhD, MBA, JD, and/or other graduate programs. LSM is suited to students with interests in health care; biomedical, agricultural, and environmental research and development; public policy; and the financial and strategic management of life science organizations.

For more information, visit: https://lsm.upenn.edu/.

Vagelos Integrated Program in Energy Research (VIPER)
School of Arts & Sciences/School of Engineering & Applied Science
BA/BSE

The Vagelos Integrated Program in Energy Research (VIPER) enrolls talented, prepared, and motivated students interested in energy science and engineering. VIPER students receive instruction and state-of-the-art research experiences, enabling them to pursue advanced degrees in these fields and establish high-caliber research careers as innovators in the discovery and development of sustainable ways to harness, convert, and use energy. Candidates for the program apply as they seek admission to the University. A joint program of Penn’s School of Arts and Sciences (SAS) and the School of Engineering and Applied Science (SEAS), VIPER leads to dual Bachelor of Arts (BA) and Bachelor of Science in Engineering (BSE) degrees by combining majors from each school. Possible combinations include: Physics and Astronomy, Chemistry, Biology, or Mathematics from SAS and Chemical and Biomolecular Engineering, Electrical Engineering, Materials Science and Engineering, or Mechanical Engineering and Applied Mechanics from SEAS. Some students may also apply for a master’s degree through a fifth year of study.

For more information, visit: https://www.viper.upenn.edu.

Coordinated Submatriculation Programs

The University offers a number of coordinated, interdisciplinary submatriculation programs to undergraduate students.

For more information about submatriculation, click here (p. 256).

BA/JD Program in Arts & Sciences and Law

This rigorous program offers an opportunity for highly qualified and motivated students to apply to Penn Law School during what is generally the first semester of a student’s junior year (between 16 and 23.99 c.u.). If accepted, the student will submatriculate into the J.D. program in their senior year. Applicants must be committed to the study of law in its theoretical and practical aspects.

For more information, visit: https://www.college.upenn.edu/submatriculation.
Bio-Dental Program

Bio-Dental submatriculation is a seven-year joint program of the College and Penn’s School of Dental Medicine for students who will major in Biology and wish to enroll in the Dental School during their senior year in the College. Students must apply to the program when they apply to Penn, and applicants will be notified of their conditional acceptance into the program when they are notified of their admission to Penn. Full acceptance into the program is made after the student’s junior year and is based on academic performance during those three years and meeting the admissions standards of the Dental School.

For more information, visit: http://www.bio.upenn.edu/https%3A/\%252Fwww.bio.upenn.edu/accelerated-dental-program.

BSN/JD Program

Submatriculation allows students in traditional and accelerated BSN programs to formally enroll in the JD program (https://www.law.upenn.edu/academics/degrees.php) at Penn Law School while still undergraduates. The current climate of healthcare litigation and malpractice suits is well suited for professionals who combine nursing education and experience with legal expertise. A background in both nursing and law gives students a powerful and marketable skillset and prepares them to make an impact on the medical and legal professions. To submatriculate into Penn Law, students should take the LSAT and apply (https://www.law.upenn.edu/admissions/jd) during their junior year. If a student is admitted, they will begin taking courses at the law school during their fourth year, completing both the BSN and JD degrees in six years instead of the usual seven.

For more information, visit https://www.nursing.upenn.edu/live/files/56-submatriculation-law2015.

Penn Engineering/Penn Law Program

Penn’s Law School offers an opportunity for qualified juniors in Penn Engineering to apply early to the Law School and submatriculate into the JD program beginning their fourth year. The program is designed as a 3-year + 3-year accelerated program for highly qualified Engineering undergraduates either in the Bachelor of Applied Science (BAS) or Bachelor of Science in Engineering (BSE) degree programs.

For more information, visit: http://www.seas.upenn.edu/undergraduate/degrees/submatriculation-law.php.

Roy and Diana Vagelos Program in Molecular Life Sciences

Ambitious and highly motivated students interested in the molecular view of life should consider the Vagelos Scholars Program in Molecular Life Sciences. Students begin as freshmen and major in two sciences or submatriculate for a Master of Science degree in the standard four years. Students in this program plan to pursue scientific research careers. Scholars are invited from the admitted pool of high school seniors at the beginning of April at the discretion of the faculty director and the admissions committee.

For more information, visit: http://www.sas.upenn.edu/biochem/vspmls.html.

Wharton Law School Submatriculation Program

During the junior year, qualified Wharton undergraduate students may apply for admission to the Penn Law School and submatriculate into the Juris Doctor (JD) program. In this 3-year + 3-year accelerated program, the student’s fourth year of study is spent entirely at the Law School completing the first-year law curriculum. The remaining undergraduate and/or graduate degree requirements are then completed in the student’s fifth and sixth years of study.

For more information, visit: https://undergrad-inside.wharton.upenn.edu/submatriculation/.

University Minors

In addition to minors completed within one school, several interdisciplinary minors combine coursework from the four undergraduate schools.

Actuarial Mathematics

School of Arts & Sciences/The Wharton School

Actuarial Science stands at the intersection of risk and money. Actuaries use their knowledge of mathematics and probability theory to define, analyze, and solve complex business, financial, and social problems. Actuaries evaluate individual and corporate risks and design financially sound insurance and pension plans. Graduates from the University of Pennsylvania with an Actuarial Mathematics Minor are expected to be in great demand by the insurance and banking industry.

View Program Requirements (p. 136)

For more information, visit: https://www.math.upenn.edu/undergraduate/math-majors-and-minors/minor-actuarial-mathematics.

American Public Policy

School of Arts & Sciences/The Wharton School

This program enables undergraduates interested in American public policy to construct an integrated program between the School of Arts and Sciences and the Wharton School.

View Program Requirements (p. 137)

For more information, visit: https://bepp.wharton.upenn.edu/programs/undergraduate/program-information1/american-public-policy-minor/.

Biological Basis of Behavior and Health Services Management

School of Arts & Sciences/The Wharton School

The Biological Basis of Behavior Program and the Health Care Management Department of the Wharton School have jointly sponsored this effort. The objective is to provide students with exposure to two related areas: study in neuroscience and behavioral biology as a leading example of the bioscience enterprise, and health services management as the environment in which science innovation must be developed and managed. The minor consists of eight courses, four from the Biological Basis of Behavior Program and four from Wharton. Students must earn a minimum grade of C- in courses taken to fulfill the minor requirements.
Students must have a minimum of 3 courses that they count towards the minor and not towards any other major or minor.

View Program Requirements (p. 149)

For more information, visit: https://www.sas.upenn.edu/bbb/requirements/bbbhsmminor.

### Consumer Psychology
#### School of Arts & Sciences/The Wharton School
The goal of the interschool Consumer Psychology Minor is to create a program that fosters the natural link between Psychology in the College and Marketing in Wharton. To fulfill the minor, students must complete four courses from the Psychology Department in the College, four courses from the Marketing Department in Wharton, and the stats requirement. Both College and Wharton requirements will consist of core courses along with a set of elective courses. College students who wish to minor in Consumer Psychology must count two of the four required psychology (PSYC) courses towards only the Consumer Psychology minor (and towards no other major or minor).

View Program Requirements (p. 143)

For more information, visit: https://psychology.sas.upenn.edu/more-information-minors.

### Nursing and Health Services Management
#### School of Nursing/The Wharton School
Increasingly, the delivery of health care involves decisions that entail considerations beyond clinical or medical issues. With the rise of managed care in the United States, it is critical for health professionals to understand not only the clinical factors that affect patients but also the business environment in which healthcare institutions function. This program, a partnership between the School of Nursing and The Wharton School, helps students understand both the nature of the economic and managerial constraints that healthcare organizations face, as well as how these constraints can be effectively managed to provide the best possible health care for patients.

View Program Requirements (p. 202)

For more information, visit: http://www.nursing.upenn.edu/nursing-and-health-services-management-minor/.

### Nutrition
#### School of Arts & Sciences/School of Nursing
Jointly sponsored by the Schools of Nursing and Arts and Sciences, the Nutrition Minor presents a broad view of the field, and illustrates the pervasiveness of nutrition-related issues in such diverse fields as anthropology, economics, folklore, history, physiology, psychology, health care, and public policy.

View Program Requirements (p. 203)

For more information, visit: http://www.nursing.upenn.edu/nutrition-minor/.

### Sustainability and Environmental Management
#### School of Arts & Sciences/School of Engineering & Applied Science/The Wharton School
The Sustainability and Environmental Management Minor is focused on sustainability and designed to help students understand the nature of environmental constraints that face organizations and individuals in the modern world, and to understand how these constraints can be effectively considered as part of the decision-making process in for-profit and non-profit organizations.

View Program Requirements (p. 162)

For more information, visit: https://www.sas.upenn.edu/earth/minors/sustainability-and-environmental-management-minor.

### Urban Education
#### School of Arts & Sciences/Graduate School of Education
The crisis in American education continues to confound major sectors of American life. National attention has engaged various constituencies - non-profit business organizations; local, state and federal governments; teachers’ unions; and universities - in trying to understand and improve public education. At Penn, students and faculty have become deeply involved in local schools through community service, research, teaching, and coursework. In response to student interest in community and education issues, the College of Arts and Sciences and the Graduate School of Education sponsor an interdisciplinary minor in Urban Education. This seven-course undergraduate minor offers students a unique opportunity to bridge learning between the classroom and community, and it features:

- Academically-based community service in local schools
- Deeper understanding of the complex factors affecting urban education
- Field-based research in an area of interest
- Hands-on opportunity to investigate a career in education
- Credit toward Pennsylvania teacher certification requirements

This minor is open to undergraduates in all disciplines. Students choose from among three concentrations depending on interest in pursuing teaching certification or deepening one’s background in urban education policy: Elementary Education; Secondary Education; Urban Education Policy, Research, and Practice.

View Program Requirements (p. 166)

For more information, visit: http://www.sas.upenn.edu/urban/students/urban-education-minor.

### Urban Real Estate and Development
#### School of Arts & Sciences/The Wharton School
This minor, co-sponsored by Real Estate (Wharton) and Urban Studies (Arts and Sciences), is designed to enable students to combine an interest in Urban Studies and Real Estate Development. Students take a total of seven Urban Studies and Real Estate courses, in consultation with the minor advisor.

View Program Requirements (p. 163)
For more information, visit: http://www.sas.upenn.edu/urban/students/real-estate-development-minor.
ACADEMIC RESOURCES

Penn offers a wide variety of resources, offices, and programs for undergraduate students to support them in all aspects of their Penn experience. The following list highlights some of the most commonly used resources and areas of interest relating to academics and educational opportunities. For more information about campus resources available to students, visit the Division of the Vice Provost for University Life (http://www.vpul.upenn.edu).

- Academic Calendar (p. 243)
- Advising (p. 246)
- Career Services (p. 247)
- Community Engagement (p. 247)
- Enrollment & Degree Verification (p. 247)
- Fellowships and Prizes (p. 247)
- Financial Aid (p. 249)
- Foreign Language Study Opportunities (p. 249)
- Global Programs (p. 250)
- Information for Athletes (p. 250)
- Information for First-Generation, Low Income Students (p. 250)
- Information for International Students (p. 251)
- Learning Resources (p. 251)
- Libraries (p. 252)
- Quaker Consortium (p. 252)
- Registrar’s Office (p. 252)
- Research (p. 252)
- Scholars Programs (p. 254)
- Submatriculation (p. 256)
- Summer Sessions (p. 257)
- Transcripts (p. 257)
- Wellness (p. 257)

Academic Calendar

Notes:

Graduate and professional programs follow their own calendars with different registration/drop deadlines, which are typically available on the website of the school or program. The College of Liberal and Professional Studies may have different registration/drop deadlines. Please visit the LPS website, www.sas.upenn.edu/lps/, for more information.

Rosh Hashanah, Yom Kippur, the first two days of Passover and Good Friday are religious holidays that affect large numbers of University community members and that fall during the academic year. View the University’s policy regarding these and other holidays (http://catalog.upenn.edu/pennbook/secular-religious-holidays).

The University’s Three-Year Academic Calendar is subject to change. In the event that changes are made, the latest, most up-to-date version will be posted to the Almanac’s website (https://almanac.upenn.edu/penn-academic-calendar).

2018 Summer Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
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<tbody>
<tr>
<td>11-Week Session Classes begin</td>
<td>Monday</td>
<td>May 21</td>
</tr>
<tr>
<td>Session I Classes begin</td>
<td>Monday</td>
<td>May 21</td>
</tr>
<tr>
<td>Memorial Day Observed (no classes)</td>
<td>Monday</td>
<td>May 28</td>
</tr>
<tr>
<td>Session I Classes end</td>
<td>Wednesday</td>
<td>June 27</td>
</tr>
<tr>
<td>Session II Classes begin</td>
<td>Thursday</td>
<td>June 28</td>
</tr>
<tr>
<td>Independence Day Observed (no classes)</td>
<td>Wednesday</td>
<td>July 4</td>
</tr>
<tr>
<td>Session II &amp; 11-Week Session Classes end</td>
<td>Friday</td>
<td>August 3</td>
</tr>
</tbody>
</table>

2018 Fall Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
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<tbody>
<tr>
<td>Move-in for First-Year Students (<a href="http://www.business-services.upenn.edu/housing/assignments/move/arriving.html">http://www.business-services.upenn.edu/housing/assignments/move/arriving.html</a>)</td>
<td>Wednesday-Monday</td>
<td>August 22</td>
</tr>
<tr>
<td>New Student Orientation (<a href="https://www.nso.upenn.edu">https://www.nso.upenn.edu</a>)</td>
<td>Wednesday-Monday</td>
<td>August 22-27</td>
</tr>
<tr>
<td>Opening Exercises and Freshman Convocation</td>
<td>Monday</td>
<td>August 27</td>
</tr>
<tr>
<td>First Day of Classes</td>
<td>Tuesday</td>
<td>August 28</td>
</tr>
<tr>
<td>Labor Day (no classes)</td>
<td>Monday</td>
<td>September 3</td>
</tr>
<tr>
<td>Course Selection Period ends</td>
<td>Monday</td>
<td>September 17</td>
</tr>
<tr>
<td>Fall Term Break</td>
<td>Thursday-Sunday</td>
<td>October 4-7</td>
</tr>
<tr>
<td>Drop Period ends</td>
<td>Monday</td>
<td>October 8</td>
</tr>
<tr>
<td>Classes Resume</td>
<td>Monday</td>
<td>October 8</td>
</tr>
<tr>
<td>Family Weekend (<a href="http://www.vpul.upenn.edu/osa/fw">http://www.vpul.upenn.edu/osa/fw</a>)</td>
<td>Friday-Sunday</td>
<td>October 19-21 (Yale)</td>
</tr>
<tr>
<td>Advance Registration for Spring Term (<a href="http://www.upenn.edu/registrar">http://www.upenn.edu/registrar</a>)</td>
<td>Monday-Sunday</td>
<td>October 29-November 11</td>
</tr>
<tr>
<td>Last day to withdraw from a course</td>
<td>Friday</td>
<td>November 9</td>
</tr>
<tr>
<td>Homecoming</td>
<td>Saturday</td>
<td>November 10 (Harvard)</td>
</tr>
<tr>
<td>Thur-Fri Class Schedule on Tue-Wed (<a href="http://provost.upenn.edu/education/calendar">http://provost.upenn.edu/education/calendar</a>)</td>
<td>November 20-21 (<a href="http://provost.upenn.edu/education/calendar">http://provost.upenn.edu/education/calendar</a>)</td>
<td></td>
</tr>
<tr>
<td>Thanksgiving Break</td>
<td>Thursday-Sunday</td>
<td>November 22-25</td>
</tr>
<tr>
<td>Classes Resume</td>
<td>Monday</td>
<td>November 26</td>
</tr>
<tr>
<td>Last day of Classes</td>
<td>Monday</td>
<td>December 10</td>
</tr>
<tr>
<td>Reading Days</td>
<td>Tuesday-Wednesday</td>
<td>December 11-12</td>
</tr>
</tbody>
</table>
Final Examinations (http://www.upenn.edu/registrar) Thursday-Thursday December 13-20

Fall Term ends Thursday December 20

2019 Spring Term

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<tr>
<th>Comment</th>
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<tbody>
<tr>
<td>First Day of Classes (Monday class schedule on Wednesday)</td>
<td>Monday</td>
<td>January 16</td>
</tr>
<tr>
<td>Martin Luther King, Jr. Day Observed (no classes)</td>
<td>Monday</td>
<td>January 21</td>
</tr>
<tr>
<td>Course Selection Period ends</td>
<td>Monday</td>
<td>February 4</td>
</tr>
<tr>
<td>Drop Period ends</td>
<td>Friday</td>
<td>February 22</td>
</tr>
<tr>
<td>Spring Term Break</td>
<td>Saturday-Sunday</td>
<td>March 2-10</td>
</tr>
<tr>
<td>Classes Resume</td>
<td>Monday</td>
<td>March 11</td>
</tr>
<tr>
<td>Advance Registration for Fall Term and Summer Sessions (<a href="http://www.upenn.edu/registrar">http://www.upenn.edu/registrar</a>)</td>
<td>Monday-Sunday</td>
<td>March 18-31</td>
</tr>
<tr>
<td>Last day to withdraw from a course</td>
<td>Friday</td>
<td>April 5</td>
</tr>
<tr>
<td>Last day of Classes</td>
<td>Wednesday</td>
<td>May 1</td>
</tr>
<tr>
<td>Reading Days</td>
<td>Thursday-Sunday</td>
<td>May 2-5</td>
</tr>
<tr>
<td>Final Examinations (<a href="http://www.upenn.edu/registrar">http://www.upenn.edu/registrar</a>)</td>
<td>Monday-Tuesday</td>
<td>May 6-14</td>
</tr>
<tr>
<td>Spring Term Ends</td>
<td>Tuesday</td>
<td>May 14</td>
</tr>
<tr>
<td>Alumni Day (<a href="http://www.alumni.upenn.edu">http://www.alumni.upenn.edu</a>)</td>
<td>Saturday</td>
<td>May 18</td>
</tr>
<tr>
<td>Baccalaureate (<a href="http://www.upenn.edu/commencement">http://www.upenn.edu/commencement</a>)</td>
<td>Sunday</td>
<td>May 19</td>
</tr>
<tr>
<td>Commencement (<a href="http://www.upenn.edu/commencement">http://www.upenn.edu/commencement</a>)</td>
<td>Monday</td>
<td>May 20</td>
</tr>
</tbody>
</table>

2019 Summer Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial Day Observed (no classes)</td>
<td>Monday</td>
<td>May 27</td>
</tr>
<tr>
<td>11-Week Session Classes begin</td>
<td>Tuesday</td>
<td>May 28</td>
</tr>
<tr>
<td>Session I Classes begin</td>
<td>Tuesday</td>
<td>May 28</td>
</tr>
<tr>
<td>Session I Classes end</td>
<td>Wednesday</td>
<td>July 3</td>
</tr>
</tbody>
</table>

Independence Day Observed (no classes) Thursday July 4

Session II Classes begin Friday July 5

Session II & 11-Week Session Classes end Friday August 9

2019 Fall Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move-in for First Year Students (<a href="http://www.business-services.upenn.edu/housing/assignments/move/arriving.html">http://www.business-services.upenn.edu/housing/assignments/move/arriving.html</a>)</td>
<td>Wednesday</td>
<td>August 21</td>
</tr>
<tr>
<td>New Student Orientation (<a href="https://www.aarc.mlk">https://www.aarc.mlk</a>)</td>
<td>Wednesday-Monday</td>
<td>August 21-August 26</td>
</tr>
<tr>
<td>Freshman Convocation</td>
<td>Monday</td>
<td>August 26</td>
</tr>
<tr>
<td>First day of classes</td>
<td>Tuesday</td>
<td>August 27</td>
</tr>
<tr>
<td>Labor Day (no classes)</td>
<td>Monday</td>
<td>September 2</td>
</tr>
<tr>
<td>Course Selection Period ends</td>
<td>Monday</td>
<td>September 16</td>
</tr>
<tr>
<td>Drop Period ends</td>
<td>Monday</td>
<td>October 7</td>
</tr>
<tr>
<td>Fall term break</td>
<td>Thursday-Sunday</td>
<td>October 10-13</td>
</tr>
<tr>
<td>Classes resume</td>
<td>Monday</td>
<td>October 14</td>
</tr>
<tr>
<td>Advance Registration for Spring Term (<a href="http://www.upenn.edu/registrar">http://www.upenn.edu/registrar</a>)</td>
<td>Monday-Sunday</td>
<td>October 28-November 10</td>
</tr>
<tr>
<td>Family Weekend (<a href="http://www.vpul.upenn.edu/osa/fw">http://www.vpul.upenn.edu/osa/fw</a>)</td>
<td>Friday-Sunday</td>
<td>November 1-3</td>
</tr>
<tr>
<td>Last Day to withdraw from a course</td>
<td>Friday</td>
<td>November 8</td>
</tr>
<tr>
<td>Homecoming</td>
<td>Saturday</td>
<td>November 9 (Cornell)</td>
</tr>
<tr>
<td>Thursday/Friday class schedule on Tuesday/ Wednesday (<a href="http://provost.upenn.edu/education/calendar">http://provost.upenn.edu/education/calendar</a>)</td>
<td>Tuesday/Wednesday</td>
<td>November 26-27</td>
</tr>
<tr>
<td>Thanksgiving break</td>
<td>Thursday-Sunday</td>
<td>November 28-December 1</td>
</tr>
<tr>
<td>Classes resume</td>
<td>Monday</td>
<td>December 2</td>
</tr>
<tr>
<td>Last day of classes</td>
<td>Monday</td>
<td>December 9</td>
</tr>
<tr>
<td>Reading days</td>
<td>Tuesday-Wednesday</td>
<td>December 10-11</td>
</tr>
<tr>
<td>Final examinations (<a href="http://www.upenn.edu/registrar">http://www.upenn.edu/registrar</a>)</td>
<td>Thursday-Thurs day</td>
<td>December 12-19</td>
</tr>
<tr>
<td>Fall semester ends</td>
<td>Thursday</td>
<td>December 19</td>
</tr>
</tbody>
</table>

2018-19 Catalog | Generated 08/30/18
### 2020 Spring Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>First day of classes (Monday class schedule on Wednesday)</td>
<td>Wednesday (Monday classes)</td>
<td>January 15</td>
</tr>
<tr>
<td>Martin Luther King, Jr. Day Observed (no classes)</td>
<td>Monday</td>
<td>January 20</td>
</tr>
<tr>
<td>Course Selection Period ends</td>
<td>Monday</td>
<td>February 3</td>
</tr>
<tr>
<td>Drop Period ends</td>
<td>Friday</td>
<td>February 21</td>
</tr>
<tr>
<td>Spring term break</td>
<td>Saturday-Sunday</td>
<td>March 7-15</td>
</tr>
<tr>
<td>Classes resume</td>
<td>Monday</td>
<td>March 16</td>
</tr>
<tr>
<td>Advance Registration for Fall Term and Summer Sessions</td>
<td>Monday-Sunday</td>
<td>March 23-April 5</td>
</tr>
<tr>
<td>Last Day to withdraw from a course</td>
<td>Friday</td>
<td>April 3</td>
</tr>
<tr>
<td>Last day of classes</td>
<td>Wednesday</td>
<td>April 29</td>
</tr>
<tr>
<td>Reading days</td>
<td>Thursday-Sunday</td>
<td>April 30-May 3</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Monday-Tuesday</td>
<td>May 4-12</td>
</tr>
<tr>
<td>Spring semester ends</td>
<td>Tuesday</td>
<td>May 12</td>
</tr>
<tr>
<td>Alumni Day</td>
<td>Saturday</td>
<td>May 16</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>Sunday</td>
<td>May 17</td>
</tr>
<tr>
<td>Commencement</td>
<td>Monday</td>
<td>May 18</td>
</tr>
</tbody>
</table>

### 2020 Summer Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial Day (no classes)</td>
<td>Monday</td>
<td>May 25</td>
</tr>
<tr>
<td>11-week Session classes begin</td>
<td>Tuesday</td>
<td>May 26</td>
</tr>
<tr>
<td>Session I classes begin</td>
<td>Tuesday</td>
<td>May 26</td>
</tr>
<tr>
<td>Session I Classes end</td>
<td>Wednesday</td>
<td>July 1</td>
</tr>
<tr>
<td>Session II Classes begin</td>
<td>Thursday</td>
<td>July 2</td>
</tr>
<tr>
<td>Independence Day Observed (no classes)</td>
<td>Friday</td>
<td>July 3</td>
</tr>
</tbody>
</table>

### 2020 Fall Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session II &amp; 11-Week Session classes end</td>
<td>Friday</td>
<td>August 7</td>
</tr>
<tr>
<td>Move-in for First Year Students (<a href="http://www.business-services.upenn.edu/housing/assignments/move/arriving.html">http://www.business-services.upenn.edu/housing/assignments/move/arriving.html</a>)</td>
<td>Wednesday</td>
<td>August 26</td>
</tr>
<tr>
<td>New Student Orientation (<a href="https://www.nso.upenn.edu">https://www.nso.upenn.edu</a>)</td>
<td>Wednesday-Monday</td>
<td>August 26-31</td>
</tr>
<tr>
<td>Opening Exercises and Freshman Convocation</td>
<td>Monday</td>
<td>August 31</td>
</tr>
<tr>
<td>First day of classes</td>
<td>Tuesday</td>
<td>September 1</td>
</tr>
<tr>
<td>Labor Day (no classes)</td>
<td>Monday</td>
<td>September 7</td>
</tr>
<tr>
<td>Course Selection Period ends</td>
<td>to be decided</td>
<td></td>
</tr>
<tr>
<td>Fall term break</td>
<td>Thursday-Sunday</td>
<td>October 1-4</td>
</tr>
<tr>
<td>Drop Period ends</td>
<td>to be decided</td>
<td></td>
</tr>
<tr>
<td>Classes resume</td>
<td>Monday</td>
<td>October 5</td>
</tr>
<tr>
<td>Family Weekend (<a href="http://www.vpul.upenn.edu/osa/fw">http://www.vpul.upenn.edu/osa/fw</a>)</td>
<td>Friday-Sunday</td>
<td>October 16-18 (Columbia)</td>
</tr>
<tr>
<td>Advance Registration for Spring Term (<a href="http://www.upenn.edu/registrar">http://www.upenn.edu/registrar</a>)</td>
<td>to be decided</td>
<td></td>
</tr>
<tr>
<td>Last Day to withdraw from a course</td>
<td>to be decided</td>
<td></td>
</tr>
<tr>
<td>Homecoming</td>
<td>Saturday</td>
<td>November 14 (Harvard)</td>
</tr>
<tr>
<td>Thursday/Friday class schedule on Tuesday/ Wednesday</td>
<td>Tuesday/Wednesday</td>
<td>November 24-25</td>
</tr>
<tr>
<td>Thanksgiving Break</td>
<td>Thursday-Sunday</td>
<td>November 26-29</td>
</tr>
<tr>
<td>Classes resume</td>
<td>Monday</td>
<td>November 30</td>
</tr>
<tr>
<td>Last day of classes</td>
<td>Thursday</td>
<td>December 10</td>
</tr>
<tr>
<td>Reading days</td>
<td>Friday-Monday</td>
<td>December 11-14</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Tuesday-Tuesday</td>
<td>December 15-22</td>
</tr>
<tr>
<td>Fall term ends</td>
<td>Tuesday</td>
<td>December 22</td>
</tr>
</tbody>
</table>
2021 Spring Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>First day of classes (Monday class schedule on Wednesday)</td>
<td>January 13 (Monday classes)</td>
<td></td>
</tr>
<tr>
<td>Martin Luther King, Jr. Day Observed (no classes)</td>
<td>Monday</td>
<td>January 18</td>
</tr>
<tr>
<td>Course Selection Period ends</td>
<td>to be decided</td>
<td></td>
</tr>
<tr>
<td>Drop Period ends</td>
<td>to be decided</td>
<td></td>
</tr>
<tr>
<td>Spring term break</td>
<td>Saturday-Sunday</td>
<td>March 6-14</td>
</tr>
<tr>
<td>Classes resume</td>
<td>Monday</td>
<td>March 15</td>
</tr>
<tr>
<td>Advance Registration for Fall Term and Summer Sessions</td>
<td>to be decided</td>
<td></td>
</tr>
<tr>
<td>Last Day to withdraw from a course</td>
<td>to be decided</td>
<td></td>
</tr>
<tr>
<td>Last day of classes</td>
<td>Wednesday</td>
<td>April 28</td>
</tr>
<tr>
<td>Reading days</td>
<td>Thursday-Sunday</td>
<td>April 29-May 2</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Monday-Tuesday</td>
<td>May 3-11</td>
</tr>
<tr>
<td>Spring term ends</td>
<td>Tuesday</td>
<td>May 11</td>
</tr>
<tr>
<td>Alumni Day</td>
<td>Saturday</td>
<td>May 15</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>Sunday</td>
<td>May 16</td>
</tr>
<tr>
<td>Commencement</td>
<td>Monday</td>
<td>May 17</td>
</tr>
</tbody>
</table>

2021 Summer Term

<table>
<thead>
<tr>
<th>Comment</th>
<th>Day of the Week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-week Session classes begin</td>
<td>Monday</td>
<td>May 24</td>
</tr>
<tr>
<td>Session I classes begin</td>
<td>Monday</td>
<td>May 24</td>
</tr>
<tr>
<td>Memorial Day observed (no classes)</td>
<td>Monday</td>
<td>May 31</td>
</tr>
<tr>
<td>Session I Classes end</td>
<td>Wednesday</td>
<td>June 30</td>
</tr>
<tr>
<td>Session II Classes begin</td>
<td>Thursday</td>
<td>July 1</td>
</tr>
<tr>
<td>Independence Day Observed (no classes)</td>
<td>Monday</td>
<td>July 5</td>
</tr>
</tbody>
</table>

Advising

Each school has their own advising office with a network of academic advisors available to assist students. The structure of the advising varies by school; you can find the links to your school’s advising office below.

School of Arts and Sciences

College students need to choose courses, declare a major and define career goals. They will need to examine their performance in different courses, identify their skills and those they wish to develop, and decide what really matters to them. Much of this assessment they will do themselves, but faculty members, academic advisors, career counselors and peers can help.

Students in the College have a strong network of academic advisors available to assist them throughout their undergraduate careers.

- Pre-major advisors help first- and second-year students navigate their entrance into academic and intellectual life in the College beginning with the issues of incoming freshmen and continuing through the student’s exploration of a potential major.
- Peer advisors work with the pre-major advisor and are one of the first points of contact for incoming College students. They provide the perspective of an upperclass student in the College and assist first-year students in making the transition from high school to Penn by sharing their strategies for academic success and knowledge of campus resources.
- After declaring a major, students are assigned an academic advisor affiliated with the major department or program.
- All students are welcome and encouraged to speak with assistant deans for advising in the College Office. These advisors can help students explore the many options and opportunities available to College students, and are available by appointment or on a walk-in basis throughout the year.

For more information, visit the College website (https://www.college.upenn.edu/advising/).

School of Engineering and Applied Science

Each student is assigned a faculty advisor with whom they are required to meet at least twice per year. No student is permitted to register for classes in any semester without first meeting with an advisor and a review of their Permission to Register form (https://www.seas.upenn.edu/undergraduate/pdf/ug-advisor-signoff.pdf). Students who take the time to prepare for these meetings generally find them beneficial and informative. Faculty advisors are the best source of information about electives within the major, research opportunities, and options for graduate study.

For more information, visit: https://www.seas.upenn.edu/undergraduate/advising/.

Updated May 8, 2018
School of Nursing
Penn Nursing students benefit from a dual advising structure. All students are assigned a faculty advisor and have access to the professional staff advisors in the Office of Student Affairs.

For more information, visit: http://www.nursing.upenn.edu/student-services/advising/accelerated/.

The Wharton School
The goal of the Wharton Undergraduate Division academic advising team is to help students make informed decisions about their educational plans and professional/life goals that are consistent with their interests, abilities, and values.

Advising by appointment, walk-in advising, and specialized advising (https://undergrad-inside.wharton.upenn.edu/advising-services/#specialized_advising) are services available in G95 Huntsman Hall to current Wharton undergraduate students.

Professional advisors (https://undergrad-inside.wharton.upenn.edu/advising-services), concentration advisors (https://undergrad-inside.wharton.upenn.edu/concentration-advisors), and peer advising fellows (https://undergrad-inside.wharton.upenn.edu/peer-advising) are available to assist students.

For more information, visit: https://undergrad-inside.wharton.upenn.edu/advising-services/.

Career Services
Career Services helps students define their career goals and learn how to achieve them. The office helps students and alumni obtain permanent and short-term career-related employment and graduate and professional school admission through counseling sessions, workshops, alumni networks, a large career resource library and on-line information. Career Services also establishes and promotes contact between employers, graduate/professional schools, and the University; and hosts employer interviews through the on-campus recruiting program.

- Career Services Contacts for Undergraduates (http://www.vpul.upenn.edu/careerservices/undergrad/connectwithus.php)
- Undergraduate Career Workshops and Events (http://www.vpul.upenn.edu/careerservices/undergrad/events.php)
- Information about Graduate School Study (http://www.vpul.upenn.edu/careerservices/gradprof)

For more information, visit: http://www.vpul.upenn.edu/careerservices/.

Community Engagement
The Barbara and Edward Netter Center for Community Partnerships (https://www.nettercenter.upenn.edu) is Penn’s central administrative office for community partnership programs, including academically based community service, direct traditional service, and community development.

Penn’s hub for civic engagement, Civic House (http://www.admissions.upenn.edu/academics/civic-house) supports student service and advocacy groups while providing resources, information, and meeting space for service-oriented efforts throughout campus and beyond.

The Robert A. Fox Leadership Program (http://www.admissions.upenn.edu/academics/fox-leadership-program) prepares students for present and future leadership through hands-on experience, service, course work, and mentorship from successful leaders.

Enrollment & Degree Verification
The University Registrar’s office provides verification of dates a student attended Penn and degrees awarded by the Schools of the University. Details concerning Academic Certification may be found on the University Registrar web page (http://www.upenn.edu/registrar/student-services/academic-certification.html).

Fellowships and Prizes
The Center for Undergraduate Research and Fellowships (CURF) (https://www.curf.upenn.edu) serves as the University of Pennsylvania’s information clearinghouse and primary support office for Penn students and alumni considering applying for major grants and fellowships.

CURF’s Fellowships Team educates Penn students and alumni about fellowships and assists potential applicants in creating their strongest possible application through information sessions, conversations with fellowship recipients, and individual advising. CURF also supports and manages selection committees consisting of leading Penn faculty that evaluate applications and select applicants to endorse.

Fellowships provide funding for a wide range of activities:
- full tuition, fees, and a living stipend to earn a graduate degree abroad
- undergraduate or graduate study in the US
- conducting a research project abroad
- teaching English abroad
- internships abroad
- social engagement projects in the US or abroad

CURF aims to demystify these opportunities to help students determine the most appropriate awards for which to apply.

Helpful links:
- Fellowships Advising (https://www.curf.upenn.edu/fellowships-advising)
- Information Sessions and Workshops (https://www.curf.upenn.edu/information-sessions-and-workshops)
- Finding a Fellowship (https://www.curf.upenn.edu/find-fellowships)
- Fellowships Directory (https://www.curf.upenn.edu/fellowships-directory)
- Major Fellowships (https://www.curf.upenn.edu/major-fellowships)
- Developing Your Candidacy (https://www.curf.upenn.edu/developing-your-candidacy)
- Fellowship Recommendation Letters (https://www.curf.upenn.edu/fellowships/next-steps/letters-of-recommendation)
- Recent Penn Recipients (https://www.curf.upenn.edu/recent-penn-recipients)
- Applicant Responsibilities and Penn Policies (https://www.curf.upenn.edu/applicant-responsibilities-and-penn-policies)

**School-based Awards**

In addition to departmental awards, there are a variety of awards available to undergraduate students within a particular school.

**College of Arts and Sciences**

• Abraham D. Cohn Prize
• Charles W. Burr Book Prize
• College Alumni Society 250th Commemoration Award
• Phi Beta Kappa Awards (https://www.college.upenn.edu/pbk)
• Vagelos Challenge Award (https://www.college.upenn.edu/honors)

For more information, visit: https://www.college.upenn.edu/honors.

**School of Engineering and Applied Science**

**Undergraduate Awards**

• C. N. Weygandt Award (Student Choice Award)

**Departmental Awards**

• Bioengineering
• Chemical and Biomolecular Engineering
• Computer and Information Science
• Electrical and Systems Engineering
• Materials Science and Engineering
• Mechanical Engineering and Applied Mechanics

**Awards From Additional Sources**

• From the Moore School
  • John Grist Brainerd Award
  • Stuart Eichert, Jr. Memorial Prize
  • Atwater Kent Prize in Electrical Engineering
  • Walter Korn Award
  • Moore School Council Cwikla Award

• From Advancing Women in Engineering
  • Jaros Baum and Bolles Award

• From the Undergraduate Affairs Committee
  • Penn Engineering Exceptional Service Award
  • Manfred Altman Memorial Award
  • Ben and Bertha Gomberg Kirsch Prize (Applied Science Prize)
  • Engineering Alumni Society E. Stuart Eichert, Jr. Award
  • Engineers’ Club of Philadelphia Young Engineer Award
  • Albert P. Godsho Engineering Prize
  • Wolf-Hallac Award
  • Hugo Otto Wolf Memorial Prize

• Management and Technology Awards
  • Management and Technology Scholarship Award
  • Michele Huber and Brian D. Giles Memorial Award
  • Naren Udayagiri Scholarship Award

For more information, visit: http://www.seas.upenn.edu/undergraduate/student-life/awards.php.

**School of Nursing**

• Claire M. Fagin Award
• Dean’s Award
• Dorothy Mereness Award
• Ellen D. Baer Award
• Jeanne Frances Hopkins Award
• Mary D. Naylor Undergraduate Research Award
• Norma Lang Award
• Penn Nursing Alumni Student Award
• Sigma Theta Tau Award
• Theresa I. Lynch Award

For more information, visit: http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/graduation-academic-honors/#SON%20Awards.

**The Wharton School**

• Beverly Virany Memorial Prize
• Class of 1975 Management Award
• Dean’s Awards (https://undergrad-inside.wharton.upenn.edu/deans-awards)
  • The Dean’s Award for Excellence
  • The Dean’s Award for Innovation
  • The Dean’s Award for Service to the Wharton School
  • The Dean’s Award for Service to the University of Pennsylvania and the Philadelphia Community
• Delta Sigma Pi Scholarship Key
• Financial Executives Institute Award
• Herbert S. Steuer Memorial Prize
• John J. Holahan Memorial Prize
• Louis Rudolph Accounting Award
• William D. Gordon Award
• Vice Dean’s Award for Service

**University Prizes**

The following academic prizes are awarded at the University level:

**President’s Engagement Prizes** (https://www.curf.upenn.edu/presidents-engagement-prizes)

Competitively awarded on an annual basis, the President’s Engagement Prizes empower Penn seniors to design and undertake local, national or global engagement projects during the first year after they graduate.

**President’s Innovation Prize** (https://www.curf.upenn.edu/presidents-innovation-prize)

Unique at both Penn and across higher education, the President’s Innovation Prize underscores the University’s considerable commitment to encouraging students to put their knowledge to work for the betterment of humankind.

**Senior Awards**

The University of Pennsylvania grants numerous undergraduate awards to outstanding graduating seniors, in addition to some sophomores and juniors. Eligibility and criteria vary by award.
The Senior Honor Awards (Spoon, Bowl, Cane and Spade for those who identify as men; Hottel, Harnewell, Goddard and Brownlee Awards for those who identify as women) (http://www.vpul.upenn.edu/osa/seniors.php)

Nominees must be members in good academic standing who have actively contributed to campus life through activities and leadership. All nominees are placed on a ballot (one for men, one for women) which is distributed to a committee of staff members and the Senior Class Board. This committee votes and narrows the candidate pool to 15 men and 15 women, who are then voted upon by the entire Senior Class. The top 4 men and 4 women receive the awards on Ivy Day.


Granted to graduating students of color who demonstrate leadership, advance diversity at Penn through student activities or community service, and exemplify excellence.

The James Howard Weiss Memorial Award and The Penn Student Agencies Award (http://www.vpul.upenn.edu/osa/seniors.php)

Both awards recognize distinguished academic achievement (minimum G.P.A. of 3.7) and significant leadership in undergraduate activities by members of the senior class. A committee of students, faculty and staff makes the final selection from the list of candidates. Ideally, nominees should be the most outstanding members of group (1) above.

The Sol Feinstone Undergraduate Awards (http://www.dolphin.upenn.edu/oslaf/feinstone.html)

These awards may be presented to a sophomore, junior or senior who has contributed to "orderly and constructive social and educational change within or outside the University community." Past recipients have included the undergraduate who established the first mental health student group in the nation; the creators of a Saturday African-centered enrichment program for local children; the organizers of a pre-orientation leadership program for first-year students; and the founder of the first and the only youth-led LGBT statewide organization in the nation. Finalists are chosen by the same committee as in (2) above. (Keep in mind the fact that there must be a specific contribution, not just a list of activities).

Student Award of Merit (http://www.dolphin.upenn.edu/oslaf/alumni.html)

This award, sponsored by Penn Alumni, is presented to members of the Senior Class on the May graduation roster in recognition of their service to the University of Pennsylvania, which, in combination with other activities/endeavors, strengthens and enhances the University. The selection committee recognizes that University service takes many different forms, including but not limited to academic, co-curricular, athletic, and community service. Alumni relations and/or advancement experience is not required. Applicants are asked to use the brief essay portion of this application to describe the nature of their contributions to the Penn community and provide meaningful examples of the same. This award will be given to no fewer than one and no more than five members of the senior class. A committee comprised of alumni makes the final selection from the list of candidates. There is no minimum G.P.A. requirement.

For more information, visit: http://www.vpul.upenn.edu/osa/seniors.php.

Financial Aid

The Office of Student Registration and Financial Services (SRFS) provides solutions to students’ concerns and encompasses the offices of the University Registrar and Student Financial Services.

- Information about Paying for a Penn Education (http://www.sfs.upenn.edu/paying)
- Information about Applying for Financial Aid (http://www.sfs.upenn.edu/finaid)
- Information about Loans (http://www.sfs.upenn.edu/loans)
- Information about Billing and Payment (http://www.sfs.upenn.edu/billing)

Undergraduate Cost of Attendance

The cost of attendance represents the cost of attending Penn for an academic year, and includes both direct costs that appear on a student’s bill such as tuition, fees, housing, and dining, and indirect costs that are not billed by Penn, such as books and supplies, transportation, and an allowance for personal expenses. Students should consider their cost of attendance as their budget for each academic year. Penn also uses the cost of attendance to help determine a student’s eligibility for financial aid.

View the 2018-2019 Cost of Attendance: http://www.sfs.upenn.edu/paying/cost-of-attendance.htm

Foreign Language Study Opportunities

The Penn Language Center offers over 40 world languages per semester to both undergraduate and graduate students and is a leader in the field of language education and pedagogy training language instructors in language methodology in accordance with the National Standards.

Penn Language Center: plc.sas.upenn.edu

Some schools have foreign language requirements. Information about requirements and options for foreign language study varies by school:

- College of Arts and Sciences (https://www.college.upenn.edu/language-writing-speaking)
- School of Nursing (https://www.nursing.upenn.edu/live/files/247-language-requirement2016pdf)

The Penn Language Center maintains a list of languages (http://plc.sas.upenn.edu/languages) offered at Penn:

- Afrikaans (http://plc.sas.upenn.edu/node/2538)
- American Sign Language (http://plc.sas.upenn.edu/asl)
- Amharic (http://plc.sas.upenn.edu/amharic)
- Bengali (http://plc.sas.upenn.edu/bengali)
- Cantonese (http://plc.sas.upenn.edu/cantonese)
- Chichewa (http://plc.sas.upenn.edu/chichewa)
- Chinese (http://plc.sas.upenn.edu/chinese)
- Czech (http://plc.sas.upenn.edu/czech)
- Filipino (http://plc.sas.upenn.edu/filipino)
Global Programs

Each year Penn Abroad sends approximately 600 students abroad to earn academic credit in nearly 50 countries. Semester and academic year study abroad opportunities for undergraduate students are available in the College of Arts & Sciences, the Wharton School, the School of Engineering & Applied Science, and the School of Nursing.

Penn Abroad (https://global.upenn.edu/pennabroad), a division of Penn Global (https://global.upenn.edu), provides information about how to plan for semester and academic year study abroad, what programs are approved for academic credit, how to apply for admission, how to finance the cost, and what Penn expects of you as a participant.

Click here (https://global.upenn.edu/pennabroad/semester) for information on how to get started with Semester and Academic Year study abroad (https://global.upenn.edu/pennabroad/semester), and a searchable list of all programs.

In addition, Penn Abroad also runs:

- Penn Global Seminars (https://global.upenn.edu/global-seminars) - Intensive semester-long seminars with short-term travel components.
- Global Internship Program (GIP) (https://global.upenn.edu/pennabroad/gip) – The opportunity to intern or conduct research abroad for 8 to 12 weeks over the summer with funding awarded for all accepted students. Students can apply for one of the over 200 pre-approved placements or receive funding for internships secured independently.

Other global opportunities for Penn undergraduate students exist across campus, including:

- Penn Summer Abroad (http://www.sas.upenn.edu/summer/programs/abroad) – offers faculty-led undergraduate courses offered in the summer through the School of Arts and Sciences to a range of international destinations each year.
- Wharton International Program (https://undergrad-inside.wharton.upenn.edu/wip) – provides short term international business courses at three global locations each year.
- Penn Nursing Short Term & Independent Programs (https://www.nursing.upenn.edu/global-health/student-opportunities/short-term) – provides students with a number of elective courses that can be taken abroad, including some clinical elective opportunities.
- Penn Engineering (http://www.seas.upenn.edu/community/international-opps.php) – provides a range of programs for undergraduate Engineering students including Summer Study Abroad, International Summer Research and Service Learning Opportunities.

Students are encouraged to speak to their department and home school about additional study abroad opportunities that may exist.

Information for Athletes

Penn Athletics (http://www.pennathletics.com) offers a number of programs to support student-athletes academically.

Student Athlete Development Center (http://www.pennathletics.com/page/student-athlete-development-center)

Academic Resources (http://www.pennathletics.com/page/academic-resources)

Student-Athlete Academic Achievement Program

The Student-Athlete Academic Achievement Program is designed to provide student-athletes with supplemental study and tutoring opportunities, as well as to foster academic interaction with fellow student-athletes. During the academic year, students have access to reserved rooms for scheduled study time, and individualized and group tutoring sessions. In addition, workshops are conducted to offer strategies for succeeding at Penn.

For more information, visit http://www.pennathletics.com/page/student-athlete-academic-achievement-program.

Information for First-Generation, Low Income Students

Penn offers a generous program of need-based financial aid (http://www.sfs.upenn.edu/paying) and a strong commitment to increase
Penn’s First-Generation, Low-Income (FGLI) Program (http://www.vpul.upenn.edu/gic/FGLIProgram.php) is housed at the Greenfield Intercultural Center (http://www.vpul.upenn.edu/gic) (GIC), part of the Division of the Vice Provost for University Life (http://www.vpul.upenn.edu).

This program provides a supportive and inclusive learning environment for scholars from low-income backgrounds who are the first in their families to attend college. The FGLI program also welcomes all students who identify as first-generation for any of the multitude of ways this identity can be defined contextually. The staff address students’ academic, personal, and social transition needs while facilitating community-building and a sense of belonging at Penn. In collaboration with departments across campus, the FGLI program provides advising and coaching along with leadership development opportunities and experiences. The FGLI program welcomes all students who can benefit from this highly-personal engagement, and staff members are eager to celebrate these scholars and work with them to build on their talents as they navigate Penn.

The program works in collaboration with Penn First, a student organization that strives to be a community and support network for students who identify as first-generation college students and/or come from low-socioeconomic backgrounds. For more information about Penn First, visit: http://www.vpul.upenn.edu/gic/pennfirst.php.

In addition to the FGLI program, Penn offers additional resources and supports that may be helpful for low-income or first-generation students. For more information, visit: http://www.vpul.upenn.edu/Low-IncomeFirst-GenerationStudents.

Information for International Students

Penn's International Student and Scholar Services (ISSS) (https://global.upenn.edu/issss) provides immigration benefits assistance and integration initiatives for the international community at Penn. ISSS works with international students through all stages of their journey at Penn, providing guidance every step of the way.

ISSS provides support to students in many different areas. Some examples include:

- Preparing students for arrival to the U.S.
- Helping get adjusted to life in Philadelphia
- Advising on maintaining status, travel, and immigration guidelines
- Providing integration opportunities such as social events, cultural trips and leadership roles
- Assisting with employment authorization before internships or jobs
- Assigned advisors and central online portal for requests and forms via the iPenn system (https://www.ipenn.oip.upenn.edu)

Find out more information for:

- New Students (https://global.upenn.edu/issss/new)
- Current Students (https://global.upenn.edu/issss/students)

Click the iPenn logo to see your assigned advisor and make requests with eforms.

Beyond Immigration (https://global.upenn.edu/issss/beyond-immigration)

Learning Resources

Center for Programs in Contemporary Writing (http://www.writing.upenn.edu)

The Center for Programs in Contemporary Writing (http://www.writing.upenn.edu) (CPCW) brings together all of Penn’s writing programs, entities, and projects to form a collaborative whole. The Center presents writing courses, workshops and a reading circle. In addition, it offers students an opportunity to perform their writing or to become involved as a tutor, mentor or editorial apprentice.

College Houses and Academic Services (http://www.collegehouses.upenn.edu)

The eleven College Houses bring together undergraduates, faculty, staff, and graduate students to form vibrant residential communities within the larger context of our renowned urban campus, right in the heart of historic Philadelphia.

Each House has a Faculty Director, one or more Fellows, a House Dean, a House Coordinator, a plentiful staff of student Residential Advisors (RAs) and Graduate Associates (GAs), student Information Technology Advisors (ITAs), and many student managers in key positions.

Open to all Penn students, House tutoring sessions in math, chemistry, and economics are free and require no advance sign-up. For more information on tutoring within the Houses, visit: http://www.collegehouses.upenn.edu/life/tutoring.

Communication within the Curriculum (http://www.sas.upenn.edu/cwic)

Communication Within the Curriculum (CWiC)’s (http://www.sas.upenn.edu/cwic) undergraduate speaking advisors help students develop their public speaking skills through workshops and one-on-one advising sessions during walk-in hours. CWiC also offers two critical speaking seminars and a number of affiliate courses.

Penn College Achievement Program (PENNCAP) (http://www.vpul.upenn.edu/eap/penncap)

The Penn College Achievement Program (http://www.vpul.upenn.edu/eap/penncap) works closely with a diverse group of students, many from low-income and/or first-generation (http://www.vpul.upenn.edu/Low-IncomeFirst-GenerationStudents) backgrounds, to support their success at Penn. Among the many services offered are laptop and textbook loans, summer tuition grants, tutoring and advising.

SCUE Preceptorials (http://preceptorials.org/news)

Preceptorials are short, small, non-credit seminars generated by students and led by distinguished faculty, outstanding graduate students, lauded

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external educators and exceptional undergraduate students. The program is designed to foster an interactive and educative environment that values learning for learning’s sake. To that end, there are no grades or tests. Preceptorials are not graded, so that students are given the opportunity to have a guided learning experience outside the traditional setting of a classroom. Most Preceptorials emphasize a hands on approach to learning, and meet once over the course of the semester.

**Tutoring Center** (http://www.vpul.upenn.edu/tutoring)

The Tutoring Center (http://www.vpul.upenn.edu/tutoring) offers Penn undergraduates a wide variety of free, accessible, and convenient options to supplement their academic experience.

**Weingarten Learning Resources Center** (http://www.vpul.upenn.edu/lrc)

The Weingarten Center provides academic support services and programs for undergraduate, graduate, and professional students at the University of Pennsylvania through its two offices. The services and programs of both offices are free and confidential.

**Office of Learning Resources** (http://www.vpul.upenn.edu/lrc/lr)

The Office of Learning Resources (http://www.vpul.upenn.edu/lrc/lr) staff provide a wide range of programming and professional consultation services in university-relevant skills such as reading, writing, study strategies, and time management.

**Student Disabilities Services** (http://www.vpul.upenn.edu/lrc/sds)

Student Disabilities Services (http://www.vpul.upenn.edu/lrc/sds) staff work closely with students who self-identify with disabilities in order to ensure equal access to all University programs, activities and services.

**Libraries**

Penn has a large and service-oriented library system. The combined 15 libraries on campus contain over 4,500,000 volumes, subscribe to more than 33,000 serials, and offer a rapidly growing set of electronic services which can be accessed from home or office, as well as in the libraries.

- Locations and hours (http://www.library.upenn.edu/locations)

**Research**

- For Research Guides by subject, visit: https://guides.library.upenn.edu/hometabs.
- To get help with research, students can submit questions online (http://faq.library.upenn.edu/ask) or make an appointment for in-person assistance (http://faq.library.upenn.edu/widget_standalone.php?la_widget_id=3206).

**Canvas**

Canvas is the online learning management system used at Penn. A valid PennKey is required to login to the system.

- To login to Canvas, visit: https://canvas.upenn.edu.

**Quaker Consortium**

University of Pennsylvania students have a unique opportunity to study at Bryn Mawr, Haverford, or Swarthmore Colleges during the fall and spring terms of the academic year.

**School specific policies:**

- College of Arts and Sciences (https://www.college.upenn.edu/quaker-consortium)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/quaker-consortium)

**Registrar's Office**

The Office of the University Registrar (http://www.upenn.edu/registrar) supports teaching and learning at the University of Pennsylvania by maintaining the integrity of academic policies and the student information system. We are the stewards of Penn’s student records from application to degree conferral in perpetuity.

We provide the following services to Students, Faculty, Alumni, Parents, Staff and many other constituents across our campus:

- Support Students and Departments during Registration
- Reserve Classrooms for Courses and Academic Events
- Schedule Final Exams
- Record and Report Enrollment and Final Grades
- Certify Attendance
- Manage Veterans Affairs Educational Benefits
- Issue Transcripts
- Verify Graduation and Degrees

A transcript is a representation of a student’s academic record while at the University of Pennsylvania.


The University Registrar’s office provides verification of dates a student attended Penn and degrees awarded by the Schools of the University. Details concerning Academic Certification may be found on the University Registrar web page (http://www.upenn.edu/registrar/student-services/academic-certification.html).

**Research**

As one of the world's leading research universities, Penn has a broad array of faculty conducting cutting-edge research in all disciplines. There
are many routes into research involvement for undergraduates, including research-intensive courses, independent study with a faculty member, and summer programs of varying types and foci.

The Center for Undergraduate Research and Fellowships (https://www.curf.upenn.edu/research) is a resource for undergraduates in all traditional programs who are interested in getting involved in research opportunities around campus and around the world. CURF helps Penn undergraduates become involved in research by helping you identify resources, narrow your search, and shape your initial inquiries so you can find appropriate faculty mentors and research funding.

- Penn Undergraduate Research Mentoring Program (https://www.curf.upenn.edu/content/penn-undergraduate-research-mentoring-program)
- Research Opportunity Directory (https://www.curf.upenn.edu/research-opportunity-directory)
- Research Grants (https://www.curf.upenn.edu/research/funding-opportunities)
- Summer Humanities Research Internships (https://www.curf.upenn.edu/summer-humanities-internships)

College of Arts and Sciences
Research reinforces and instills mastery of academic skills: how to formulate a question or hypothesis, how to gather evidence, and how to answer that question or test that hypothesis.

One of the major advantages of being an undergraduate at a research university is the wide variety of opportunities available for scholarship. Research in the College encompasses a range of activities. In some disciplines, such as English, philosophy and history, students read original works, or the primary literature, and look for new connections and interpretations of these writings. In areas such as anthropology or history of art, students study artifacts, works of art or ancient languages, gaining insights on earlier civilizations and the lives of those who contributed to them. Some students do research in biology, chemistry or psychology, seeking insights on genetic coding, molecular structure or animal behaviors.

Sometimes, students may receive College credit for research activities and scholarship, or receive work-study funds or stipends from faculty grants.

For more information, visit: https://www.college.upenn.edu/research/.

School of Engineering and Applied Science
Our extraordinary faculty-to-student ratio provides great opportunities for undergraduate students to work in state-of-the-art research laboratories during the academic year and in the summer. Below are examples of student research, along with helpful information to guide undergraduates toward finding research positions at Penn Engineering.

For more information, visit: http://www.seas.upenn.edu/undergraduate/research/index.php.

Finding a Research Mentor and Research Experiences
Students are encouraged to explore the Penn Engineering Faculty Expertise Directory (http://www.seas.upenn.edu/directory/departments.php), featuring the School’s standing faculty and is searchable by department, research center affiliation, and research expertise keyword. Users can identify which faculty are conducting research in a specific area and contact faculty members whose research interests them.

The Engineering Dean’s Advisory Board (EDAB) puts together a guide for fellow students that gives step-by-step instructions and tips on how to secure research positions as an undergraduate.

For Bioengineering majors, the Penn student chapter of the Biomedical Engineering Society (BMES) has assembled its own student guide on starting up research.

Summer Undergraduate Research in Engineering (SURE)
Penn Engineering’s world-acclaimed faculty, along with state-of-the-art research laboratories and highly interdisciplinary curricula, offers summer research opportunities for talented undergraduates who seek hands-on research experience. From robotics and computer animation, nanotechnology, genomics and biotechnology, Penn’s centers and institutes are at the forefront of research on multiple scientific and technological frontiers.

International Summer Undergraduate Research in Engineering (iSURE)
Opportunities for undergraduates are available during the summer to spend eight to 12 weeks on a research internship in one of Penn Engineering's partner institutions abroad.

Littlejohn Undergraduate Research Program
Thanks to a generous gift by Angus Littlejohn, the School of Engineering is able to offer Summer Research Opportunities to Penn Engineering Students. The program is open to rising, sophomores, juniors and seniors.

The program intends to provide students the opportunity to get involved in hands-on engineering research under the supervision of a faculty member. Topics of research include all areas covered by the departments in the School of Engineering and Applied Science. Students will receive a stipend of $4,500 for a 10 week period.

Rachleff Scholars Program
This program offers Penn Engineering undergraduates the opportunity to gain valuable research experiences with standing faculty and to participate in a community of peers who share a common interest in research and scholarly inquiry.

School of Nursing
The Office of Nursing Research (http://nursing.livewhale.net/research/), along with our four research centers (http://nursing.livewhale.net/research/research-centers) and partnerships across Penn, provide students with resources and support that are virtually unparalleled in our field. Students, from undergraduates to doctoral students, have numerous opportunities to engage in research and work alongside some of the most recognized researchers in their fields.

For more information, visit: https://www.nursing.upenn.edu/research/.

The Wharton School
Research provides an individualized method of learning and an in-depth treatment of a topic of personal interest with input from a faculty expert. Research experience is helpful if applying for distinguished international fellowships and is important if going on to graduate studies.
in an analytical discipline. Research skills are useful for decision-making in the private and public sectors and are required in academic positions. Below you can find a variety of research opportunities and scholarship programs.

- Courses ([https://undergrad-inside.wharton.upenn.edu/research/courses](https://undergrad-inside.wharton.upenn.edu/research/courses))—Create “tools” in a research-methods course.
- Research assistantships ([https://undergrad-inside.wharton.upenn.edu/research/assistantships](https://undergrad-inside.wharton.upenn.edu/research/assistantships))—Learn by executing research-related tasks while working on a project for a faculty member.
- Summer programs ([https://undergrad-inside.wharton.upenn.edu/research/summer-programs](https://undergrad-inside.wharton.upenn.edu/research/summer-programs))—Gain hands-on experience from proposal to presentation through a project commensurate with program duration.
- Scholars programs ([https://undergrad-inside.wharton.upenn.edu/scholars-programs](https://undergrad-inside.wharton.upenn.edu/scholars-programs))—Gain hands-on, in-depth experience from proposal to presentation via a senior thesis and other activities.

For more information, visit: [https://undergrad-inside.wharton.upenn.edu/research/](https://undergrad-inside.wharton.upenn.edu/research/).

### University Policies

- Guidelines for Research in the Community ([http://catalog.upenn.edu/pennbook/guidelines-research-community](http://catalog.upenn.edu/pennbook/guidelines-research-community))
- Guidelines for Student Protection in Sponsored Research Projects ([http://catalog.upenn.edu/pennbook/protection-sponsored-research](http://catalog.upenn.edu/pennbook/protection-sponsored-research))
- Policy on Undergraduate Students, High School Students and Non-affiliates Participating in Research in Penn Research Facilities ([http://catalog.upenn.edu/pennbook/undergraduates-in-research](http://catalog.upenn.edu/pennbook/undergraduates-in-research))
- Procedures Regarding Misconduct in Research for Nonfaculty members of the Research Community ([http://catalog.upenn.edu/pennbook/misconduct-non-faculty](http://catalog.upenn.edu/pennbook/misconduct-non-faculty))

### Scholars Programs

The following programs are available to all undergraduate students.

#### Benjamin Franklin Scholars

The Benjamin Franklin Scholars ([https://www.curf.upenn.edu/bfs](https://www.curf.upenn.edu/bfs)) are one of Penn's most distinctive undergraduate communities.

Each year we welcome a group of extraordinary incoming students, committed to the transformative power of ideas. Benjamin Franklin Scholars are selected based on their interest in, and demonstrated capacity for, a deep engagement in the liberal arts and sciences, both as ends in themselves and as engines of change in the world. With unique course offerings, and under the guidance of extraordinary faculty and advisors, we encourage our students to pursue, in the spirit of Franklin himself, our guiding principles of breadth, curiosity, and a tinkering habit of mind.

We are a home for students who seek the advantages of wide-ranging knowledge, whatever particular educational path they choose. We look for spirited, independent people who find their own passions and are predisposed to explore their own ideas, wherever they might lead. We welcome restless minds who are not content just to appreciate great ideas as abstractions up on a shelf, but who see them as transformative; changing minds and so changing the world. We are a community of students and faculty who find value in the saying of the great classical writer Plutarch, from whom Franklin himself claims to have “read abundantly” and see a truly great education as a kind of playing with fire.

BFS welcomes students in all the undergraduate schools: The College, Engineering, Wharton, and Nursing. Parts of the program, including admissions, work a bit differently in the different schools. For all our scholars, the BFS experience includes opportunities for overseas internships, a presentation of research to the BFS community, and our Seminars – a set of enriching opportunities to work on challenging topics, without requiring extensive prerequisites, both inside and outside of their major fields of study.

#### University Scholars

The University Scholars program ([https://www.curf.upenn.edu/university-scholars](https://www.curf.upenn.edu/university-scholars)) provides an exceptional academic environment for intellectually dynamic students who have already demonstrated their commitment and dedication to research.

Through mentoring, research funding and scholarly events the program encourages and supports students to make the most of their undergraduate years, not only with in-depth research, but also by making an early start in graduate and professional courses, ranging widely or in some cases focusing narrowly on their curricular choices.

The focus of the University Scholars program is undergraduate research. In order to aid students in doing creative and in-depth research, the University Scholars has a fund with which to help students defray research expenses. Funding is meant to cover the expense of the research itself; this most often pertains to room and board costs over the summer months. Occasionally, students’ research will take them away from Penn. In those instances, the University Scholars program may be able to fund travel expenses as well.

#### Civic Scholars

Penn Civic Scholars ([http://www.vpul.upenn.edu/civichouse/civicscholars](http://www.vpul.upenn.edu/civichouse/civicscholars)) is a unique program providing undergraduates with a sustained four-year experience in civic engagement and scholarship. The program culminates in certification upon graduation and designation as a Civic Scholar on the student’s transcript.

The Civic Scholars program is based on a few basic principles:

- Civic engagement and academic work are mutually reinforcing.
- Meaningful and sustained involvement in community affairs while at Penn is the base for lifelong civic commitments and contributions.
- Undergraduates can conduct significant applied social and public policy research through a multi-year preparatory process.
- Forming a community of dedicated students and faculty will encourage distinctive civic service and scholarship.

The following programs are available to students in a particular school.
College of Arts and Sciences
Integrated Studies Program
The Integrated Studies Program (ISP) is the freshman curriculum for Benjamin Franklin Scholars pursuing degrees in the College of Arts and Sciences. Deeply rooted in the liberal arts tradition of acquiring and applying expansive knowledge, this residential academic program invites highly-motivated students to examine complex themes through the integration of multiple academic disciplines and methodologies.

Students are guided through the semester by some of Penn’s leading faculty. By investigating the same ideas under three distinct lenses, drawing simultaneously from the humanities, social sciences and sciences, students sharpen their focus on the similarities—and differences—between the disciplines’ habits of mind.

School of Engineering and Applied Science
Rachleff Scholars
The School Of Engineering and Applied Science is pleased to announce the Rachleff Scholars Program. The Program offers Penn Engineering undergraduates the opportunity to gain valuable research experiences with standing faculty and to participate in a community of peers who share a common interest in research and scholarly inquiry.

The Rachleff Scholars Program is open to rising sophomores with at least a 3.4 Cumulative GPA and strong interests in engineering research. Each student accepted into the Rachleff Program is required to complete work in three separate areas: summer research experience, honors coursework, and scholarly community activities.

School of Nursing
Benjamin Franklin Scholar- Nursing
As a Benjamin Franklin Scholar - Nursing, you will engage in an intensive academic experience, along with peers in the College of Arts and Sciences, the Wharton School and in the School of Engineering and Applied Science, to complete the undergraduate Nursing major with an intensive liberal arts component. In addition to a variety of campus-wide programs as part of BFS, you will be able to enroll in the justly famed BFS Seminars – course taught by expert faculty from across campus in a variety of topics.

The Wharton School
Joseph Wharton Scholars
Founded in 1988, the Joseph Wharton Scholars (jws) program is designed to emphasize the importance of scholarly research and the liberal arts and sciences within the framework of a business education. Students in the program are required to take scholars courses both in Wharton and outside of Wharton (in the College of Arts & Sciences, Nursing, and/or Engineering), engage in a significant research project, and participate in a variety of academic, career-oriented, and social activities.

The JWS program is the Wharton component of the Penn-wide Benjamin Franklin Scholars (bfs) program, through which students gain access to BFS Seminars. In addition to the course requirements, students must maintain a minimum 3.4 GPA.

Joseph Wharton Scholar students must take three non-Wharton BFS Seminars as well as four Wharton honors courses (which may include Wharton BFS Seminars). The Wharton courses include honors sections of BEPP 250, FNCE 100, FNCE 101, MKTG 101, MGMT 101, MKTG/STAT 476, STAT 430, STAT 431, WH 399; and the Wharton BFS Seminars: LGST 101, LGST 210, and LGST 215. All JWS students must take WH150x — Evaluating Evidence as one of their four honors classes in Wharton.

Public Policy Research Scholars
The Public Policy Research Scholars (PPRS) offers a unique opportunity for students to study and explore public policy.

PPRS is an interdisciplinary certificate program intended for undergraduates with a background in economics, who want to explore the impact of U.S. public policy on the domestic economy.

The PPRS program is not a major. Instead, it offers a supplemental course of study, focusing on the quantitative analysis of public policy at the federal level, that can be pursued alongside any major, in any of Penn’s undergraduate schools. Beyond the curriculum, students also are required to do at least one public policy summer internship, for which they will receive funding from the Penn Wharton Public Policy Initiative. They also will have opportunities to assist with faculty-led policy research on campus. Through PPRS, we aim to create a tight-knit cohort of undergraduates from across the University who are committed to gaining the skills and experience necessary to critically assess U.S. public policy, as well as to prepare for graduate study and career opportunities in the field.

The core skills at the heart of PPRS include:

- Economic and political analysis of public policy, for assessing why, how, and with what degree of success the government designs and implements policy.
- Statistical thinking and quantitative analysis of economic data.
- Knowledge of the policymaking process.
- The application of theoretical and quantitative tools to practical, real-life policy questions.

Students that complete the program will have the designation “Public Policy Research Scholar” noted as an honor on their transcripts and will receive a certificate upon graduation.

Wharton Research Scholars
Wharton Research Scholars (wr) is an intensive one-year research program for a select group of students who are interested in conducting research under the supervision of some of Wharton’s preeminent faculty members. As part of the program, participants complete an honors thesis.

Students apply to work on a specific project they propose in consultation with a Wharton faculty member who agrees to act as their faculty mentor. Students are allowed to have more than one faculty mentor provided at least one is a member of the Wharton faculty.

Throughout the year, students convene to discuss progress, strategies, and challenges within their projects. This interaction fosters a strong
Submatriculation

Penn offers students many opportunities to begin a graduate program while completing an undergraduate degree. Students may apply for admission as submatriculants to a variety of the University's graduate and professional areas of study. Submatriculation programs exist in the four undergraduate schools and in several of Penn's graduate schools.

Application for admission as a submatriculant is made within the regular deadlines and processes for application to the graduate program of interest, usually during the student's junior year. Prior to applying for admission as a submatriculant, a student should meet with an academic advisor in both the undergraduate school and in the intended graduate program.

Policies, options, and procedures for submatriculation vary depending on a student's undergraduate school:

- College of Arts and Sciences (https://www.college.upenn.edu/submatriculation)
- School of Engineering and Applied Science (http://www.seas.upenn.edu/undergraduate/degrees/submatriculation.php)
- School of Nursing (https://www.nursing.upenn.edu/academics/a-penn-nursing-education/submatriculation)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/submatriculation)

For more information about interdisciplinary submatriculation opportunities, click here (p. 239).

School of Arts and Sciences

For a list of School of Arts and Sciences departments that consider submatriculation applications, visit: https://www.college.upenn.edu/submatriculation/.

In addition to submatriculating within a department, College undergraduate students are also eligible for the following specialized submatriculation programs:

BA/JD Program in Arts & Sciences and Law

This rigorous program offers an opportunity for highly qualified and motivated College students to apply to Penn Law School during what is generally the first semester of a student’s junior year (between 16 and 23.99 c.u.). If accepted, the student will submatriculate into the J.D. program in their senior year. Applicants must be committed to the study of law in its theoretical and practical aspects.

For more information, visit: https://www.college.upenn.edu/submatriculation.

Bio-Dental Program

Bio-Dental submatriculation is a seven-year joint program of the College and Penn's School of Dental Medicine for students who will major in Biology and who wish to enroll in the Dental School during their senior year in the College. Application to the program must be made at the time of application to Penn. Applicants will be notified of their conditional acceptance into the program when they are notified of their admission to Penn. Full acceptance into the program is made after the student's junior year and is based on academic performance during those three years and meeting the admissions standards of the Dental School.

For more information, visit: http://www.bio.upenn.edu/https%3A/%252Fwww.bio.upenn.edu/accelerated-dental-program.

Roy and Diana Vagelos Program in Molecular Life Sciences

Ambitious and highly motivated students interested in the molecular view of life should consider the Vagelos Scholars Program in Molecular Life Sciences. Students begin as freshmen and major in two sciences or submatriculate for a Master of Science degree in the standard four years. Students in this program plan to pursue scientific research careers. Scholars are invited from the admitted pool of high school seniors at the beginning of April at the discretion of the faculty director and the admissions committee.

For more information, visit: http://www.sas.upenn.edu/biochem/vspmls.html.

School of Engineering and Applied Sciences

- Both BSE and BAS degree students in Penn Engineering may apply for submatriculation into engineering master’s programs. (Note that Engineering students are not permitted to submatriculate into the Master of Computer and Information Technology (MCIT) program.)
- Qualified undergraduates in Penn’s other schools may apply to submatriculate into any of the Penn Engineering master’s degree programs, subject to their home school’s rules and regulations.

In addition to submatriculating within a department, Engineering undergraduate students are also eligible for the following specialized submatriculation program:

Penn Engineering/Penn Law Program

Penn’s Law School offers an opportunity for qualified juniors in Penn Engineering to apply early to the Law School and submatriculate into the JD program beginning their fourth year. The program is designed as a 3-year + 3-year accelerated program for highly qualified Engineering undergraduates either in the Bachelor of Applied Science (BAS) or Bachelor of Science in Engineering (BSE) degree programs.

For more information, visit: http://www.seas.upenn.edu/undergraduate/degrees/submatriculation-law.php.

School of Nursing

Nursing undergraduate students are eligible for the following specialized submatriculation programs:

BSN/JD Program

Submatriculation allows students in traditional and accelerated BSN programs to formally enroll in the JD program (https://www.law.upenn.edu/academics/degrees.php) at Penn Law School while still undergraduates. The current climate of healthcare litigation and malpractice suits is well suited for professionals who combine nursing education and experience with legal expertise. A background in both nursing and law gives students a powerful and marketable skillset,
and prepares students to make an impact on the medical and legal professions.

To submatriculate into Penn Law, students should take the LSAT and apply (https://www.law.upenn.edu/admissions/jd) during their junior year. If a student is admitted, they will begin taking courses at the law school during their fourth year, completing both the BSN and JD degrees in six years, instead of the usual seven.

For more information, visit https://www.nursing.upenn.edu/live/files/56-submatriculation-law2015.

**BSN/MSN Program**

The demand for nurses with MSN degrees is higher than ever. Submatriculation allows students in traditional and accelerated BSN programs to formally enroll in one of Penn Nursing's MSN Programs (https://www.nursing.upenn.edu/academics/master-of-science-in-nursing-msn) while still undergraduates. Students are encouraged to apply (https://www.applyweb.com/upenng) as early as their junior year. If accepted, students will begin to take master's level coursework, earning credit toward both degrees.

For more information, visit: https://www.nursing.upenn.edu/live/files/55-submatriculation-msn2016.

**The Wharton School**

Wharton undergraduate students are eligible for the following specialized submatriculation programs:

**Wharton Law School Submatriculation Program**

During the junior year, qualified Wharton undergraduate students may apply for admission to the Penn Law School and submatriculate into the Juris Doctor (JD) program. In this 3-year + 3-year accelerated program, the student's fourth year of study is spent entirely at the Law School completing the first-year law curriculum. The remaining undergraduate and/or graduate degree requirements are then completed in the student's fifth and sixth years of study.

For more information, visit: https://undergrad-inside.wharton.upenn.edu/submatriculation/.

**Wharton MBA Submatriculation Program**

Qualified juniors in the Wharton Undergraduate Program may apply for early entry (submatriculation) into the Wharton Master of Business Administration (MBA) Program. In this 3-year + 2-year accelerated program, students' fourth and fifth years of study are spent entirely as part of the MBA Program. The program is designed to attract academically talented undergraduates with well-defined career goals and significant work experience. Students apply in the junior year.

For more information, visit: https://undergrad-inside.wharton.upenn.edu/submatriculation/.

**Wharton PhD Submatriculation Program**

The goal of the program is to allow selected Wharton undergraduates the opportunity to submatriculate into one of Wharton's Ph.D. programs directly from the undergraduate program.

For more information, visit https://doctoral-inside.wharton.upenn.edu/submatriculation/.

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**Summer Sessions**

Penn Summer (http://www.sas.upenn.edu/summer) offers a wide variety of summer programs to current Penn students, with more than 300 classes available during the day or evening.

Current Penn students are encouraged to take advantage of advising resources during the summer term in the same manner as during the fall and spring. Before enrolling in summer courses, students should consult with their academic advisor (p. 246) regarding their intended coursework to ensure adequate degree progress.

**Penn Summer On-Campus**

There are three academic sessions during Penn Summer On-Campus (http://www.sas.upenn.edu/summer/programs/on-campus), and more than 300 courses are offered from academic departments across the university. Flexible day and evening classes are offered to fit students' schedule and needs.

For more information, visit: http://www.sas.upenn.edu/summer/programs/on-campus.

**Penn Summer Online**

Not going to be in Philadelphia this summer? Consider taking one of Penn's Summer Online (http://www.sas.upenn.edu/summer/programs/online) courses. Online courses allow students to earn credit as they participate in real-time with their Penn instructor and peers while having 24/7 access to their virtual learning materials.

For more information, visit: http://www.sas.upenn.edu/summer/programs/online.

**Penn Summer Abroad**

Students can earn Penn credit as they experience culture in another country with Penn Summer Abroad (http://www.sas.upenn.edu/summer/programs/abroad). Students travel with Penn faculty and other undergraduates with accommodations and excursions planned for them, enjoying the flexibility of a short-term commitment and making the most of their summer break.

For more information, visit: http://www.sas.upenn.edu/summer/programs/abroad.

**Transcripts**

A transcript is a representation of a student's academic record while at the University of Pennsylvania.

Official transcripts are ordered through the Office of the University Registrar website (http://www.upenn.edu/registrar/student-services/transcripts.html). Unofficial transcripts are available at anytime, online for students and alumni class of 1988 or later via the Penn in Touch portal (https://pennintouch.apps.upenn.edu/pennInTouch/jsp/fast2.do).

**Wellness**

There are a wide variety of resources available to support students at Penn. Some of the most commonly used resources are listed below.
Wellness at Penn (https://www.wellnessatpenn.com)

The Wellness at Penn initiative provides support, resources, and practical tools for wellness across the Penn community. It affirms wellness as a core priority and necessary driver of life on campus; and it offers a wide range of opportunities to reflect and engage on issues of wellness, stress, mental health, resilience, happiness, personal and academic goals, and the meaning of success.

Peer Community Wellness Guide (https://static1.squarespace.com/static/5a430cd518b27d357e661824/t/5a432e0bc830257df7b8df49/1514352139961/NEW-Wellness+Guide-Aug11.pdf)

The Penn Peer Community Wellness Guide (https://static1.squarespace.com/static/5a430cd518b27d357e661824/t/5a432e0bc830257df7b8df49/1514352139961/NEW-Wellness+Guide-Aug11.pdf) was developed by Penn Wellness, the Penn Undergraduate Health Coalition, the Vice Provost for University Life, and the Undergraduate Assembly.

Counseling and Psychological Services (CAPS) (http://www.vpul.upenn.edu/caps)

215-898-7021 (Nights and weekends, ask for CAPS counselor on call.)

Counseling and Psychological Services (CAPS) provides professional psychological and psychiatric services to undergraduate, graduate, and professional students who need support in fulfilling their academic, social, and personal objectives. Along with health and wellness partners throughout the Penn community, CAPS directly supports student mental health through counseling, crisis management, consultation, education and outreach, and training.

Division of Public Safety (https://www.publicsafety.upenn.edu)


A central source for information about police, fire, and emergency services, security services, including walking escorts, and special victim services. Public safety also manages the University’s extensive electronic security infrastructure.

Student Disabilities Services (http://www.vpul.upenn.edu/lrc/sds)

(215) 573-9235; TDD: (215) 746-6320

The Office of Student Disabilities Services (SDS), part of the Weingarten Learning Resources Center (http://www.vpul.upenn.edu/lrc), provides comprehensive, professional services and programs for students who self-identify with disabilities to ensure equal academic opportunities and participation in University-sponsored programs. Professional staff evaluate current documentation, determine individual students’ eligibility according to program guidelines, and determine reasonable accommodations for all qualified students with documented disabilities on a case-by-case basis, including academic adjustments, e-text, accessible campus housing, and transportation and parking. SDS also coordinates auxiliary aids and services such as sign language interpreters and Computer Aided Realtime Translation (CART) reporters, as well as the loan of equipment and assistive technologies.

Student Health Service (http://www.vpul.upenn.edu/shs)

215-746-3535

Student Health Service is a state-of-the-art primary care center dedicated to the health and well-being of Penn students. Student Health provides accessible, cost-effective, culturally-sensitive, and student-focused healthcare, including care for acute and chronic health problems, preventive health services, and health and wellness education. The Health Service works in close collaboration with our partners in the University of Pennsylvania Health System (http://www.pennmedicine.org) to help ensure the health and wellness of the campus community.

Student Intervention Services (http://www.vpul.upenn.edu/intervention.php)

215-898-6081

Penn Student Intervention Services (SIS) assists the University community in handling emergencies or critical incidents involving the welfare and safety of students.

Office of the Chaplain (https://chaplain.upenn.edu)

215-898-8456

The staff of the Office of the Chaplain (https://chaplain.upenn.edu/about-us/staff) is available to students, faculty and staff for pastoral support, guidance, or informal advising and counseling. The Chaplain, an ordained clergy person, participates in campus ceremonies such as Convocation, Baccalaureate and Commencement and also officiates at weddings (https://chaplain.upenn.edu/about-us/weddings-blessings) and campus memorial services. The office serves and supports a wide range of student organizations (https://chaplain.upenn.edu/student-organizations), fellowships and religious communities on our campus. They also develop programming designed to improve interfaith understanding and build meaningful, collaborative relationships across religious difference.

Campus Health (http://www.vpul.upenn.edu/shs/campushealth)

Part of Student Health Service, Campus Health (https://www.vpul.upenn.edu/shs/campushealth) seeks to empower the Penn community to Live Well through advocacy, education, and action. Campus Health staff focus on a wide variety of healthy living topics including sleep, hygiene, stress reduction, nutrition, exercise, tobacco-free lifestyles and bike safety. Key initiatives include annual flu immunization clinics, which vaccinate more than 2,000 people, and yearlong sexual wellness education through events such as "Sex Camp" and "Sex Jeopardy."
Alcohol and Other Drug Program Initiatives (http://www.vpul.upenn.edu/alcohol)

The Office of Alcohol and Other Drug Program Initiatives oversees critical areas of health and wellness that can challenge the academic success of Penn students. The office comprises alcohol policy initiatives, violence prevention, data collection, strategic project management, and (in a collaboration with Student Intervention Services (http://www.vpul.upenn.edu/intervention.php)) proactive crisis management.
POLICIES AND PROCEDURES

The following policies and procedures relate to undergraduate academics at Penn, and are organized by topic.

Most academic policies and procedures at Penn are school-based. University policies (http://catalog.upenn.edu/pennbook) are also often administered through the schools. Students should consult with their school or program academic advisors (p. 246) with questions or for help in understanding academic policies and procedures.

- Course and Exam-Related Policies (p. 260)
- Grade and GPA-Related Policies (p. 263)
- Graduation Policies (p. 264)
- Leaves of Absence (p. 265)
- Residency Requirement (p. 265)
- Transfer Policies (p. 265)

Course and Exam-Related Policies

Students should consult with their academic advisors (p. 246) about course and course-related policies and procedures.

- Add/Drop Period (p. 260)
- Auditing (p. 260)
- Class Attendance (p. 260)
- Course Load (p. 260)
- Course Numbering & Academic Credit (p. 260)
- External Exam Credit (p. 261)
- Independent Study (p. 261)
- Liberal and Professional Studies Course Credit (p. 261)
- Part Time Status (p. 262)
- Petitions (p. 262)
- Policy on Common Midterm Examinations (p. 262)
- Retaking Courses (p. 262)
- Rules Governing Final Examinations (p. 262)
- Withdrawing From A Course (p. 263)

Add/Drop Period

Courses may be added only during the first two weeks of each semester; course may be dropped through the fifth week of the semester. Students should consult with their advisors before dropping below a defined number of course units (generally 4), which may have adverse consequences.

Some courses may have different add/drop policies; students should consult with their school's advising office for further details.

Add/drop deadlines for each semester can be found in the Academic Calendar (p. 243).

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/registration-process)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/courses-exam-related-policies/#drop/add)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/course-selection)

Auditing

Undergraduate students cannot officially audit courses; however, subject to the approval of the instructor, students may be permitted to sit in on some courses without registering. These courses will not appear on students' records. Not all departments or schools allow this type of informal audit.

Class Attendance

Policies regarding class attendance vary by school and instructor.

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/attendance)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/courses-exam-related-policies/#attendance)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/attendance)

Course Load

Policies regarding minimum and maximum course loads vary by school.

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/course-load)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/courses-exam-related-policies/#course%20load)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/course-load)

Course Numbering & Academic Credit

Course Numbering

Courses are designated with a subject code and course number. The number assigned to a course generally denotes its level and may also indicate a course type.

- 1-399 Undergraduate courses
- 400-499 Mixed courses primarily for Undergraduate students
- 500-599 Mixed courses primarily for Graduate students
- 600-989 Graduate courses
• 990-999 Graduate individual study (thesis/dissertation) courses

**Academic Credit at Penn**

All of Penn's undergraduate programs and many of its graduate and professional programs use course units (CUs) as a general measure of academic work and progress toward a degree. Penn's use of CUs conforms to the practices of peer institutions that use a similar system of academic credit including Brown, Duke, Harvard, Princeton, and Yale. A CU is a general measure of academic work over a period of time, typically a term (semester or summer).

The Schools of Law, Dental Medicine, and Veterinary Medicine do not use CUs. The Law School uses credit hours in a way that is consistent with law schools in the United States. The Schools of Dental Medicine and Veterinary Medicine uses credit hours in ways that are consistent with professional education in those fields of study.

**Definition of a Course Unit**

A course unit (CU) is a general measure of academic work over a period of time, typically a term (semester or summer). A CU (or a fraction of a CU) represents different types of academic work across different types of academic programs and is the basic unit of progress toward a degree. One CU is usually converted to a four-semester-hour course. A degree from one of Penn's undergraduate programs requires the completion of 32 to 40 (or more) course units. Graduate and professional degrees vary in the number of years of study and the number of CUs required.

**Assignment of Academic Credit**

The course unit (CU) value of a course determined by the faculty reflects their judgment regarding the expected work of a student completing that course. Factors that may be considered when assigning academic credit for a course include scheduled class time, expected time outside of class, the difficulty and range of materials covered, and the mastery of specific knowledge through written reports, exams, and other evaluations.

The assignment of academic credit for a course is formally approved by the curriculum committee (or similar body) of the school when a course is first proposed. It is reviewed formally by the faculty of a program, department, or school through periodic program reviews or curriculum revisions. Additionally, it is reviewed by the faculty of a program, department, or school informally as part of ongoing assessments of curriculum and teaching effectiveness.

**Transfer Credit**

At the University of Pennsylvania, faculty in individual departments and schools make decisions about awarding credit for external courses (courses taken at a college or university other than Penn). Each school has policies and procedures for evaluating and awarding external credit. Judging both course content and student work, faculty determine whether external courses are equivalent to courses offered through their own departments and thus what credit, if any, to award. In awarding credit at Penn for external courses, faculty also determine how those credits may be used (e.g., whether they satisfy general education requirements or requirements in a major).

Undergraduate schools use a web-based, password protected application called the External Course Approval Tool, or (http://www.college.upenn.edu/xcat) XCAT (http://www.college.upenn.edu/xcat). When academic credit is awarded for courses taken at other institutions, typically courses worth 3, 4, or 5 semester hours or worth 5 quarter hours are awarded one course unit (CU) at Penn.

**External Exam Credit**

The University of Pennsylvania may award credit or advanced course standing to students who have taken Advanced Placement (AP), International Baccalaureate (IB), or other internationally-recognized examinations. Scores warranting University credit vary by department.

Penn Admissions External Exam Credit Policy (http://www.admissions.upenn.edu/apply/freshman-admission/externalexamcredit) (for prospective students)

**School specific policies:**

• College of Arts and Sciences (https://www.college.upenn.edu/placement)
• School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/courses-exam-related-policies/#AP%20Policies)
• The Wharton School (https://undergrad-inside.wharton.upenn.edu/apib-credit)

**Independent Study**

Independent study allows students to pursue academic interests not available in regularly offered courses.

Students should approach their academic or departmental advisor to explore the possibility of pursuing independent study.

Further information about independent study procedures is available by school.

• College of Arts and Sciences (https://www.college.upenn.edu/research)
• School of Engineering and Applied Science (https://www.seas.upenn.edu/undergraduate/pdf/ug-appl-for-indep-study.pdf)
• School of Nursing (http://www.nursing.upenn.edu/live/files/157-independent-study-form-pdf)
• The Wharton School (https://undergrad-inside.wharton.upenn.edu/independent-study)

**Liberal and Professional Studies Course Credit**

The College of Liberal and Professional Studies (LPS) (http://www.sas.upenn.edu/lps) is a division of the School of Arts and Sciences. LPS administers programs for adult, professional, and part-time students and offers late-afternoon, evening, and Saturday courses at the undergraduate, post-baccalaureate, and graduate levels. Traditional undergraduate students are eligible to take LPS courses. A certain number of spaces may be reserved for LPS students until the first week of classes, and some classes have restricted enrollments for LPS students only. Students should direct questions about enrollment policies and permits for specific LPS classes to LPS (http://www.sas.upenn.edu/lps).
Part Time Status

Traditional undergraduate students are generally expected to maintain full-time status. Students should consult with their school advising office for further details.

Please note that dropping to part-time status may affect other considerations, such as visa status, athletic eligibility, financial aid, and/or insurance coverage.

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/part-time-policy)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/courses-exam-related-policies/#course%20policy)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/part-time-policy)

Petitions

Students who believe a special circumstance might warrant an exemption from a school policy and/or requirement may submit a petition. Petitions are subject to review by a school-based committee. Students should first consult with their academic advisor.

Policies and procedures regarding petitions vary by school.

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/petitions)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/academic-regulations/#petition)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/petitions)

Policy on Common Midterm Examinations

Instructors teaching a course with multiple sections who plan to schedule a common midterm examination outside the class’s regular meeting time must notify students of this event during the first week of the semester and be prepared to offer one or more make-up examinations to accommodate any student who is enrolled in a course that meets at the time of the common examination.

Students enrolled in a course that conflicts with the time of a common midterm examination must notify the instructor administering the common midterm examination of the conflict by the end of the course selection (add) period. Students may not be required to miss their regularly scheduled class.

Rules Governing Final Examinations

1. No instructor may hold a final examination nor require the submission of a take-home final exam except during the period in which final examinations are scheduled. When necessary, exceptions to this policy may be granted for postponed examinations (see 3 and 4 below). No final examinations may be scheduled during the last week of classes or on reading days.

2. No student may be required to take more than two final examinations on any calendar day during the period in which final examinations are scheduled. If more than two are scheduled, the student may postpone the middle exam. If a take-home final exam is due on a day when two final examinations are scheduled, the take-home exam shall be postponed by one day.

3. Examinations that are postponed because of conflicts with other examinations, or because more than two examinations are scheduled in the same day, may be taken at another time during the final examinations period if the faculty member and student can agree on that time. Otherwise, they must be taken during the official period for postponed examinations.

4. Examinations that are postponed because of illness, a death in the family, for religious observance, or some other unusual event may be taken only during the official periods: the first week of the spring and fall semesters. Students must obtain permission from their Dean's office to take a postponed exam. Instructors in all courses must be willing to offer a make-up examination to all students who are excused from the final examination.

5. No instructor may change the time or date of a final exam without permission from the appropriate Dean.

6. No instructor may increase the time allowed for a final exam beyond the scheduled two hours without permission from the appropriate Dean.

7. No classes or required class activities may be held during the reading period.

8. The first examination of the day begins at 9 a.m. and the last examination concludes by 8 p.m. There will be one hour between exam time blocks.

9. All students must be allowed to see their final examination. Exams should be available as soon as possible after being graded with access ensured for a period of at least one regular semester after

(Source: Almanac – April 20, 2010, Volume 56, No. 30 (http://www.upenn.edu/almanac/volumes/v56/n30/provost.html))
the exam has been given. To help protect student privacy, a student should have access only to his or her own exam and not the exams of other students. Therefore, for example, it is not permissible to leave student exams (or grades or papers) in publicly accessible areas.

10. Students may not be asked for their Social Security Numbers. Instructors may not publicly display a student’s Penn ID or any portion of the Social Security Number, nor use names, initials, or any personally identifiable information to post grades. Even when an identifier is masked or absent, grades may not be posted in alphabetical order, to protect student privacy.

11. Final exams for College of Liberal and Professional Studies (LPS) courses must be given on the regular class meeting night during the week of final examinations. No change in scheduling is permitted without unanimous consent of all students in the class and the director of LPS. LPS final exams may not be administered during the last week of class or on a reading day.

In all matters relating to final exams, students with questions should first consult with their Dean’s offices. Faculty wishing to seek exceptions to the rules also should consult with their Dean’s offices. Finally, the Council of Undergraduate Deans and Student Committee on Undergraduate Education (SCUE) urge instructors to see that all examinations are actively proctored.

(Source: Almanac, April 17, 2018, Volume 64, No. 31 (https://almanac.upenn.edu/volume-64-number-31/#of-record-rules-governing-final-examinations1))

**Withdrawing From a Course**

Students may withdraw from a course through the end of the tenth full week of the semester, with the permission of the instructor, and should consult the Academic Calendar (p. 243) for the official withdrawal deadline for each semester.

Summer courses and part-of-term courses have different deadlines. Consult with an academic advisor for more information.

Withdrawal procedures vary by school:

- College of Arts and Sciences (https://www.college.upenn.edu/withdrawal)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/courses-exam-related-policies/#withdraw)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/withdraw)

**Grade and GPA-Related Policies**

Students should consult with their academic advisors (p. 246) about grading and GPA-related policies and procedures.

- Academic Standing (p. 263)
- Dean’s List (p. 263)
- Grade Grievance Process (p. 263)
- Grades (p. 264)
- Incomplete Grades (p. 264)
- Pass/Fail (p. 264)

**Academic Standing**

The University of Pennsylvania expects students to maintain a minimum level of academic performance or risk being placed on Academic Probation. The requirements for good academic standing vary by school; students enrolled in more than one undergraduate school are subject to the academic standing policies of both schools.

The requirements for good academic standing are:

- College of Arts and Sciences (https://www.college.upenn.edu/academic-standing)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/academic-regulations/#Academic%20Standing)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/academic-standing)

**Dean’s List**

The Dean’s List citation appears on the transcript and is awarded annually to any student who achieves a combined GPA of 3.7 for the fall and spring semesters, provided that during those two semesters, he or she has:

- Completed 6 or more credit units for letter grades
- Received no grades lower than C
- Completed all courses on time with no Incompletes, NRs, or GRs

A student who has received a sanction of probation or greater for a violation of the Code of Academic Integrity, the Code of Student Conduct, or the Sexual Violence, Relationship Violence, and Stalking Policy is not eligible for Dean’s List in the academic year in which the violation occurred. The Dean’s List citation will be removed from the transcript if the finding occurs after this honor has been posted or if the violation occurs during the summer term following the academic year in which this honor was awarded.

(Source: Almanac – April 20, 2010, Volume 56, No. 30 (http://www.upenn.edu/almanac/volumes/v56/n30/provost.html), updated May 3, 2016, Volume 62, No. 33 (http://www.upenn.edu/almanac/volumes/v62/n33/changes-to-policies.html))

**Grade Grievance Process**

Students who wish to have a course grade reviewed must first attempt to resolve the issue with the course instructor. For detailed policies and procedures, students should refer to the policies of the school in which the course was taken.

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/grade-review-policy)
- School of Engineering and Applied Science
  - Students are advised to discuss the grading discrepancy/grievance directly with the course director/instructor. If the
Grades

The grade point average (GPA) is calculated at the end of every term based on the following grading scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*There is no D-. Policies regarding grades vary by school.

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/credits-grades-policy)
- School of Engineering and Applied Science (http://www.seas.upenn.edu/undergraduate/handbook/policy/grades.php)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/academic-regulations/#incompletes)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/incomplete)

Pass/Fail

Students may be eligible to take certain courses pass/fail. Policies regarding pass/fail options vary by school and course.

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/pass-fail)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/courses-exam-related-policies/#pass/fail)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/pass-fail)

Graduation Policies

Students should consult with their academic advisors (p. 246) about graduation requirements, Latin honors, and the procedures for applying for graduation and participating in graduation ceremonies.

- Graduation Honors (p. 264)
- Graduation Requirements (p. 265)
- Maximum Time to Complete a Degree (p. 265)

Graduation Honors

In recognition of distinguished academic achievement and high standards of academic integrity, the University of Pennsylvania awards Latin honors to undergraduate students based on the cumulative GPA on their transcripts at the time of graduation:

- Summa Cum Laude: 3.80 or higher
- Magna Cum Laude: 3.60 or higher, but less than 3.80
- Cum Laude: 3.40 or higher, but less than 3.60

A student who has received a sanction of probation or greater for a violation of the Code of Academic Integrity, the Code of Student Conduct, or the Sexual Violence, Relationship Violence, and Stalking Policy is not eligible for Latin honors. Notation of Graduation Honors will be removed from the transcript if the finding occurs after this honor has been posted.

(Source: Almanac, April 20, 2010, Volume 56, No. 30 (http://www.upenn.edu/almanac/volumes/v56/n30/provost.html), updated May 3, 2016, Volume 62, No. 33 (http://www.upenn.edu/almanac/volumes/v62/n33/changes-to-policies.html))
Graduation Requirements

Students are responsible for fulfilling all the requirements of their curriculum as determined by their school in order to graduate.

School specific policies:

- College of Arts and Sciences (https://www.college.upenn.edu/graduation-policies)
- School of Engineering and Applied Science (http://www.seas.upenn.edu/undergraduate/handbook/policy/course-requirements.php)
  - Students must complete all courses within their major, as addressed individually by each department.
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/graduation-academic-honors/#graduation%20requirements)
  - The Wharton School (https://undergrad-inside.wharton.upenn.edu/degree-requirements)

Maximum Time to Complete a Degree

Some schools set a maximum period within which students must complete their degree. Students with questions should contact their school advising office.

School specific policies:

- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/academic-regulations/#completion)
  - The Wharton School (https://undergrad-inside.wharton.upenn.edu/sunset-policy)

Leaves of Absence

Students take time away from their studies for a wide variety of reasons, including to:

- Work on a political campaign
- Manage a medical concern
- Fulfill a family obligation
- Pursue career-related opportunities
- Complete military service
- Take a break

Students typically take a leave for a full academic year. Individual circumstances may require more or less time; the length of the leave is determined by the school. Students on leave should remain in contact with their advisor and update them about plan changes. The return from leave process supports students in a successful re-entry to academic life at Penn. When preparing to return, students must consult their school advising office to develop a plan that includes connection with appropriate resources.

While interrupting one’s studies to take time away may seem intimidating, a leave is a means to the successful completion of a degree, not a barrier to graduating. Students considering a leave should take time to think carefully about their goals for the time away and for when they return.

Speaking with an academic advisor is an important first step. Students should also consult others important to their decision-making process, such as family members or, if the student intends to address health concerns during the time away, their healthcare provider(s). Your school advising office will help you connect with other campus resources as you prepare to take a leave of absence, such as Student Financial Services, Housing, and International Student and Scholar Services.

Procedures for requesting a leave vary by school.

School specific policies

- School of Arts and Sciences (https://www.college.upenn.edu/leave-of-absence)
- School of Nursing (https://www.nursing.upenn.edu/live/files/216-leave-of-absence-policy)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/leave)

Residency Requirement

Residency requirement policies vary by school.

School specific policies:

- School of Arts and Sciences (https://www.college.upenn.edu/residency-requirement)
- School of Nursing (http://www.nursing.upenn.edu/student-services/resources/handbooks-forms-policies/bsn-handbook/academic-regulations/#residency)
- The Wharton School (https://undergrad-inside.wharton.upenn.edu/transfer-residency)

Transfer Policies

Students should consult their academic advisors (p. 246) about transferring within Penn or receiving credit for academic experiences at other universities. Students who are intending to transfer to another institution should speak with officials at their new institution.

When students receive credit for courses or other types of academic work done elsewhere, it is referred to as equivalent credit. Some of these credits will be the result of coursework taken before matriculation at Penn, but it is also possible to do a limited number of courses “away” after matriculation.

Credit earned before the student matriculates at Penn is referred to as Transfer Credit (p. 266). Credit earned at another institution while the student is enrolled at Penn (post-matriculation) is referred to as Credit Away (p. 266).

Policies regarding the types and amount of equivalent credit allowed vary by school.

Students who wish to apply for an internal transfer between any of the four undergraduate schools should meet with an advisor in their home school and an advisor from the school they wish to enter. Applicants
should be prepared to discuss why the curriculum of the school to which they are applying for transfer is a good fit for their academic interests and goals. Students applying for internal transfer must be in good academic standing in their home school and should have no NR's, GR's, or I's on their record.

External transfers admitted to any of Penn's undergraduate schools or divisions are not eligible to transfer again within the University.

Specific policies and procedures for transferring internally vary by school.

**School specific policies:**

- College of Arts and Sciences ([https://www.college.upenn.edu/transfer-within-university](https://www.college.upenn.edu/transfer-within-university))
- The Wharton School ([https://undergrad-inside.wharton.upenn.edu/itdd](https://undergrad-inside.wharton.upenn.edu/itdd))

These policies govern the transfer of credits taken before a student is officially enrolled at the University of Pennsylvania.

Penn Admissions Policy: [http://www.admissions.upenn.edu/apply/transfer-admission/transfer-of-credits](http://www.admissions.upenn.edu/apply/transfer-admission/transfer-of-credits)

**School specific policies:**

- College of Arts and Sciences ([https://www.college.upenn.edu/credits-grades-policy](https://www.college.upenn.edu/credits-grades-policy))
- School of Nursing ([https://www.nursing.upenn.edu/student-services/registration/transfer-credit](https://www.nursing.upenn.edu/student-services/registration/transfer-credit))
- The Wharton School ([https://undergrad-inside.wharton.upenn.edu/transfers/transfer-credits](https://undergrad-inside.wharton.upenn.edu/transfers/transfer-credits))

These policies govern credits earned at another institution while enrolled at the University of Pennsylvania.

**School specific policies:**

- College of Arts and Sciences ([https://www.college.upenn.edu/credits-grades-policy](https://www.college.upenn.edu/credits-grades-policy))
- School of Nursing ([https://www.nursing.upenn.edu/student-services/registration/transfer-credit](https://www.nursing.upenn.edu/student-services/registration/transfer-credit))
- The Wharton School ([https://undergrad-inside.wharton.upenn.edu/transfer-credits](https://undergrad-inside.wharton.upenn.edu/transfer-credits))
The following list includes traditional undergraduate, PhD, and research master's programs.

Professional and other degree programs are listed by school in the Graduate Catalog (http://catalog.upenn.edu/graduate).

**PROGRAMS A-Z**

A
- Accounting, BS (p. 207)
- Accounting, PhD (http://catalog.upenn.edu/graduate/programs/accounting-phd)
- Actuarial Mathematics, Minor (p. 136)
- Actuarial Science, BS (p. 207)
- Africana Studies, Minor (p. 136)
- Africana Studies, PhD (http://catalog.upenn.edu/graduate/programs/africana-studies-phd)
- Africana Studies: African American Studies, BA (p. 22)
- Africana Studies: African Diaspora Studies, PhD (http://catalog.upenn.edu/graduate/programs/africana-studies-phd)
- Africana Studies: African American Studies, BA (p. 22)
- Africana Studies: African Diaspora Studies, BA (p. 22)
- American Sign Language and Deaf Studies, Minor (p. 137)
- American Public Policy, Minor (p. 137)
- American Sign Language and Deaf Studies, Minor (p. 137)
- Ancient History, BA (p. 23)
- Ancient History, Minor (p. 137)
- Ancient History, PhD (http://catalog.upenn.edu/graduate/programs/ancient-history-phd)
- Anthropology, Minor (p. 138)
- Anthropology: Archaeology, BA (p. 23)
- Anthropology: Archaeology, PhD (http://catalog.upenn.edu/graduate/programs/anthropology-archaeology-phd)
- Anthropology: Cultural and Linguistic Anthropology, BA (p. 25)
- Anthropology: Cultural, PhD (http://catalog.upenn.edu/graduate/programs/anthropology-cultural-phd)
- Anthropology: General Anthropology, BA (p. 25)
- Anthropology: Human Biology, BA (p. 24)
- Anthropology: Linguistic, PhD (http://catalog.upenn.edu/graduate/programs/anthropology-linguistic-phd)
- Anthropology: Medical Anthropology & Global Health, BA (p. 26)
- Anthropology: Medical, PhD (http://catalog.upenn.edu/graduate/programs/anthropology-medical-phd)
- Anthropology: Physical, PhD (http://catalog.upenn.edu/graduate/programs/anthropology-physical-phd)
- Applied Economics, PhD (http://catalog.upenn.edu/graduate/programs/applied-economics-phd)
- Applied Mathematics and Computational Science, MA (http://catalog.upenn.edu/graduate/programs/applied-mathematics-computational-science-ma)
- Applied Mathematics and Computational Science, PhD (http://catalog.upenn.edu/graduate/programs/applied-mathematics-computational-science-phd)
- Archaeological Science, Minor (p. 138)
- Architectural History, Minor (p. 138)
- Architecture, Minor (p. 139)
- Architecture, MS (http://catalog.upenn.edu/graduate/programs/architecture-ms)

B
- Behavioral Economics, BS (p. 208)
- Biochemistry Economics, BS (p. 208)
- Biochemistry, BA (p. 28)
- Biochemistry, PhD (http://catalog.upenn.edu/graduate/programs/biochemistry-phd)
- Bioengineering, BSE (p. 170)
- Bioengineering, PhD (http://catalog.upenn.edu/graduate/programs/bioengineering-phd)
- Bioethics, Minor (p. 139)
- Biological Basis of Behavior, BA (p. 29)
- Biological Basis of Behavior, Minor (p. 139)
- Biology, Minor (p. 140)
- Biology, PhD (http://catalog.upenn.edu/graduate/programs/biology-phd)
- Biology: Computational Biology, BA (p. 29)
- Biology: Ecology & Evolutionary Biology, BA (p. 30)
- Biology: General Biology, BA (p. 31)
- Biology: Mathematical Biology, BA (p. 32)
- Biology: Mechanisms of Disease, BA (p. 33)
- Biology: Molecular & Cell Biology, BA (p. 33)
- Biology: Neurobiology, BA (p. 34)
- Biomedical Science, BAS (p. 171)
- Biophysics, BA (p. 35)
- Biophysics, Minor (p. 140)
- Business Analytics, BS (p. 209)
- Business Economics and Public Policy, BS (p. 210)

C
- Cell and Molecular Biology: Cancer Biology, PhD (http://catalog.upenn.edu/graduate/programs/cell-molecular-biology-cancer-phd)
- Cell and Molecular Biology: Cell Biology, Physiology, and Metabolism, PhD (http://catalog.upenn.edu/graduate/programs/cell-molecular-biology-cell-biology-phd)
- Cell and Molecular Biology: Developmental, Stem Cell, and Regenerative Biology, PhD (http://catalog.upenn.edu/graduate/programs/cell-molecular-biology-developmental-stem-cell-regenerative-phd)
- Cell and Molecular Biology: Gene Therapy and Vaccines, PhD (http://catalog.upenn.edu/graduate/programs/cell-molecular-biology-gene-therapy-vaccines-phd)
• Cell and Molecular Biology: Genetics and Epigenetics, PhD (http://catalog.upenn.edu/graduate/programs/cell-molecular-biology-genetics-epigenetics-phd)
• Cell and Molecular Biology: Microbiology, Virology, and Parasitology, PhD (http://catalog.upenn.edu/graduate/programs/cell-molecular-biology-microbiology-virology-parasitology-phd)
• Chemical and Biomolecular Engineering, BSE (p. 172)
• Chemical and Biomolecular Engineering, Minor (p. 191)
• Chemical and Biomolecular Engineering, PhD (http://catalog.upenn.edu/graduate/programs/chemical-biomolecular-engineering-phd)
• Chemistry, BA (p. 36)
• Chemistry, Minor (p. 141)
• Chemistry, PhD (http://catalog.upenn.edu/graduate/programs/chemistry-phd)
• Cinema and Media Studies, BA (p. 37)
• Cinema and Media Studies, Minor (p. 141)
• City Planning, PhD (http://catalog.upenn.edu/graduate/programs/city-planning-phd)
• Classical Studies, Minor (p. 141)
• Classical Studies, PhD (http://catalog.upenn.edu/graduate/programs/classical-studies-phd)
• Classical Studies: Classical Civilizations, BA (p. 37)
• Classical Studies: Classical Languages and Literature, BA (p. 38)
• Classical Studies: Mediterranean Archaeology, BA (p. 38)
• Cognitive Science, Minor (p. 142)
• Cognitive Science: Cognitive Neuroscience, BA (p. 39)
• Cognitive Science: Computation and Cognition, BA (p. 39)
• Cognitive Science: Individualized, BA (p. 40)
• Cognitive Science: Language & Mind, BA (p. 41)
• Communication, PhD (http://catalog.upenn.edu/graduate/programs/communication-phd)
• Communication: Communication & Public Service, BA (p. 42)
• Communication: General Communication, BA (p. 42)
• Comparative Literature, Minor (p. 142)
• Comparative Literature, PhD (http://catalog.upenn.edu/graduate/programs/comparative-literature-phd)
• Comparative Literature: (Trans)national Literatures, BA (p. 128)
• Comparative Literature: Globalization, BA (p. 44)
• Comparative Literature: Theory, BA (p. 129)
• Computational Biology, BAS (p. 173)
• Computational Neuroscience, Minor (p. 143)
• Computer and Cognitive Science, BAS (p. 175)
• Computer and Information Science, PhD (http://catalog.upenn.edu/graduate/programs/computer-information-science-phd)
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• Computer Science, BSE (p. 178)
• Computer Science, BAS (p. 177)
• Computer Science, Minor (p. 187)
• Consumer Psychology, Minor (p. 143)
• Creative Writing, Minor (p. 144)
• Criminology, BA (p. 44)
• Criminology, MS (http://catalog.upenn.edu/graduate/programs/criminology-ms)
• Criminology, PhD (http://catalog.upenn.edu/graduate/programs/criminology-phd)

D
• Data Science, Minor (p. 191)
• Demography, PhD (http://catalog.upenn.edu/graduate/programs/demography-phd)
• Design, Minor (p. 144)
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• Digital Media Design, BSE (p. 180)
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E
• Earth and Environmental Science, PhD (http://catalog.upenn.edu/graduate/programs/earth-environmental-science-phd)
• Earth Science: Environmental Science, BA (p. 45)
• Earth Science: Geology, BA (p. 46)
• Earth Science: Paleobiology, BA (p. 47)
• East Asian Area Studies, Minor (p. 145)
• East Asian Languages and Civilizations, MA (http://catalog.upenn.edu/graduate/programs/east-asian-languages-civilizations-ma)
• East Asian Languages and Civilizations, PhD (http://catalog.upenn.edu/graduate/programs/east-asian-languages-civilizations-phd)
• East Asian Languages and Civilizations: Chinese and Japanese, BA (p. 47)
• East Asian Languages and Civilizations: Chinese, BA (p. 48)
• East Asian Languages and Civilizations: Chinese, Minor (p. 165)
• East Asian Languages and Civilizations: East Asian Area Studies, BA (p. 131)
• East Asian Languages and Civilizations: Japanese, BA (p. 49)
• East Asian Languages and Civilizations: Japanese, Minor (p. 165)
• East Asian Languages and Civilizations: Korean, BA (p. 128)
• East Asian Languages and Civilizations: Korean, Minor (p. 165)
• East Central European Studies, Minor (p. 145)
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• Economics, BA (p. 49)
• Economics, Minor (p. 146)
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• Educational Linguistics, PhD (http://catalog.upenn.edu/graduate/programs/educational-linguistics-phd)
• Electrical and Systems Engineering, PhD (http://catalog.upenn.edu/graduate/programs/electrical-systems-engineering-phd)
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• Environmental Studies: General Environmental Studies, BA (p. 63)
• Environmental Studies: Global Environmental Systems, BA (p. 64)
• Environmental Studies: Sustainability and Environmental Management, BA (p. 65)
• Epidemiology and Biostatistics: Biostatistics, MS (http://catalog.upenn.edu/graduate/programs/epidemiology-biostatistics-biostatistics-ms)
• Epidemiology and Biostatistics: Biostatistics, PhD (http://catalog.upenn.edu/graduate/programs/epidemiology-biostatistics-biostatistics-phd)
• Epidemiology and Biostatistics: Epidemiology, PhD (http://catalog.upenn.edu/graduate/programs/epidemiology-biostatistics-epidemiology-phd)
• Ethics and Legal Studies, PhD (http://catalog.upenn.edu/graduate/programs/ethics-legal-studies-phd)
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• Finance, BS (p. 212)
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• Health and Societies: Bioethics & Society, BA (p. 68)
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• Italian Studies: Italian Culture, Minor (p. 164)
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This course is an introduction to the basic concepts and standards underlying financial accounting systems. Several important concepts will be studied in detail, including: revenue recognition, inventory, long-lived assets, present value, and long term liabilities. The course emphasizes the construction of the basic financial accounting statements: the income statement, balance sheet, and cash flow statement - as well as their interpretation.
One-term course offered either term
Activity: Lecture
1 Course Unit

ACCT 102 Strategic Cost Analysis
The first part of the course presents alternative methods of preparing managerial accounting information, and the remainder of the course examines how these methods are used by companies. Managerial accounting is a company's internal language, and is used for decision-making, production management, product design and pricing and for motivating and evaluating employees. Unless you understand managerial accounting, you cannot have a thorough understanding of a company's internal operations. What you learn in this course will help you understand the operations of your future employer (and enable you to be more successful at your job), and help you understand other companies you encounter in your role as competitor, consultant, or investor.
One-term course offered either term
Activity: Lecture
1 Course Unit

ACCT 212 Financial Measurement and Disclosure(X)
This course builds on the knowledge you obtained in your introductory financial accounting course. This is an intermediate level course on financial reporting which covers more complicated transactions than those found in ACCT 101. We will cover major valuation and financial reporting topics on all three major sections of the balance sheet: assets, liabilities, and equity along with their consequences for net income and cash flows. Case studies and illustrative examples from the financial press will be used to increase your familiarity with actual firms' financial statements and to emphasize the effect of financial accounting rules on the information presented in financial statements. After completing this course, you will have obtained many of the tools necessary to both prepare and analyze financial statements and accounting information provided by firms. You will acquire an understanding of both the "how" of accounting procedures and the underlying reasons "why" these practices are adopted. These skills are essential for pursuing a broad range of professions in accounting and finance.
Course usually offered in fall term
Prerequisite: ACCT 101
Activity: Lecture
1 Course Unit

ACCT 242 Accounting and Business Analysis
In the course, students learn how to analyze firms' financial statements and disclosures to determine how a firm's particular accounting choices reflect the underlying economics of the firm. As a result, the course strengthens students' ability to use financial statements as part of an overall assessment of the firm's strategy and valuation. The course is especially useful for anyone interested in working on the buy or sell side. The course provides both a framework for and the tools necessary to analyze financial statements. At the conceptual level, it emphasizes that preparers and users of financial statements have different objectives and incentives. At the same time, the course is applied and stresses the use of actual financial statements. For example, students learn how to detect when firms are managing earnings and/or balance sheets. It draws heavily on real business problems and uses cases to illustrate the application of the techniques and tools.
One-term course offered either term
Prerequisite: ACCT 101
Activity: Lecture
1 Course Unit

ACCT 243 Accounting for Mergers, Acquisitions, and Complex Financial Structures
The objective of this course is to discuss and understand the accounting that underlies merger, acquisition, and investment activities among firms that result in complex financial structures. Key topics include the purchase accounting method for acquisitions, the equity method for investments, the preparation and interpretation of consolidated financial statements, tax implications of mergers and acquisitions, earnings-per-share considerations, the accounting implications of intercompany transactions and non-domestic investments, etc.
Course usually offered in fall term
Prerequisites: Prerequisites: ACCT 101, 102, 201 or 202 or 212
Activity: Lecture
1 Course Unit

ACCT 270 Predictive Analytics Using Financial Disclosures(X)
Recent trends in Big Data and predictive analytics are revolutionizing the way stakeholders analyze financial data. This course teaches students the hands-on skill necessary to manipulate large-scale financial databases and build predictive models useful for strategic and investment decisions. The course will cover four applications of Big Data and predictive analytics: (i) extracting insight about past and future firm performance, (ii) forecasting future earnings, (iii) predicting accounting fraud, and (iv) detecting insider trading. The course will draw on cutting-edge academic research in each area; introduce students to the basic SQL coding skills necessary to manipulate Big Data and conduct meaningful analyses; and leverage the datasets and computing power of Wharton Research Data Services.
Course usually offered in spring term
Prerequisites: ACCT 101, STAT 101, STAT 102
Activity: Lecture
1 Course Unit
ACCT 297 Taxes and Business Strategy
The objective of this course is to develop a framework for understanding how taxes affect business decisions. The key themes of the framework - all parties, all taxes and all costs - are applied to decision contexts such as investments, compensation, organizational form, and mergers and acquisitions. The ultimate goal is to provide a new approach to thinking about taxes that will be valuable even as laws and governments change.
One-term course offered either term
Prerequisites: ACCT 101 and FNCE 101
Activity: Lecture
1 Course Unit

ACCT 399 Supervised Study
Intensive reading and study with some research under the direction of a faculty member. Approval from one of the departmental advisers must be obtained before registration.
One-term course offered either term
Prerequisites: Senior standing and 3.4 average in major related subjects
Activity: Independent Study
1 Course Unit

ACCT 611 Fundamentals of Financial Accounting
The objective of this course is to provide an understanding of financial accounting fundamentals for prospective consumers of corporate financial information, such as managers, stockholders, financial analysts, and creditors. The course focuses on understanding how economic events like corporate investments, financing transactions and operating activities are recorded in the three main financial statements (i.e., the income statement, balance sheet, and statement of cash flows).
Along the way, students will develop the technical skills needed to analyze corporate financial statements and disclosures for use in financial analysis, and to interpret how accounting standards and managerial incentives affect the financial reporting process. This course is recommended for students who want a more in-depth overview of the financial accounting required for understanding firm performance and potential future risks through analysis of reported financial information, such as students intending to go into security analysis and investment banking.
One-term course offered either term
Activity: Lecture
1 Course Unit

ACCT 612 Accelerated Financial Accounting
The intended audience for this course is students with prior knowledge of financial accounting who understand: (1) the recording of economic transactions in the accounting records; (2) the basic financial statements that summarize a firm's economic transactions (the balance sheet, the income statement and the statement of cash flows) and (3) the fundamental concepts needed to prepare or understand published financial statements (e.g. use of accrual accounting). Exploiting prior knowledge, the course aims in six weeks to help students become effective users of financial statements.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

ACCT 613 Fundamentals of Financial and Managerial Accounting
This course provides an introduction to both financial and managerial accounting, and emphasizes the analysis and evaluation of accounting information as part of the managerial processes of planning, decision-making, and control. A large aspect of the course covers the fundamentals of financial accounting. The objective is to provide a basic overview of financial accounting, including basic accounting concepts and principles, as well as the structure of the income statement, balance sheet, and statement of cash flows. The course also introduces elements of managerial accounting and emphasizes the development and use of accounting information for internal decisions. Topics include cost behavior and analysis, product and service costing, and relevant costs for internal decision-making. This course is recommended for students who will be using accounting information for managing manufacturing and service operations, controlling costs, and making strategic decisions, as well as those going into general consulting or thinking of starting their own businesses.
One-term course offered either term
Activity: Lecture
1 Course Unit

ACCT 706 Cost Management
This course covers managerial accounting and cost management practices that can be strategically applied across the various functions of a business organization to improve organizational performance. The course emphasizes the methods available to measure and evaluate costs for decision-making and performance evaluation purposes. It reviews a number of cost management issues relating to the design and implementation of strategic, marketing, value analysis, and other management models in modern firms; and identifies major contemporary issues in managerial accounting and financial decision-making. A variety of case studies in different industries and decision contexts are used to examine the application of these concepts.
One-term course offered either term
Prerequisites: ACCT 611,612,613 or waiver.
Activity: Lecture
0.5 Course Units
Notes: Lecture, case studies, class participation, written group cases, and exams.

ACCT 742 Financial Reporting and Business Analysis
This intensive one-semester course focuses on how to extract and interpret information in financial statements. The course adopts a user perspective of accounting by illustrating several specific accounting issues in a decision context.
One-term course offered either term
Prerequisites: ACCT 611,612,613 completed or waiver. ACCT 742 cannot be taken concurrently with ACCT 611,612,613.
Activity: Lecture
1 Course Unit
Notes: Format: Discussions, lectures on advanced topics, problems and cases. Daily preparation of cases and reading assignments. Comprehensive final exam. Some instructors may choose to grade homework, class participation, and case write-ups.
ACCT 743 Accounting for Mergers, Acquisitions and Complex Financial Structures
This class studies how complex financial structures account for their activities. Primary emphasis is on the application of purchase accounting for mergers and acquisitions, the equity method for investments, and preparing and interpreting consolidated financial statements. Other topics covered include translations and remeasurements for nondomestic investments, and earnings per share calculations for complex financial structures. Tax considerations and acquisition strategies are of only peripheral interest in this class, and students who are concerned primarily with those topics are advised to seek a different elective.
Course usually offered in fall term
Prerequisites: ACCT 611,612,613 or waiver.
Activity: Lecture
1 Course Unit
Notes: Lectures and quizzes, class participation, and satisfactory performance on quizzes.

ACCT 747 Financial Disclosure Analytics
This course focuses on the analysis of financial communications between corporate managers and outsiders, including the required financial statements, voluntary disclosures, and interactions with investors, analysts, and the media. The course draws on the findings of recent academic research to discuss a number of techniques that outsiders can use to detect potential bias or aggressiveness in financial reporting. FORMAT: Case discussions and lectures. Comprehensive final exam, group project, case write-ups, and class participation.
One-term course offered either term
Prerequisites: ACCT 611,612,613 completed or waiver.
Activity: Lecture
1 Course Unit

ACCT 897 Taxes and Business Strategy
The objective of this course is to develop a framework for understanding how taxes affect business decisions. Traditional finance and strategy courses do not consider the role of taxes. Similarly, traditional tax courses often ignore the richness of the decision context in which tax factors operate. The key themes of the framework - all parties, all taxes and all costs - are applied to decision contexts such as investments, compensation, organizational form, regulated industries, financial instruments, tax-sheltered investments, mergers and acquisitions, multinational, and multistate. The ultimate goal is to provide a new approach to thinking about taxes (and all forms of government intervention) that will be valuable even as laws and governments change.
One-term course offered either term
Prerequisites: ACCT 611,612,613 or waiver and FNCE 611,612.
Activity: Lecture
1 Course Unit
Notes: Lecture and case discussions.

ACCT 901 Accounting Theory Research
This is a theory course covering topics in agency theory, disclosure theory, and incentive design.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ACCT 921 Empirical Research in Accounting I
This is an empirical literature survey course covering topics that include corporate disclosure, cost of capital, incentives, compensation, governance, financial intermediation, financial reporting, tax, agency theory, cost accounting, capital structure, international financial reporting, analysts, and market efficiency.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ACCT 922 Empirical Research in Accounting II
This is an empirical literature survey course covering topics that include corporate disclosure, cost of capital, incentives, compensation, governance, financial intermediation, financial reporting, tax, agency theory, cost accounting, capital structure, international financial reporting, analysts, and market efficiency.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ACCT 930 Empirical Design in Accounting Research
This is an empirical research design course covering topics related to empirical methodology, causal inference, econometric analysis, and panel data approaches.
Prerequisites: At least one graduate level course in econometrics.
Activity: Seminar
1 Course Unit

ACCT 981 Workshop Colloquium I
Students attend workshops in departments outside of accounting to provide student exposure to theory, research designs and methods that are being explored outside of accounting to provide breadth of exposure to foster innovative research ideas. Students are required to attend 15 non-accounting workshops over one academic year and write up a referee report for 8 of those workshop papers. They are also required to write up at least one research proposal that stems from theories or research methods gleaned from one or more of the workshops attended.
Activity: Seminar
1 Course Unit

ACCT 982 Workshop Colloquium II
Students attend workshops in departments outside of accounting to provide student exposure to theory, research designs and methods that are being explored outside of accounting to provide breadth of exposure to foster innovative research ideas. Students are required to attend 15 non-accounting workshops over one academic year and write up a referee report for 8 of those workshop papers. They are also required to write up at least one research proposal that stems from theories or research methods gleaned from one or more of the workshops attended.
Activity: Seminar
1 Course Unit
AFRICAN STUDIES PROGRAM (AFST)

AFST 140 Elementary Zulu I in Residence
This elementary course is for beginners and it requires no prior knowledge of Zulu. The course will expose students to the Zulu language and culture and will be based in the National Standards for Foreign Language Learning. Students will be engaged in communicative language learning through interpersonal, interpretive and presentational modes of language learning techniques. They will gain knowledge and understanding of the Zulu culture. They will use their Zulu language and culture learning experience to connect with other disciplines and further their knowledge of these disciplines through perspectives acquired from their Zulu class. They will also develop insight into the nature of language and culture through comparisons of the Zulu language and culture and their own. Through movies, songs, and other cultural activities online students will acquire the natural use of the language which will enable them to acquire linguistic and cultural skill to become life-long learners who can participate in Zulu communities in the U.S. and overseas.
Taught by: Mbeje
One-term course offered either term
Activity: Lecture
0.5 Course Units
Notes: OBJECTIVE: Attainment of Level 1 (ceiling) in speaking, listening, reading, and writing skills on the Interagency Language Roundtable (ILR) scale.

AFST 170 Elementary Yoruba I
The Elementary Yoruba I course can be taken to fulfill a language requirement, or for linguistic preparation to do research on Nigeria and the diaspora/Africa-related topics. The course emphasizes communicative competence to enable the students to acquire linguistic and extra-linguistic skills in Yoruba. The content of the course is selected from various everyday life situations to enable the students to communicate in predictable common daily settings. Culture, as it relates to language use, is also part of the course content. Students will acquire the speaking, listening, reading, and writing skills at the mid-high novice level, based on the ACTFL scale. The mid-high level proficiency skills that the students will acquire constitute threshold capabilities of the second semester range of proficiency to prepare students for Elementary Yoruba II course materials.
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 171 Elementary Yoruba II
The main objective of this course is to further sharpen the Yoruba linguistic knowledge that the student acquired in level I. By the end of the course, the student should be able to (1) read, write, and understand simple to moderately complex sentences in Yoruba; and, (2) advance in the knowledge of the Yoruba culture.
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in spring term
Prerequisites: Completion of Elementary Yoruba I, or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 180 Elementary Swahili I
The Elementary Swahili I course can be taken to fulfill a language requirement, or for linguistic preparation to do research on East Africa/Africa-related topics. The course emphasizes communicative competence to enable the students to acquire linguistic and extra-linguistic skills in Swahili. The content of the course is selected from various everyday life situations to enable the students to communicate in predictable common daily settings. Culture, as it relates to language use, is also part of the course content. Students will acquire the speaking, listening, reading, and writing skills at the mid-high novice level, based on the ACTFL scale. The mid-high level proficiency skills that the students will acquire constitute threshold capabilities of the second semester range of proficiency to prepare students for Elementary Swahili II course materials.
For BA Students: Language Course
Taught by: Mshomba
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 181 Elementary Swahili II
This course continues to introduce basic grammar, vocabulary, and the reading and writing of Swahili to new speakers. During this term, folktales, other texts, and film selections are used to help introduce important aspects of Swahili culture and the use of the language in wide areas of Africa.
For BA Students: Language Course
Taught by: Mshomba
Course usually offered in spring term
Prerequisites: Completion of Elementary Swahili I, or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center
AFST 190 Introduction to Africa
This course provides an introduction to the study of Africa in all its diversity and complexity. Our focus is cultural, geographical, and historical: we will seek to understand Africa’s current place in the world political and economic order and learn about the various social and physical factors that have influenced the historical trajectory of the continent. We study the cultural formations and empires that emerged in Africa before European colonial invasion and then how colonialism reshaped those sociocultural forms. We’ll learn about the unique kinds of kinship and religion in precolonial Africa and the changes brought about by the spread of Islam and Christianity. Finally, we’ll take a close look at contemporary issues such as ethnic violence, migration, popular culture and poverty, and we’ll debate the various approaches to understanding those issues.
For BA Students: Society Sector
Taught by: Hasty
Course usually offered in fall term
Activity: Lecture
1 Course Unit

AFST 221 African Women’s Lives: Past and Present
Restoring women to African history is a worthy goal, but easier said than done. The course examines scholarship over the past forty years that brings to light previously overlooked contributions African women have made to political struggle, religious change, culture preservation, and economic development from pre-colonial times to present. The course addresses basic questions about changing women’s roles and human rights controversies associated with African women within the wider cultural and historical contexts in which their lives are lived. It also raises fundamental questions about sources, methodology, and representation, including the value of African women’s oral and written narrative and cinema production as avenues to insider perspectives on African women’s lives.
Taught by: Blakely
Course not offered every year
Activity: Lecture
1 Course Unit

AFST 240 Elementary Amharic I
The Elementary Amharic I course can be taken to fulfill a language requirement, or for linguistic preparation to do research on Ethiopia/Africa-related topics. The course emphasizes communicative competence to enable the students to acquire linguistic and extra-linguistic skills in Amharic. The content of the course is selected from various everyday life situations to enable the students to communicate in predictable common daily settings. Culture, as it relates to language use, is also part of the course content. Students will acquire the speaking, listening, reading, and writing skills at the mid-high novice level, based on the ACTFL scale. The mid-high novice level proficiency skills that the students will acquire constitute threshold capabilities of the second semester range of proficiency to prepare students for Elementary Amharic II course materials.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 241 Elementary Amharic II
Continuation of Elementary Amharic I. Amharic belongs to the southern branch of Hemeto-Semitic languages, which is also referred to as “Afrasian.” Amharic is the official language of Ethiopia and is spoken by 14 million native Amharas and by approximately 18 million of the other groups in Ethiopia. This course continues to introduce basic grammar, vocabulary, and the reading and writing of Amharic to new speakers.
For BA Students: Language Course
Taught by: Hailu
Course usually offered in spring term
Prerequisites: Completion of Elementary Amharic I, or permission of the instructor
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 242 Intermediate Amharic I
For BA Students: Language Course
Taught by: Hailu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 243 Intermediate Amharic II
For BA Students: Last Language Course
Taught by: Hailu
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 247 Advanced Amharic
An advanced Amharic course that will further sharpen the students’ knowledge of the Amharic language and the culture of the Amharas. The learners communicative skills will be further developed through listening, speaking, reading and writing. There will also be discussions on cultural and political issues.
For BA Students: Advanced Language Course
Taught by: Zemichael
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 270 Intermediate Yoruba I
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 271 Intermediate Yoruba II
For BA Students: Last Language Course
Taught by: Awoyale
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 277 Penn Slavery Project Research Seminar
Taught by: Brown
Activity: Seminar
1 Course Unit
AFST 280 Intermediate Swahili I
The objectives of this course are: to strengthen students' knowledge of speaking, listening, reading, and writing Swahili and to compare it with the language of the students; to learn more about the cultures of East Africa and to compare it with the culture(s) of the students; to consider the relationship between that knowledge and the knowledge of other disciplines; and using that knowledge, to unite students with communities outside of class.
For BA Students: Language Course
Taught by: Mshomba
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 281 Intermediate Swahili II
At the end of the course students will be at Level 2 on the ILR (Interagency Language Roundtable) scale.
For BA Students: Last Language Course
Taught by: Mshomba
Course usually offered in spring term
Prerequisites: Intermediate Swahili I, or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFST 284 Advanced Swahili I
This is an advanced Kiswahili course which will engage learners in extended spoken and written discourse. Advanced learners of Kiswahili will listen to, read about, write and speak on authentic video materials, contemporary novels, and newspapers. They will also participate in various discussions on cultural and political issues.
For BA Students: Advanced Language Course
Taught by: Mshomba
Course usually offered in fall term
Prerequisites: AFST 280, LING 280, AFRC 280 or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 285 Advanced Swahili II
The objectives are to continue to strengthen students' knowledge of speaking, listening, reading, and writing Swahili and to compare it with the language of the students; to continue learning about the cultures of East Africa and to continue making comparisons with the culture(s) of the students; to continue to consider the relationship between that knowledge and the knowledge of other disciplines; and using that knowledge, to continue to unite students with communities outside of class. Level 3 on the ILR (Interagency Language Roundtable) scale.
For BA Students: Advanced Language Course
Taught by: Mshomba
Course usually offered in fall term
Prerequisites: AFST 280, LING 280, AFRC 280 or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 371 Advanced Yoruba II
For BA Students: Advanced Language Course
Taught by: Awoyale
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 460 Middle Egyptian
Introduction to the grammar of Middle Egyptian.
Taught by: Silverman
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

AFST 467 Introduction to Egyptian Culture and Archaeology
Covers principal aspects of ancient Egyptian culture (environment, urbanism, religion, technology, etc.) with special focus on archaeological data; includes study of University Museum artifacts. Follows AMES 266/466 - History of Egypt taught in the Fall semester.
Taught by: Wegner
Course usually offered in spring term
Activity: Lecture
1 Course Unit

AFST 470 Twi Language & Culture I
Activity: Lecture
1 Course Unit

AFST 471 Twi Language & Culture II
Activity: Lecture
1 Course Unit

AFST 484 Swahili Lang/Culture I
This course taught in Swahili will focus on reading/writing skills and speaking/listening skills as well as structural and cultural information. The course will be structured around three thematic units: History, Politics, and Education. The course will provide background on the Swahili-speaking world: Who were the first Swahili speakers and what varieties of the language did they speak? How did Swahili spread from the coast to other Swahili-speaking areas as far inland as Uganda, Rwanda, and Congo? Swahili is a lingua franca and has importance in the spread of religion and trade movements. Influences of other languages on Swahili and influences of Swahili on local languages will be discussed. Political and educational systems will be discussed as well.
For BA Students: Advanced Language Course
Taught by: Mshomba
Course not offered every year
Prerequisite: Completion of Advanced Swahili I & II
Activity: Lecture
1 Course Unit

AFST 486 Yoruba Language & Culture I
Taught by: Awoyale
Course not offered every year
Prerequisites: Completion of Advanced Yoruba I & II.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 487 Yoruba Language & Culture II
Taught by: Awoyale
One-term course offered either term
Prerequisites: Completion of Advanced Yoruba I & II.
Activity: Lecture
1 Course Unit
AFST 490 African Language Tutorial - Elementary I
The main objective of this course is to allow students to study an African language of their choice, depending on the availability of the instructor. The course will provide students with linguistics tools which will facilitate their research work in the target country. Cultural aspects of the speakers of the language will be introduced and reinforced.
For BA Students: Language Course
One-term course offered either term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 491 African Language Tutorial - Elementary II
Continuation of AFST 490.
For BA Students: Language Course
One-term course offered either term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 492 African Language Tutorial - Intermediate I
Intermediate level courses in a variety of African languages: Igbo, Shona, Wolof, Malagasy, Chichewa, Setswana, Manding, Afrikaans, Setswana. Focus on oral proficiency and productive language skills. All course are language specific and follow ACTFL proficiency guidelines.
For BA Students: Language Course
Course usually offered in fall term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 493 African Language Tutorial - Intermediate II
Continuation of AFST 492.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 494 African Language Tutorial - Advanced I
Language specific sections for students interested in doing country-specific research in a target language. Courses cover project-based skills for AFST research.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 495 African Language Tutorial: Adv II Languages will be specified in each section.
Continuation of AFST 494.
Course usually offered in spring term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit

AFST 496 Language & Culture I
Aspects of the targeted language's history, language, and culture.
For BA Students: Language Course
Course usually offered in fall term
Prerequisites: Permission of Penn Language Center.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 497 Language & Culture II
Continuation of AFST 496.
Course usually offered in spring term
Prerequisites: Permission of Penn Language Center.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 498 Arabic: Reading Historical Manuscripts
Arabic language is used by many societies not only in communication but also in correspondence and in documenting the affairs of their daily lives. Arabic script is adopted by many groups who native languages are not Arabic, in writing their language before some moved to the roman alphabet. In many historical documents specific style of writing and handwriting are dominant. This specificity is influenced by the dialectical variations, the historical development of each region and the level of Arabic literacy and use.
Course not offered every year
Activity: Lecture
1 Course Unit

AFST 517 Elementary Yoruba I
This is an introductory course in Yoruba whose goals are to introduce students to the history, geographical location of the people who speak Yoruba, their culture, customs, and traditions; and, to enable students to develop communicative skills through listening, speaking, reading and writing.
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 518 Elementary Yoruba II
The main objective of this course is to further sharpen the Yoruba linguistic knowledge that the student acquired in level I. By the end of the course, the student should be able to (1) read, write, and understand simple to moderately complex sentences in Yoruba; and (2) advance in the knowledge of the Yoruba culture.
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 519 Intermediate Yoruba I
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center
AFST 532 Intermediate Yoruba II
For BA Students: Last Language Course
Taught by: Awoyale
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 540 Elementary Amharic I
An introductory course for students with no previous knowledge of Amharic. Amharic belongs to the southern branch of Hemeto-Semitic languages which is also referred to as "Afrasian." Amharic is the official language of Ethiopia and is spoken by 14 million native Amharas and by approximately 18 million of the other ethnic groups in Ethiopia. The goals of this course are to introduce students to the culture, customs, and traditions of the Amharas. Students will develop communicative skills through listening, speaking, reading and writing.
For BA Students: Language Course
Taught by: Hailu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 541 Elementary Amharic II
Continuation of Elementary Amharic I.
For BA Students: Language Course
Taught by: Hailu
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 543 Intermediate Amharic I
Offered through Penn Language Center
For BA Students: Language Course
Taught by: Hailu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 544 Intermediate Amharic II
Offered through Penn Language Center
For BA Students: Last Language Course
Taught by: Hailu
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 547 Advanced Amharic
An advanced Amharic course that will further sharpen the students’ knowledge of the Amharic language and the culture of the Amharas. The learners communicative skills will be further developed through listening, speaking, reading and writing. There will also be discussions on cultural and political issues.
For BA Students: Advanced Language Course
Taught by: Hailu
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 580 Elementary Swahili I
Beginning level of Swahili which provides training and practice in speaking, reading and writing with initial emphasis on speaking and listening. Basic grammar, vocabulary and cultural skills learned gradually with priority on the spoken language. Especially during the second term, folktales, other texts and films will be used to help introduce important aspects of Swahili culture.
For BA Students: Language Course
Taught by: Mshomba
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 581 Elementary Swahili II
This course continues to introduce basic grammar, vocabulary, and the reading and writing of Swahili to new speakers. During this term, folktales, other texts, and film selections are used to help introduce important aspects of Swahili culture and the use of the language in wide areas of Africa.
For BA Students: Language Course
Taught by: Mshomba
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 582 Intermediate Swahili I
For BA Students: Language Course
Taught by: Mshomba
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 583 Intermediate Swahili II
For BA Students: Last Language Course
Taught by: Mshomba
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 584 Advanced Swahili I
This is an advanced Kiswahili course which will engage learners in extended spoken and written discourse. Advanced learners of Kiswahili will listen to, read about, write and speak on authentic video materials, contemporary novels, and newspapers. They will also participate in various discussions on cultural and political issues.
For BA Students: Advanced Language Course
Taught by: Mshomba
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 586 Advanced Swahili II
For BA Students: Advanced Language Course
Taught by: Mshomba
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center
AFST 587 Advanced Yoruba I
For BA Students: Advanced Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit

AFST 588 Advanced Yoruba II
For BA Students: Advanced Language Course
Taught by: Awoyale
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFST 594 Afr Lang Tutor: Elem I
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit

AFST 597 African Language Tutorial - Intermediate II
For BA Students: Last Language Course
Activity: Lecture
1 Course Unit

AFST 598 Maninka-Afr Lang Adv I
Language specific sections for students interested in doing country-specific research in a target language. Courses cover project-based skills for AFST research.
For BA Students: Advanced Language Course
Activity: Lecture
1 Course Unit

AFST 649 Amharic Lang & Culture
For BA Students: Advanced Language Course
One-term course offered either term
Activity: Lecture
1 Course Unit
AFRICANA STUDIES (AFRC)

AFRC 001 Introduction to Africana Studies
The term Africana emerged in public discourse amid the social, political, and cultural turbulence of the 1960s. The roots of the field, however, are much older, easily reaching back to oral histories and writings during the early days of the Trans-Atlantic African slave trade. The underpinnings of the field continued to grow in the works of enslaved Africans, abolitionists and social critics of the nineteenth century, and evolved in the twentieth century by black writers, journalists, activists, and educators as the sought to document African descended people’s lives. Collectively, their work established African Studies as a discipline, epistemological standpoint and political practice dedicated to understanding the multiple trajectories and experiences of black people in the world throughout history. As an ever-transforming field of study, this course will examine the genealogy, major discourses, and future trajectory of Africana Studies. Using primary sources such as maps and letters, as well as literature and performance, our study of Africana will begin with continental Africa, move across the Atlantic during the middle passage and travel from the coasts of Bahia in the 18th century to the streets of Baltimore in the 21st century. The course is constructed around major themes in Black intellectual thought including: retentions and transferal, diaspora, black power, meanings of blackness, uplift and nationalism. While attending to narratives and theories that concern African descended people in the United States, the course is uniquely designed with a focus on gender and provides context for the African diasporic experience in the Caribbean and Latin America.
For BA Students: Humanities and Social Science S
Taught by: Beavers, Butler, Charles, Johnson, Hanchard
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 002 Introduction to Sociology
We live in a country which places a premium on individual accomplishments. Hence, all of you worked extremely hard to get into Penn. Yet, social factors also have an impact on life chance. This class provides an overview of how membership in social groups shapes the outcomes of individuals. We will look at a range of topics from the organizational factors which promoted racial inequality in Ferguson, Mo to the refusal of (mostly elite) parents to vaccinate their children. The experience of women and men in the labor market -- and the social factors that lead women to earn less than men -- is another important topic taken up in the course. Who gets ahead in America? Course requirements include a midterm, research paper (five to six pages), final and recitation activities. Students are not expected to have any previous knowledge of the topic. Welcome to the course!
For BA Students: Society Sector
Taught by: Imoagene, Zuberi
One-term course offered either term
Activity: Recitation
0 Course Units

AFRC 003 Refuge: Stories on Art and Survival
"The nomad or immigrant who learns something rightly must always ponder travel and movement, just as the grief-stricken must inevitably ponder death. As does the artist who comes from a culture that is as much about harnessing life -joyous, jubilant, resilient life-as it is about avoiding death." Edwidge Danticat, Create Dangerously. The Immigrant Artist at Work What can we learn about the current migration crisis from literature and film? This course will first introduce students to histories of migration during the 20th and 21st centuries that have emerged from Cameroon, Canada, France, Haiti, South Africa, United Kingdom, United States, among others. Students will then study how these histories shape film and literature as much as how artistic works shape these histories. From studying artistic works by Raoul Peck, Dany Laferriere, Ousmane Sembene, NoViolet Bulawayo and Edouard Duval-Carrie we will approach a few questions. What is it like to lose your home and your homeland? How can we learn from the stories of emigres, exiles, expatriates, immigrants, migrants and refugees of their search for refuge? How have these experiences of migration been affected by race, gender and class? Finally, how do we "immigrant artists," borrow from Edwidge Danticat, negotiate the zone of comfort or discomfort necessary to create and recreate? This course is open to students from all majors. No previous knowledge of literary studies or current affairs required. Course evaluations include weekly Canvas posts, oral presentations and creative, individualized projects.
Taught by: IRELE
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 006 Race and Ethnic Relations
The course will focus on race and ethnicity in the United States. We begin with a brief history of racial categorization and immigration to the U.S. The course continues by examining a number of topics including racial and ethnic identity, interracial and interethnic friendships and marriage, racial attitudes, mass media images, residential segregation, educational stratification, and labor market outcomes. The course will include discussions of African Americans, Whites, Hispanics, and Asian Americans and Multiracials.
Taught by: Charles, Kao, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 008 Sociology of the Black Community
This course explores a broad set of issues defining important aspects of the Black/African American experience. In addition to the "usual suspects" (e.g., race, socioeconomic status, poverty, gender, and group culture), we also think about matters of health and well-being, the family, education, and identity in Black/African American communities. Our goal is to gain a deeper sociological understanding and appreciation of the diverse and ever-changing life experiences of Blacks/African Americans.
Taught by: Charles
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Freshman Seminar
AFRC 010 Freshman Seminar
This course is cross-listed with PSCI 010 (Freshmen Seminar) when the subject matter is related to African American or other African Diaspora issues. Topics vary. A recent topic is "Race, Crime, and Punishment." See the Africana Studies Department's website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Gottschalk
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 011 Urban Sociology
This course is a comprehensive introduction to the sociological study of urban areas. This includes more general topics as the rise of cities and theories urbanism, as well as more specific areas of inquiry, including American urbanism, segregation, urban poverty, suburbanization and sprawl, neighborhoods and crime, and immigrant ghettos. The course will also devote significant attention to globalization and the process of urbanization in less developed counties.
Taught by: Flippen
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 015 Freshman Seminar in 20TH Century History
In this First Year Seminar we will use coming-of-age autobiographies to explore some of the most significant historical developments of the 20th century. By coming of age I mean autobiographies in which the author focuses primarily on the periods of childhood and adolescence into young adulthood. We will read books by people who lived during segregation in the South, the Great Depression, Japanese Internment during World War II, and the Civil Rights Movement of the 1960s. We will consider many issues, including: race, racism, immigration, religion, social class, and gender. We will contemplate questions about identity, family, honesty, and memory. As we read each book we will examine an individual life in a particular place and time, and we will move out beyond the confines of a person, family, or town to explore the broader historical moment in which the individual lived. To make this deeper contextualization possible, the course is divided into segments that will allow us to study the historical context of the autobiography as well as engage in focused discussion of the texts themselves.
Taught by: Williams
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 017 Topics in Literature
SPRING 2018: This seminar will introduce students to the power of public art. Outdoor murals, painted poetry, poetry performed outdoors, anti-museum sculpture, and outdoor theater will be the focus of this seminar. How does public art make the very idea of art gain new dimensions such as art as an event (not an object) and art as a community intervention? Our starting point will be outdoor murals in Philadelphia and other very recent art reconsidering the meaning of public monuments. In addition to our focus on contemporary public art in Philadelphia, we will focus on the role of public art in the 1960s and 1970s Black Arts Movement. The seminar will unveil the power of outdoor space to create art that has urgency and the openness of radical experimentation. See the Africana Studies Department's website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Beavers, Tillet, Crawford
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Freshmen Seminar

AFRC 019 AFAM Freshman Seminar
This course will introduce students to a more hemispheric understanding of the American experience, through the writings of many authors from the New World, including the United States, on what it means to be an American. Students will read texts from many genres including but not limited to poetry, film, prose, political speeches and autobiography, to come to terms with histories of native Americans, African-Americans, Latinos, and whites in the United States, as well as peoples of South America and the Caribbean. In the process students will become familiar with scholarship across the social sciences and humanities that consider issues of race, culture, nation, freedom and inequality in the Americas, and how racial slavery and the Afro-American hemispheric experience has informed multiple American visions.
Taught by: Hanchard
Course usually offered in fall term
Activity: Seminar
1 Course Unit
AFRC 041 Homelessness & Urban Inequality
This freshman seminar examines the homelessness problem from a variety of scientific and policy perspectives. Contemporary homelessness differs significantly from related conditions of destitute poverty during other eras of our nation's history. Advocates, researchers and policymakers have all played key roles in defining the current problem, measuring its prevalence, and designing interventions to reduce it. The first section of this course examines the definitional and measurement issues, and how they affect our understanding of the scale and composition of the problem. Explanations for homelessness have also been varied, and the second part of the course focuses on examining the merits of some of those explanations, and in particular, the role of the affordable housing crisis. The third section of the course focuses on the dynamics of homelessness, combining evidence from ethnographic studies of how people become homeless and experience homelessness, with quantitative research on the patterns of entry and exit from the condition. The final section of the course turns to the approaches taken by policymakers and advocates to address the problem, and considers the efficacy and quandaries associated with various policy strategies. The course concludes by contemplating the future of homelessness research and public policy.
Taught by: Culhane
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This freshmen seminar is cross-listed with URBS 010 when the subject matter is related to African, African American, or other African Diaspora issues. A recent topic is "Homelessness and Urban Inequality." See the Africana Studies Department's website at https://africana.sas.upenn.edu for a description of the current offerings.

AFRC 050 World Musics and Cultures
This course examines how we as consumers in the "Western" world engage with musical difference largely through the products of the global entertainment industry. We examine music cultures in contact in a variety of ways--particularly as traditions in transformation. Students gain an understanding of traditional music as live, meaningful person-to-person music making, by examining the music in its original site of production, and then considering its transformation once it is removed, and recontextualized in a variety of ways. The purpose of the course is to enable students to become informed and critical consumers of "World Music" by telling a series of stories about particular recordings made with, or using the music of, peoples culturally and geographically distant from the US. Students come to understand that not all music downloads containing music from unfamiliar places are the same, and that particular recordings may be embedded in intriguing and controversial narratives of production and consumption. At the very least, students should emerge from the class with a clear understanding that the production, distribution, and consumption of world music is rarely a neutral process.
For BA Students: Arts and Letters Sector
Taught by: Muller, Rommen
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 045 Sounding Poetry: Music and Literature
The music form of scat deeyoodaadayodeedaadeedaaa is the answer to the reape question Who are we? Where are we going? What are we here for? in the 1960s Hip Generation. This course will explore the role of music in shaping the most innovative forms African American literature. Forms such as jazz poetry, blues poetry, and the frupture of Hip Hop will be as central to this course as the jam sessions that sitery movements such as the Harlem Renaissance and the Black Arts Movement. The interplay between listening and reading will shape each layer of the co Langston Hughes Ask Your Mama: 12 Moods for Jazz (1961) will be our starting p likely assigned texts include Gayl Jones Corregidora, Kevin Youngs To Repel G Remix, Sherman Alexies Reservation Blues, Paul Millers Sound Unbound, and The Poets: New American Poetry in the Age of Hip-Hop.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Activity: Lecture
1 Course Unit

AFRC 056 Seeing/Hearing South Africa: Politics and History through Contemporary Performance
This course begins in the regular semester--students are provided a general introduction to South African history, politics, environment, and performance through a range of resources: scholarly literature, film, music, and online resources; with particular focus on sites, communities, and events included in the two week intensive travel to South Africa (either Fall semester Intro with winter break travel; or spring semester Intro with late spring intensive travel). Students are given guidelines for writing about and representing live performances and experiences of exhibits and heritage sites. For fall/winter travel: focus is on Cape Town's New Year's Festival performed by those historically called "Cape Coloured" a Festival that makes complicated understandings of race, slavery, and transatlantic translation of borrowed culture. For the Spring/late spring travel, the destination is music festivals in mid-May. Both classes include visits to Robben island, Kirstenbosch gardens; "Cape Malay' heritage sites; travel to KwaZulu Natal, and to Johannesburg's apartheid museum, Soweto's anti apartheid destinations, the Cradle of Humankind works heritage site, a game park, and the Union Buildings in Pretoria. En route we will stop over to view Khoisan rock art.
Taught by: Muller
Course usually offered summer term only
Activity: Seminar
1 Course Unit
Notes: Application required through Penn Global: https://global.upenn.edu/pennabroad/pgs

AFRC 062 Land of the Pharaohs
This course provides an introduction to the society, culture and history of ancient Egypt. The objective of the course is to provide an understanding of the characteristics of the civilization of ancient Egypt and how that ancient society succeeded as one of the most successful and long-lived civilizations in world history.
For BA Students: History and Tradition Sector
Activity: Lecture
1 Course Unit
AFRC 070 Colonial Latin America
This course provides an introduction to the broad literature on Latin America's rich colonial history. We will begin by tracing some of the early origins of - and points of contact between - the Indian, Iberian, and African men and women who formed the basis of colonial society. As the course progresses, we will explore the variety of ways in which colonial subjects lived, worked, ate, worshipped, and socialized. Lectures and reading assignments will draw upon a variety of sources, including court cases, artistic renderings, city maps and street plans, travel accounts of visits to the regions, and the material, cultural, and intellectual products made possible by the wealth and dynamism of the seventeenth and eighteenth centuries. The course will conclude with an analysis of the Age of Revolutions, a period of dramatic upheaval that remains at the center of lively scholarly debates. By the end of the semester, students will be able to engage the key questions driving these debates, the most important of which, perhaps, is: what is Latin America's colonial legacy?
For BA Students: History and Tradition Sector
Taught by: Farnsworth-Alvear
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Fulfills History Tradition Distribution Requirement

AFRC 075 Africa Before 1800
Survey of major themes and issues in African history before 1800. Topics include: early civilizations, African kingdoms and empires, population movements, the spread of Islam, and the slave trade. Also, emphasis on how historians use archaeology, linguistics, and oral traditions to reconstruct Africa's early history.
For BA Students: History and Tradition Sector
Taught by: Babou
Course usually offered in spring term
Activity: Lecture
0 Course Units

AFRC 076 Africa Since 1800
Survey of major themes, events, and personalities in African history from the early nineteenth century through the 1960s. Topics include: abolition of the slave trade, European imperialism, impact of colonial rule, African resistance, religious and cultural movements, rise of naturalism and pan-Africanism, issues of ethnicity and “tribalism” in modern Africa.
For BA Students: History and Tradition Sector
Taught by: Cassanelli
Course usually offered in fall term
Activity: Recitation
1 Course Unit

AFRC 077 Jazz Style and History
This course is an exploration of the family of musical idioms called jazz. Attention will be given to issues of style development, selective musicians, and to the social and cultural conditions and the scholarly discourses that have informed the creation, dissemination and reception of this dynamic set of styles from the beginning of the 20th century to the present.
Taught by: Ramsey
Course not offered every year
Activity: Lecture
1 Course Unit

AFRC 078 Faculty-Student Collaborative Action Seminar in Urban University-Community Relations
One of the goals of this seminar is to help students develop their capacity to solve strategic, real-world problems by working collaboratively in the classroom, on campus, and in the West Philadelphia community. Research teams help contribute to the improvement of education on campus and in the community, as well as the improvement of university-community relations. Among other responsibilities, students focus their community service on college and career readiness at West Philadelphia High School and Sayre High School. Students are typically engaged in academically based community service learning at the schools for two hours each week.
Taught by: Harkavy
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 079 Literatures of Jazz
That modernism is steeped as much in the rituals of race as of innovation is most evident in the emergence of the music we have come to know as jazz, which results from collaborations and confrontations taking place both across and within the color line. In this course we will look at jazz and the literary representations it engendered in order to understand modern American culture. We will explore a dizzying variety of forms, including autobiography and album liner notes, biography, poetry, fiction, and cinema. We'll examine how race, gender, and class influenced the development of jazz music, and then will use jazz music to develop critical approaches to literary form. Students are not required to have a critical understanding of music. Class will involve visits from musicians and critics, as well as field trips to some of Philadelphia's most vibrant jazz venues. Topics vary. See the Africana Studies Department's website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Beavers
Course not offered every year
Activity: Lecture
1 Course Unit

AFRC 081 African-American Literature
This introduction to African American literature will begin with contemporary, groundbreaking texts such as Claudia Rankines Citizen: An American Lyric and Toni Morisons A Mercy. These twenty-first century texts will lead us to the questions about freedom, beauty, struggle, pleasure, and resistance that shape the origins of African American literature. The course will be shaped around circles of influence (not a linear mapping of a literary tradition). These circles of the changing same become the art of flow, layering, and rupture. We will dive into the multidirectional flow of slave narratives/neo-slave narratives, black modernism/black postmodernism, black respectability politics/black radicalism, and mastery of form/deformation of mastery. See the Africana Studies Department's website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Beavers, Davis, Tillett
Course not offered every year
Activity: Lecture
1 Course Unit
AFRC 085 Contemporary American Literature
The readings for this course expose the student to a wide range of American fiction and poetry since World War II, giving considerable attention to recent work. Works may include All The King's Men by Robert Penn Warren, Herzog by Saul Bellow, On The Road by Jack Kerouac, V by Thomas Pynchon, Of Love and Dust by Ernest J. Gaines, A Flag For Sunrise by Robert Stone, The Killing Ground by Mary Lee Settle, and selected poem by Ginsberg, Plath, and Walcott. Readings vary from term to term.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: This course is cross-listed with ENGL 074 (Contemporary American Literature) when the course content is related to Afro-American issues. Topics vary. Consult the Africana Department website for a current course description.

AFRC 100 Introduction to Art
Spring 2018: Starting with the Penn Museum and the Philadelphia Museum of Art, the seminar will visit major collections of Philadelphia, both to examine the works of art and artifacts (on display and in storage) and to meet with directors, curators, keepers, and collectors. Most meetings will take place in the museums, not in the classroom. While the seminar will provide an overview of the history of art, our discussions on site will focus on changing aesthetics and collecting practices, aspects of display and contextualization, the institution of the museum, thing theory, and the blurred boundaries between ethnography, archaeology, and art history
Taught by: Du Bois Shaw
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For Freshmen only. Topics Varies

AFRC 101 Study of an Author
This course introduces students to literary study through the works of a single author—often Shakespeare, but other versions will feature writers like Jane Austen, Geoffrey Chaucer, Herman Melville, and August Wilson. Readings an individual author across his or her entire career offers students the rare opportunity to examine works from several critical perspectives in a single course. What is the author's relation to his or her time? How do our author's works help us to understand literary history more generally? And how might be understand our author's legacy through performance, tributes, adaptations, or sequels? Exposing students to a range of approaches and assignments, this course is an ideal introduction to literary study for those students wishing to take an English course but not necessarily intending to major. See the Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
Taught by: Beavers
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 109 American Jesus
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 112 Discrimination: Sexual and Racial Conflict
This course is concerned with the structure, the causes and correlates, and the government policies to alleviate discrimination by race and gender in the United States. The central focus of the course is on employment differences by race and gender and the extent to which they arise from labor market discrimination versus other causes, although racial discrimination in housing is also considered. After a comprehensive overview of the structures of labor and housing markets and of nondiscriminatory reasons (that is, the cumulative effects of past discrimination and/or experiences) for the existence of group differentials in employment, wages, and residential locations, various theories of the sources of current discrimination are reviewed and evaluated. Actual governmental policies and alternative policies are evaluated in light of both the empirical evidence on group differences and the alternative theories of discrimination. This course is concerned with the structure, the causes and correlates, and the government policies to alleviate discrimination by race and gender in the United States. The central focus of the course is on employment differences by race and gender and the extent to which they arise from labor market discrimination versus other causes, although racial discrimination in housing.
For BA Students: Society Sector
Taught by: Madden
Course usually offered in spring term
Activity: Lecture
1 Course Unit

AFRC 114 Poetry Writing Workshop
This is a workshop for students who are interested in exploring a variety of approaches to poetry. Students will encounter a diverse series of readings, in-class writing activities, weekly writing assignments, and creative methods for heightening your abilities as a reader and writer.
Taught by: Beavers
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen. Students wishing to take this course must submit a writing sample as part of the selection process.

AFRC 115 Religious Ethics and Modern Society
Religious beliefs of Malcolm X and MLK formed their social action during the Civil Rights for African Americans. This seminar will explore the religious biographies of each leader, how religion shaped their public and private personas, and the transformative and transgressive role that religion played in the history of the Civil Rights movement in the United States and abroad. Students in this course will leave with a clearer understanding of religious beliefs of Christianity, The Nation of Islam, and Islam, as well as religiously based social activism. Other course emphases include the public and private roles of religion within the context of the shaping of ideas of freedom, democracy, and equality in the United States, the role of the "Black church" in depicting messages of democracy and freedom, and religious oratory as exemplified through MLK and Malcolm X. See Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Butler
One-term course offered either term
Activity: Lecture
1 Course Unit
AFRC 117 African American Religion
The unique history and experiences of African Americans can be traced through religion and belief. Through the mediums of literature, politics, music, and film, students will explore the religious experiences of people of the African Diaspora within the context of the complex history of race in American history. The course will cover a broad spectrum of African American religious experience including Black Nationalism, urban religions, the "black church" and African religious traditions such as Santeria and Rastafarianism. Special attention will be paid to the role of race, gender, sexuality, and popular culture in the African American religious experience.
Taught by: Butler
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 120 Social Statistics
This course offers a basic introduction to the application/interpretation of statistical analysis in sociology. Upon completion, you should be familiar with a variety of basic statistical techniques that allow examination of interesting social questions. We begin by learning to describe the characteristics of groups, followed by a discussion of how to examine and generalize about relationships between the characteristics of groups. Emphasis is placed on the understanding/interpretation of statistics used to describe and make generalizations about group characteristics. In addition to hand calculations, you will also become familiar with using PCs to run statistical tests.
Taught by: Charles
One-term course offered either term
Activity: Recitation
0 Course Units

AFRC 121 Writing for Children
We will read our favorite kids' books, determine the kinds of books we love to read and write, and then write them, aiming at a clear voice appropriate to the story, and as much order or misrule as each writer's kid-muse demands. For inspiration, we'll visit the Maurice Sendak Collection at the Rosenbach Museum and Library and have a nostalgia wallow in the kids' section at the library. Then students write, fast-fast, drafts of stories to workshop, mull and revise. Yes, fun is required. For sure we'll critique, but first we'll try to outrun our interior grown-up! Workshopping happens first with student writer colleagues, and then with the real kids in schools, through our partner West Philadelphia Alliance for Children. Reading to children will give studentwriters a chance to hear where children laugh, see where they look scared, or notice when they begin to fidget. Returning with revisions will be a promise fulfilled, and an important marker in the literary life of everyone involved. Our class will act as a team of editors, then, to submit stories-and-illustrations by authors and/or kids-on the upcoming website, SafeKidsStories.org.
Taught by: Cary
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen. Students wishing to take this course must submit a writing sample as part of the selection process. May be repeated for credit with a different instructor.

AFRC 134 Creative Non-Fiction Writing
SPRING 2018: As children, we first begin to learn stories and myths that explain how the world works, what life means, and how we're the same and different. In this writing seminar, we will explore myths about race, class, gender, and sexuality that are embedded in the culture of ordinary life, as well as in systems of power and privilege. We'll examine how inequalities impact not only our opportunities, but also how we perceive ourselves and others. During this semester, students will learn how other writers including Frederick Douglass, Audre Lorde, Leslie Marmon Silko, Thandeka, Angela Davis, James Baldwin, Jimmy Santiago Baco, and Amy Tan have used language to help them convey who they are and how their experiences have shaped them. Throughout the semester, we also will mine a deep understanding of the art of writing. In addition to in-class exercises, meditation and movement, students will be asked to maintain a daily practice of free-writing; writing responses (2-3 pages weekly) to assigned books, essays, stories, and documentaries; participate in workshop discussions and peer review, and write and revise three stories/essays (4-5 pages).
Taught by: Cary, Watterson
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 135 Law and Society
After introducing students to the major theoretical concepts concerning law and society, significant controversial societal issues that deal with law and the legal systems both domestically and internationally will be examined. Class discussions will focus on issues involving civil liberties, the organization of courts, legislatures, the legal profession and administrative agencies. Although the focus will be on law in the United States, law and society in other countries of Africa, Asia, Europe and Latin America will be covered in a comparative context. Readings include research, reports, statutes and cases.
Taught by: Fetni
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 140 Elementary Zulu I in Residence
This elementary course is for beginners and it requires no prior knowledge of Zulu. The course will expose students to the Zulu language and culture and will be based in the National Standards for Foreign Language Learning. Students will be engaged in communicative language learning through interpersonal, interpretive and presentational modes of language learning techniques. They will gain knowledge and understanding of the Zulu culture. They will use their Zulu language and culture learning experience to connect with other disciplines and further their knowledge of these disciplines through perspectives acquired from their Zulu class. They will also develop insight into the nature of language and culture through comparisons of the Zulu language and culture and their own. Through movies, songs, and other cultural activities online students will acquire the natural use of the language which will enable them to acquire linguistic and cultural skill to become life-long learners who can participate in Zulu communities in the U.S. and overseas.
Taught by: Mbeje
Course usually offered in fall term
Activity: Lecture
0.05 Course Units
Notes: OBJECTIVE: Attainment of Level 1 (ceiling) in speaking, listening, reading, and writing skills on the Interagency Language Roundtable (ILR) scale.
AFRC 147 Studies in African American Music
This course explores aspects of the origins, style development, aesthetic philosophies, historiography, and contemporary conventions of African-American musical traditions. Topics covered include: the music of West and Central Africa, the music of colonial America, 19th century church and dance music, minstrelsy, music of the Harlem Renaissance, jazz, blues, gospel, hip-hop, and film music. Special attention is given to the ways that black music produces "meaning" and to how the social energy circulating within black music articulates myriad issues about American identity at specific historical moments. The course will also engage other expressive art forms from visual and literary sources in order to better position music making into the larger framework of African American aesthetics.
Taught by: Ramsey
Course not offered every year
Activity: Lecture
1 Course Unit

AFRC 167 The New African Diaspora
This seminar will examine the experiences of recent African immigrants and refugees in Philadelphia in an historical framework. We will employ a variety of sources—newspapers, census data, legal briefs, literature and film, and diaspora internet sites—to explore the lives, aspirations, and perceptions of Philadelphia’s African residents. There will be opportunities for dialogue with high school students, teachers, and parents; with representatives of African community and business organizations; and with local government and service agencies. Students will be required to do a final project which involves volunteering with an African immigrant non-profit or business and/or conducting focused research on specific African communities in Philadelphia.
Taught by: Babou
Activity: Seminar
1 Course Unit

AFRC 168 History of American Law to 1877
The course surveys the development of law in the U.S. to 1877, including such subjects as: the evolution of the legal profession, the transformation of English law during the American Revolution, the making and implementation of the Constitution, and issues concerning business and economic development, the law of slavery, the status of women, and civil rights.
Taught by: Berry
Course usually offered in fall term
Activity: Lecture
1 Course Unit

AFRC 169 History of American Law Since 1877
This course covers the development of legal rules and principles concerning individual and group conduct in the United States since 1877. Such subjects as regulation and deregulation, legal education and the legal profession, and the legal status of women and minorities will be discussed.
Taught by: Berry
Course usually offered in spring term
Activity: Lecture
1 Course Unit

AFRC 170 Elementary Yoruba I
This Elementary Yoruba I course can be taken to fulfull a language requirement, or for linguistic preparation to do research on Nigeria and the diaspora/Africa-related topics. The course emphasizes communicative competence to enable the students to acquire linguistic and extra-linguistic skills in Yoruba. The content of the course is selected from various everyday life situations to enable the students to communicate in predictable commom daily settings. Culture, as it relates to language use, is also part of the course content. Students will acquire the speaking, listening, reading, and writing skills at the mid-high novice level, based on the ACTFL scale. The mid-high novice level proficiency skills that the students will acquire constitute threshold capabilities of the second semester range of proficiency to prepare students for Elementary Yoruba II course materials.
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 171 Elementary Yoruba II
The main objective of this course is to further sharpen the Yoruba linguistic knowledge that the student acquired in level I. By the end of the course, the student should be able to (1) read, write, and understand simple to moderately complex sentences in Yoruba; and, (2) advance in the knowledge of the Yoruba culture.
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in spring term
Prerequisites: Completion of Elementary Yoruba I, or permission of instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 172 The American South
This course will cover southern culture and history from 1607-1860, from Jamestown to secession. It traces the rise of slavery and plantation society, the growth of Southern sectionalism and its explosion into Civil War.
For BA Students: History and Tradition Sector
Taught by: Hahn
One-term course offered either term
Activity: Recitation
1 Course Unit
AFRC 174 Capitalism, Socialism, & Crisis in Twentieth-Century Americas
From the crisis of the Great Depression through the 1970s, the United States and Latin America produced remarkable efforts to remake society and political economy. This course analyzes the Cuban and Guatemalan revolutions, as well as social movements that transformed the United States: the black freedom movement, the labor movement, and changing forms of Latino politics. In all three countries, Americans looked for ways to reform capitalism or build socialism; address entrenched patterns of racism; define and realize democracy; and achieve national independence. They conceived of these these challenges in dramatically different ways. Together, we'll compare national histories and analyze the relationships between national upheavals. In studying the US and Latin America together, the class allows students to explore central questions in both regions' histories. What did capitalism, solicidalism, and communism amount to? What did democracy mean? What were the roots of racial inequality and how did Americans address it? Why were Americans so enticed by economic growth, and how did they pursue it? How did the Cold War shape social movements? What purposes did unions serve? How did Christianity inform movements for and against social change? Studying these regions together also allows us to explore international interactions. How did the black freedom movement in the US relate to the Cuban revolution? How did Latin American immigration shape the US labor movement? How US Cold War policy influence Latin American revolutionary movements? The goal of this class is for you to interpret the readings and decide what you think. What you learn in this class, and the quality of our experience together, depends on your reading closely, coming to class with informed ideas and questions, and being prepared to help your classmates answer theirs. We will read approximately 100 pages per week. No background is required.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

AFRC 175 Society and Culture of Brazil
With its booming economy, the recent inauguration of its first female president, and its selection as host to the 2012 World Cup and Olympic games, Brazil is growing in global prestige. But amid all these exciting developments are devastating socioeconomic inequalities. Access to safe living conditions, livable wages, higher education, and overall social mobility remain painfully out of reach to many Brazilians, the majority of whom are the descendants of slaves. Why do these problems persist in a country that has had such an enduring and widespread reputation as a "racial democracy"? What are the possibilities of closing the equality gap in Brazil?
Activity: Lecture
1 Course Unit

AFRC 176 Afro-American History 1550-1876
This course examines the experiences of Africans and African Americans in colonial America and in the United States to 1865. We will explore a variety of themes through the use of primary and secondary sources. Topics include: the development of racial slavery, labor, identity, gender, religion, education, law, protest, resistance, and abolition.
For BA Students: History and Tradition Sector
Taught by: Akins, Williams
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

AFRC 177 Afro-American History 1876 to Present
A study of the major events, issues, and personalities in Afro-American history from Reconstruction to the present. The course will also examine the different slave experiences and the methods of black resistance and rebellion in the various slave systems.
For BA Students: History and Tradition Sector
Taught by: Harris, Savage
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 178 Elementary Swahili I
Notes: Offered through the Penn Language Center
1 Course Unit

AFRC 179 Elementary Swahili II
1 Course Unit

AFRC 180 Elementary Swahili I
The elementary Swahili course can be taken to fulfill a language requirement, or for linguistic preparation to do research on East Africa/Africa-related topics. The course emphasizes communicative competence to enable the students to acquire linguistic and extra-linguistic skills in Swahili. The content of the course is selected from various everyday life situations to enable the students to communicate in predictable common daily settings. Culture, as it relates to language use, is also part of the course content. Students will acquire the speaking, listening, reading, and writing skills at the mid-high novice level, based on the ACTFL scale. The mid-high level proficiency skills that the students acquire constitute threshold capabilities of the second semester range of proficiency to prepare students for Elementary Swahili II course materials.
For BA Students: Language Course
Taught by: Mshomba
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 181 Elementary Swahili II
This course continues to introduce basic grammar, vocabulary, and the reading and writing of Swahili to new speakers. During this term, folktales, other texts, and film selections are used to help introduce important aspects of Swahili culture and the use of the language in wide areas of Africa.
For BA Students: Language Course
Taught by: Bolger
Course usually offered in spring term
Prerequisites: Completion of Elementry Swahili I, or permission of instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center
AFRC 187 Topics in Africana Studies
Topics Vary. See the Africana Studies Program’s website at www.sas.upenn.edu/africana for a description of the current offerings.
SPRING 2017: The history of the women and men of African Descent who have studied, taught, researched, and worked at the University of Pennsylvania provides a powerful window into the complex history of Blacks not only in America but throughout the Diaspora. This class will unpack, uncover, and present this history through close studies of texts and archived records on and at the university, as well as through first hand accounts by alumni and past and present faculty and staff members. These stories of the trials and triumphs of individuals on and around this campus demonstrate the amazing and absurd experience that Blacks have endured both at Penn and globally. Emphasis will be placed on the research process with the intent of creating a democratic classroom where all are students and all are instructors. Students will become familiar with archival historical research (and historical criticism) as well as with ethnographic research. Far more than just a survey of historical moments on campus and in the community, students will meet face to face with those who have lived and are presently living history and they will be faced with the challenge of discerning the most effective ways of documenting, protecting, and representing that history for future generations of Penn students.
Taught by: Howard, Peterson
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 190 Introduction to Africa
This course provides an introduction to the study of Africa in all its diversity and complexity. Our focus is cultural, geographical, and historical: we will seek to understand Africa’s current place in the world political and economic order and learn about the various social and physical factors that have influenced the historical trajectory of the continent. We study the cultural formations and empires that emerged in Africa before European colonial invasion and then how colonialism reshaped those sociocultural forms. We’ll learn about the unique kinds of kinship and religion in precolonial Africa and the changes brought about by the spread of Islam and Christianity. Finally, we’ll take a close look at contemporary issues such as ethnic violence, migration, popular culture and poverty, and we’ll debate the various approaches to understanding those issues.
For BA Students: Society Sector
Taught by: Hasty
Course usually offered in fall term
Activity: Lecture
1 Course Unit

AFRC 215 The World After 1800: Advanced Benjamin Franklin Seminar
This course is cross listed with HIST 214 (America after 1800: Advanced Benjamin Franklin Seminar) when the subject matter is related to African, African American or African diaspora issues. See the Africana Studies Program’s website at www.sas.upenn.edu/africana for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 218 Diversity and the Law
The goal of this course is to study the role the law has played, and continues to play, in addressing the problems of racial discrimination in the United States. Contemporary issues such as racial profiling, affirmative action, and diversity will all be covered in their social and legal context. The basis for discussion will be assigned texts, articles, editorials and cases. In addition, interactive videos will also be used to aid class discussion. Course requirements will include a term paper and class presentations.
Taught by: Anderson
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 220 African Women’s Lives: Past and Present
Restoring women to African history is a worthy goal, but easier said than done. The course examines scholarship over the past forty years that brings to light previously overlooked contributions African women have made to political struggle, religious change, culture preservation, and economic development from pre-colonial times to present. The course addresses basic questions about changing women’s roles and human rights controversies associated with African women within the wider cultural and historical contexts in which their lives are lived. It also raises fundamental questions about sources, methodology, and representation, including the value of African women’s oral and written narrative and cinema production as avenues to insider perspectives on African women’s lives.
Taught by: Blakley
Course not offered every year
Activity: Lecture
1 Course Unit

AFRC 221 African Languages and Culture
The aim of the course is to provide an overall perspective on African languages and linguistics. No background in linguistics is necessary. Students will be introduced to theoretical linguistics-its concepts, theories, ways of argumentation, data collection, data analysis, and data interpretation. The focus will be on the languages and linguistics of Africa to provide you with the knowledge and skills required to handle the language and language-related issues typical of African conditions. We will cover topics related to formal linguistics (phonology/phonetics, morphology, syntax, and semantics), aspects of pragmatics as well as the general socio-linguistic character of African countries. We will also cover language in context, language and culture, borrowing, multilingualism, and cross-cultural communication in Africa.
Taught by: Mbeje
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 222 African Women’s Lives: Past and Present
Restoring women to African history is a worthy goal, but easier said than done. The course examines scholarship over the past forty years that brings to light previously overlooked contributions African women have made to political struggle, religious change, culture preservation, and economic development from pre-colonial times to present. The course addresses basic questions about changing women’s roles and human rights controversies associated with African women within the wider cultural and historical contexts in which their lives are lived. It also raises fundamental questions about sources, methodology, and representation, including the value of African women’s oral and written narrative and cinema production as avenues to insider perspectives on African women’s lives.
Taught by: Anderson
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 223 Media in Africa
Course usually offered in spring term
Activity: Seminar
1 Course Unit

AFRC 224 Topics in US History
Topics vary. See the Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Berry, Brown, Hahn
Course usually offered in fall term
Activity: Seminar
1 Course Unit
AFRC 230 Special Topics in Sociology
Topics vary from semester to semester.
Taught by: Charles, Zuberi, Roberts
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is cross-listed with SOCI 430 (Special Topics in Sociology) when the subject matter is related to African, African American, or other African Diaspora issues.

AFRC 232 Race and Ethnic Politics
This course examines the role of race and ethnicity in the political discourse through a comparative survey of recent literature on the historical and contemporary political experiences of the four major minority groups (Blacks or African Americans, American Indians, Latinos or Hispanic Americans, and Asian Americans). A few of the key topics will include assimilation and acculturation seen in the Asian American community, understanding the political direction of Black America in a pre and post Civil Rights era, and assessing the emergence of Hispanics as the largest minority group and the political impact of this demographic change. Throughout the semester, the course will introduce students to significant minority legislation, political behavior, social movements, litigation/court ruling, media and various forms of public opinion that have shaped the history of racial and ethnic minority relations in this country. Readings are drawn from books and articles written by contemporary political scientists.
Taught by: Gillion
Course not offered every year
Activity: Lecture
0 Course Units

AFRC 233 World History: Africa or the Middle East
SPRING 2018: African cities in the past contributed to dynamic and prosperous civilizations. What happened? This course examines Africans’ aspirations of modernity through the lens of African urban history using fiction, film and current scholarship in several disciplines. Each class will explore two temporaliesthe precolonial history of African cities, and the colonial and postcolonial histories of economic, social and political progress which goes by the name of development. Grounded in the case studies of both ancient and modern cities, this course explores the emergence and decline of trading centers, the rise of colonial cities, and the dilemmas of postcolonial economies and politics.
Taught by: Babou, Powell
Course usually offered in fall term
Activity: Seminar
1 Course Unit

AFRC 234 World History: East Asia or Latin America
Topics vary. See the Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.

AFRC 235 Law and Social Change
Beginning with discussion of various perspectives on social change and law, this course then examines in detail the interdependent relationship between changes in legal and societal institutions. Emphasis will be placed on (1) how and when law can be an instrument for social change, and (2) how and when social change can cause legal change. In the assessment of this relationship, emphasis will be on the laws of the United States. However, laws of other countries and international law relevant to civil liberties, economic, social and political progress will be studied. Throughout the course, discussions will include legal controversies relevant to social change such as issues of race, gender and the law. Other issues relevant to State-Building and development will be discussed. A comparative framework will be used in the analysis of this interdependent relationship between law and social change.
Taught by: Fetni
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 236 Topics in Transnational History
Topics vary
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 237 Undergraduate Research Seminar
Course usually offered in spring term
Activity: Seminar
1 Course Unit

AFRC 238 Undergraduate Topics in Africana Studies
Activity: Lecture
1 Course Unit

AFRC 240 Elementary Amharic I
The Elementary Amharic I course can be taken to fulfill a language requirement, or for linguistic preparation to do research on Ethiopia/Africa-related topics. The course emphasizes communicative competence to enable the students to acquire linguistic and extra-linguistic skills in Amharic. The content of the course is selected from various everyday life situations to enable the students to communicate in predictable common daily settings. Culture, as it relates to language use, is also part of the course content. Students will acquire the speaking, listening, reading, and writing skills at the mid-high novice level, based on the ACTFL scale. The mid-high novice level proficiency skills that the students will acquire constitute threshold capabilities of the second semester range of proficiency to prepare students for Elementary Amharic II course materials.
For BA Students: Language Course
Taught by: Hailu
Course usually offered in fall term
Activity: Lecture
1 Course Unit

Notes: Offered through the Penn Language Center
AFRC 241 Elementary Amharic II
Continuation of Elementary Amharic I. Amharic belongs to the southern branch of Hemeto-Semitic languages, which is also referred to as "Afrasian." Amharic is the official language of Ethiopia and is spoken by 14 million native Amharas and by approximately 18 million of the other groups in Ethiopia. This course continues to introduce basic grammar, vocabulary, and the reading and writing of Amharic to new speakers.
For BA Students: Language Course
Taught by: Hailu
Course usually offered in spring term
Prerequisites: Completion of Elementary Amharic I, or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 242 Intermediate Amharic I
For BA Students: Language Course
Taught by: Hailu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 243 Intermediate Amharic II
For BA Students: Last Language Course
Taught by: Hailu
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 248 Haitian Revolution
In August 1791, enslaved Africans on the northern plain of Saint Domingue (colonial Haiti) rose up in a coordinated attack against their French colonial masters and plantation overseers, launching the initial revolt in what would come to be known as the Haitian Revolution. In the years that followed, their actions forced the legal abolition of racial discrimination, and then the abolition of slavery, throughout the French Empire. Ultimately, when Napoleon Bonaparte threatened to return slavery to Saint Domingue, they waged a war for independence. After defeating the Napoleonic army, these former slaves then declared the world's first "Black Republic," the independent state of Haiti, in 1804. This seminar will examine some of the major themes and debates surrounding Haiti's colonial and revolutionary history. We will begin by considering the colonial paradox: France's leading role in the intellectual movement called the "Enlightenment" coincided with its ascent as a slaveholding colonial power. The seminar will also explore parallels and points of connection between the revolutionary movements in France and Saint Domingue. When the Haitian Revolution began in 1791, the French Revolution was already two years old: how did the increasingly radical ideas and widespread violence in France shape events in the Caribbean? Likewise, how did West African traditions and political ideologies influence insurgents? And how, in turn, did the revolution in Saint Domingue impact the revolution in France? From a diplomatic perspective, we will also consider relations between the Haitian Revolutionary leadership and French officials, examining their respective goals, which overlapped and diverged at different moments. Finally, we will ask how the revolution in Saint Domingue and the birth of Haiti--impacted ideas about liberty, sovereignty and freedom throughout the Atlantic world. We will read a combination of primary and secondary materials each week. Students are encouraged to read primary documents in the original French if they are able. A final research paper will be required of all students, drawing on the Kislak Center's rich collection of revolutionary-era documents.
Activity: Seminar
1 Course Unit

AFRC 258 Caribbean Music and Diaspora
This course considers Caribbean musics within a broad and historical framework. Caribbean musical practices are explored by illustrating the many ways that aesthetics, ritual, communication, religion, and social structure are embodied in and contested through performance. These initial inquiries open onto an investigation of a range of theoretical concepts that become particularly pertinent in Caribbean contexts--concepts such as post-colonialism, migration, ethnicity, hybridity, syncretism, and globalization. Each of these concepts, moreover, will be explored with a view toward understanding its connections to the central analytical paradigm of the course--diaspora. Throughout the course, we will listen to many different styles and repertories of music ranging from calypso to junkanoo, from rumba to merengue, and from dance hall to zouk. We will then work to understand them not only in relation to the readings that frame our discussions but also in relation to our own North-American contexts of music consumption and production.
Taught by: Rommen
Course not offered every year
Activity: Lecture
1 Course Unit

AFRC 266 Topics in Modern American Literature
See the Africana Department's website at www.sas.upenn.edu/africana for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
AFRC 268 Contemporary Issues in African Society
This course will deal with law and society in Africa. After surveying the various legal systems in Africa, the focus will be on how and to what extent the countries of Africa "re-Africanized" their legal systems by reconciling their indigenous law with western law and other legal traditions to create unified legal systems that are used as instruments of social change and development. Toward this end, the experiences of various African countries covering the various legal traditions will be included. Specific focus will be on laws covering both economic and social relations. This emphasis includes laws of contracts and civil wrongs, land law, law of succession, marriage and divorce and Africa’s laws of International Relations, among other laws. Throughout this course a comparative analysis with non-African countries will be stressed.
Taught by: Imoagene, Zuberi
Activity: Lecture
1 Course Unit

AFRC 269 Constitutional Law: Public Power & Civil Rights to 1912
This course explores the creation and transformations of the American constitutional system's structures and goals from the nation's founding through the period of Progressive reforms, the rise of the Jim Crow system, and the Spanish American War. Issues include the division of powers between state and national governments, and the branches of the federal government; economic powers of private actors and government regulators; the authority of governments to enforce or transform racial and gender hierarchies; and the extent of religious and expressive freedoms and rights of persons accused of crimes. We will pay special attention to the changing role of the Supreme Court and its decisions in interpreting and shaping American constitutionalism, and we will also read legislative and executive constitutional arguments, party platforms, and other influential statements of American constitutional thought.
Taught by: Smith
One-term course offered either term
Activity: Recitation
1 Course Unit

AFRC 270 Intermediate Yoruba I
For BA Students: Language Course
Taught by: Awoyale
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 271 Intermediate Yoruba II
For BA Students: Last Language Course
Taught by: Awoyale
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 274 Islam and Society in Africa
This course is designed to provide the students with a broad understanding of the history of Islam in Africa. The focus will be mostly on West Africa, but we will also look at developments in other regions of the continent. We will examine the process of islamization in Africa and the interplay between Islam and the African traditional religions and customs. Topics include conversion, Islamic education and literacy, the status of women, Muslim response to European colonial domination, Islamic mysticism and the contemporary development of Sunni movements.
Taught by: Babou
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 276 African American Life and Culture in Slavery
This course will examine the lives of enslaved African Americans in the United States, both in the North and the South. We will engage historiographical debates, and tackle questions that have long concerned historians. For example, if slaves were wrenched from families and traded, could they sustain family relationships? If slaves worked from sun-up until sun-down, how could they create music? We will engage with primary and secondary sources to expand our understandings of values, cultural practices, and daily life among enslaved people. Topics will include: literacy, family, labor, food, music and dance, hair and clothing, religion, material culture, resistance, and memories of slavery. Several disciplines including History, Archaeology, Literature, and Music, will help us in our explorations. Written, oral, and artistic texts for the course will provide us with rich sources for exploring the nuances of slave life, and students will have opportunities to delve deeply into topics that are of particular interest to them.
Taught by: Williams
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course will also count as the AFRC 176 requirement for the AFRC major.

AFRC 277 Penn Slavery Project Research Seminar
This research seminar provides students with instruction in basic historical methods and an opportunity to conduct collaborative primary source research into the University of Pennsylvania’s historic connections to slavery. After an initial orientation to archival research, students will plunge in to doing actual research at the Kislak Center, the University Archives, the Historical Society of Pennsylvania, the American Philosophical Society, the Library Company, and various online sources. During the final month of the semester, students will begin drafting research reports and preparing for a public presentation of the work. During the semester, there will be opportunities to collaborate with a certified genealogist, a data management and website expert, a consultant on public programming, and a Penn graduate whose research has been integral to the Penn Slavery Project.
Taught by: Brown
One-term course offered either term
Activity: Field Work
1 Course Unit
AFRC 280 Intermediate Swahili I
The objectives of this course are: to strengthen students’ knowledge of speaking, listening, reading, and writing Swahili and to compare it with the language of the students; to learn more about the cultures of East Africa and to compare it with the culture(s) of the students; to consider the relationship between that knowledge and the knowledge of other disciplines; and using that knowledge, to unite students with communities outside of class.
For BA Students: Language Course
Taught by: Mshombma
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 281 Topics in African American Literature
In this advanced seminar, students will be introduced to a variety of approaches to African American literatures, and to a wide spectrum of methodologies and ideological postures (for example, The Black Arts Movement). The course will present an assortment of emphases, some of them focused on geography (for example, the Harlem Renaissance), others focused on genre (autobiography, poetry or drama), the politics of gender and class, or a particular grouping of authors. Previous versions of this course have included "African American Autobiography," "Backgronds of African American Literature," "The Black Narrative" (beginning with eighteenth century slave narratives and working toward contemporary literature), as well as seminars on urban spaces, jazz, migration, oral narratives, black Christianity, and African-American music. See Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Beavers, Davis, Jackson, Tillet
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors.

AFRC 282 Intermediate Swahili II
At the end of the course students will be at Level 2 on the ILR (Interagency Language Roundtable) scale.
For BA Students: Last Language Course
Taught by: Mahomba
Course usually offered in spring term
Prerequisites: Intermediate Swahili 1, or permission of Instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 284 Advanced Swahili I
This is an advanced Kiswahili course which will engage learners in extended spoken and written discourse. Advanced learners of Kiswahili will listen to, read about, write, and speak on authentic video materials, contemporary novels, and newspapers. They will also participate in various discussions on cultural and political issues.
For BA Students: Advanced Language Course
Taught by: Mshombma
One-term course offered either term
Prerequisites: AFST 280, LING 280, AFRC280 or permission of Instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 285 Advanced Swahili II
The objectives are to continue to strengthen students’ knowledge of speaking, listening, reading, and writing Swahili and to compare it with the language of the students; to continue learning about the cultures of East Africa and to continue making comparisons with the culture(s) of the students; to continue to consider the relationship between that knowledge and the knowledge of other disciplines; and using that knowledge, to continue to unite students with communities outside of class. Level 3 on the ILR (Interagency Language Roundtable) scale.
For BA Students: Advanced Language Course
Taught by: Mshombma
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 286 Topics in Race and Ethnicity - No Bench by the Road: Monuments, Memory, and the Afterlife of Slavery
SPRING 2018: In 1989, as she reflected on her magnum opus, Beloved, Toni Morrison declared "There is no place you or I can go, to think about or not think about, to summon the presences of,or recollect the absences of slaves. She went on, There is no suitable memorial, or plaque, or wreath, or wall, or park, or skyscraper lobby. There's no 300-foot tower, there's no bench by the road." And because such a place doesn't exist...the book had to." Today, there are significantly more markers of slavery in the public sphere as well as new novels, films, and television shows that directly take up the history and remnants of slavery in our lives. Looking at Colson Whitehead's novel, The Underground Railroad and WGN's tv series "The Underground," the remaking of the Whitney Plantation in Louisiana as well as considering the debates about confederate flags and monuments in places like New Orleans, Virginia, and South Carolina, this course will examine the meaning and movements behind these contemporary engagements with American slavery today. See the Africana Studies Program's website at www.sas.upenn.edu/africana for a description of the current offerings.
Taught by: Beavers, Tillet
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 290 Topics In Gender, Sexuality, and Literature
See the Department of Africana's website at www.sas.upenn.edu/africana for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 294 Facing America
This course explores the visual history of race in the United States as both self-fashioning and cultural mythology by examining the ways that conceptions of Native American, Latino, and Asian identity, alongside ideas of Blackness and Whiteness, have combined to create the various cultural ideologies of class, gender, and sexuality that remain evident in historical visual and material culture. We will also investigate the ways that these creations have subsequently helped to launch new visual entertainments, including museum spectacles, blackface minstrelsy, and early film, from the colonial period through the 1940s.
Taught by: Shaw
Course not offered every year
Activity: Lecture
1 Course Unit
AFRC 307 Race, Science and Justice
This course draws on an interdisciplinary body of biological and social scientific literature to explore critically the connections between race, science, and justice in the United States, including scientific theories of racial inequality, from the eighteenth century to the genomic age. After investigating varying concepts of race, as well as their uses in eugenics, criminology, anthropology, sociology, neuroscience, and medicine, we will focus on the recent expansion of genomic research and technologies that treat race as a biological category that can be identified at the molecular level, including race-specific pharmaceuticals, commercial ancestry testing, and racial profiling with DNA forensics. We will discuss the significance of scientific investigations of racial difference for advancing racial justice in the United States.

Taught by: Roberts
One-term course offered either term
Activity: Seminar
0 Course Units

AFRC 308 Religious Diversity in America
Images and beliefs about Jesus have always been a compelling part of American life. This course seeks to examine the social, political, religious and artistic ways that Jesus has been appropriated and used in American life, making him a unique figure for exploring American religious life. Special attention will be given to how Jesus is used to shape social and political concerns, including race, gender, sexuality, and culture. See the Africana Studies Department's website at https://africana.sas.upenn.edu for a description of the current offerings.

Taught by: Butler
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course is cross-listed with RELS 310 (Religious Diversity in America) when the subject matter is related to African, African American, or other African Diaspora issues. A recent topic is Religious Diversity and Social Change in West Philadelphia.

AFRC 310 Sustainable Development in Ghana
This course is mandatory for students participating in the International Development Summer Institute (IDSI). IDSI is a service learning and training program for undergraduates that provides students with the opportunity to have an applied learning and cultural experience in Ghana. The program consists of 5 weeks of pre-program preparation at Penn and a 4-week long training program on the campus of Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, Ghana. More Info: http://www.seas.upenn.edu/undergraduate/service-learn/idsi/index.php

Course usually offered in fall term
Prerequisite: Participation in the International Development Summer Institute (IDSI)
Activity: Seminar
1 Course Unit

AFRC 315 Africa, Decolonization, and Internationalism
In 1955, delegates from the Gold Coast, which would soon become the independent nation of Ghana, attended the first large-scale Afro-Asian conference alongside representatives from Indonesia, India, China, and other nations. The Bandung Conference is just one example of the importance of international linkages in the era of decolonization. This course will address decolonization in Africa within an international context and examine how African nationalism was forged in an interconnected world. Students will learn how African political thinkers engaged with, contributed to, and were shaped by intercontinental currents of though, including Pan-Africanism, Pan-Arabism, communism, socialism, and the Non-Aligned Movement.

Course usually offered in spring term
Activity: Lecture
1 Course Unit

AFRC 318 Topics in African Art
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 320 Transoceanic Encounters: East Africa and the Indian Ocean
East Africa has been linked culturally, economically, and politically to the wider Indian Ocean world for centuries. In historical scholarship, the Indian Ocean is often portrayed in overly romanticized terms as a hybrid, cosmopolitan space. This course, which brings together some of the best work on East Africa and the Indian Ocean, will provide a more nuanced view of the region. By critically examining a variety of primary and secondary sources (including novels, photography exhibits, music, and historical texts), students will learn about the legacies of slavery, conquest, and inequality as well as the ways in which the region became a space of multicultural exchange and intercontinental interaction. We will explore the idea of African diasporas in their plurality and examine whether the theoretical tools used to study the Atlantic World can be applied to the Indian Ocean.

Taught by: Weitzberg
Course usually offered in spring term
Activity: Lecture
1 Course Unit

AFRC 321 Understanding African Conflict
The end of colonial rule was the springboard for the start of cold wars in various regions of Africa. Where peace could not be maintained violence erupted. Even where secession has been attained, as in the new country of South Sudan, the threat of civil war lingers. While domestic politics have led to the rise of armed conflicts and civil wars in many African countries, the external factors should also not be ignored. Important in all current conflicts is the concern to international peace and security. Overall this course will: (1) investigate the general nature of armed conflicts in Africa (2) provide in-depth analysis of the underlying factors (3) and discuss the regional and the international responses to these conflicts and their implications. Special emphasis will be placed upon African conflicts and civil wars in: great Lakes area, Mali, Nigeria, Senegal, Sudan, Somalia, South Sudan, and Uganda.

Taught by: Ali-Dinar
One-term course offered either term
Activity: Seminar
1 Course Unit
AFRC 322 American Slavery and the Law
In this course, we will work both chronologically and thematically to examine laws, constitutional provisions, and local and federal court decisions that established, regulated, and perpetuated slavery in the American colonies and states. We will concern ourselves both with change over time in the construction and application of the law, and the persistence of the desire to control and sublimate enslaved people. Our work will include engagement with secondary sources as well as immersion in the actual legal documents. Students will spend some time working with Mississippi murder cases from the 19th century. They will decipher and transcribe handwritten trial transcripts, and will historicize and analyze the cases with attention to procedural due process as well as what the testimony can tell us about the social history of the counties in which the murders occurred. The course will end with an examination of Black Codes that southern states enacted when slavery ended.
Taught by: Williams
Course usually offered in spring term
Activity: Seminar
1 Course Unit

AFRC 324 Dress and Fashion in Africa
Throughout Africa, social and cultural identities of ethnicity, gender, generation, rank and status were conveyed in a range of personal ornamentation that reflects the variation of African cultures. The meaning of one particular item of clothing can transform completely when moved across time and space. As one of many forms of expressive culture, dress shape and give forms to social bodies. In the study of dress and fashion, we could note two distinct broad approaches, the historical and the anthropological. While the former focuses on fashion as a western system that shifted across time and space, and linked with capitalism and western modernity; the latter approach defines dress as an assemblage of modification the body. The Africanist proponents of this anthropological approach insisted that fashion is not a dress system specific to the west and not tied with the rise of capitalism. This course will focus on studying the history of African dress by discussing the forces that have impacted and influenced it overtime, such as socio-economic, colonialism, religion, aesthetics, politics, globalization, and popular culture. The course will also discuss the significance of the different contexts that impacted the choices of what constitute an appropriate attire for distinct situations. African dress in this context is not a fixed relic from the past, but a live cultural item that is influenced by the surrounding forces.
Taught by: Ali-Dinar
Course usually offered in spring term
Activity: Lecture
1 Course Unit

AFRC 325 Performance in the African Diaspora
The purpose of this course is to engage students in the rigorous process of mining experiences for material that can be transformed into a public performance piece. In-class writing, group discussions, and field work in the Philadelphia area. AUGUST WILSON AND BEYOND. The people need to know the story. See how they fit into it. See what part they play. - August Wilson, King Hedley II. In this seminar, students will read groundbreaking playwright August Wilson's 20th Century Cycle: ten plays that form an iconic picture of African American traumas, triumphs, and traditions through the decades, told through the lens of Pittsburgh's Hill District neighborhood. Other readings include supporting material on Wilson's work and African American theatre, the works of contemporary playwrights whom Wilson has influenced (such as Suzan-Lori Parks and Tarell Alvin McCraney), and context on Penn's relationship with West Philadelphia. As an Academically Based Community Service (ABCS) course, this seminar gives students the opportunity to enhance their understanding of the plays, and history and culture that shaped them, by forming meaningful relationships with West Philadelphia residents. Wilson's plays provide the bridge between the two groups. The course culminates with students writing an original theatre piece inspired by the readings and relationships, which they will share at an end-of-semester performance.
Taught by: Beavers, Berger
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Formerly AFRC 309. Writing Out Loud.

AFRC 326 Theories in Gender and Sexuality Studies
FALL 2015: QUEER VALUES - What are queer cultural experiences and values? Many academics and social movements have noted that the radical aspirations of queer theory and activism not only disrupt but also shore up neoliberal ideologies. In this course students will explore the historical co-emergence of queer cultures and neoliberalism by examining the promises and pitfalls of queer politics over the past quarter century. The coining of queer theory by Theresa de Lauretis in 1990 was intended as a disruptive joke. Its provocation resided in joining queer, an appropriation of street slang bandied about among New York City activists and artists in the 1980s, to theory, the passport of privilege in academic life. The irreverence of her joke exemplifies a central ethic of queer experience that renders palpable the tensions between margins and centers. The course will traverse scholarship from economic and queer anthropology, history, sociology & science studies, philosophy, political theory and literary studies. This wide survey of literature will allow students to develop an understanding of the political and economic processes that have conditioned the emergence of queerness as a diverse range of ethical commitments in particular sociocultural contexts globally. Students will investigate the affective dimensions of the emergence of queer theory, studies and activism within the United States and elsewhere in the context of global neoliberal social reforms. The course is split into four units: 1) In the Place of Queer Origins; 2) Queer Values; 3) Queer Circulations and Subjectivities; and 4) Queer Temporalities.
Taught by: Keirbeck
Course usually offered in fall term
Prerequisites: A prior course in gender, sexuality and women's studies.
Activity: Seminar
1 Course Unit
AFRC 332 North Africa: History, Culture, Society
This interdisciplinary seminar aims to introduce students to the countries of North Africa, with a focus on the Maghreb and Libya (1830-present). It does so while examining the region’s close economic and cultural connections to sub-Saharan Africa, Europe, and the Middle East. Readings will include histories, political analysis, anthropological studies, and novels, and will cover a wide range of topics such as colonial and postcolonial experiences, developments in Islamic thought and practice, and labor migration. This class is intended for juniors, seniors, and graduate students.
Taught by: Sharkey
Course not offered every year
Prerequisites: A university-level survey course in Middle Eastern, African, or Mediterranean history.
Activity: Seminar
1 Course Unit

AFRC 335 "Where My Girls At?": African American Women Performers in The 20th Century
African American women performers from blues woman Bessie Smith to Paris revue star Josephine Baker, from jazz darling Billie Holiday to rock legend Tina Turner, and from hip hop giant Lauryn Hill to millennial star Beyoncé, have constantly redefined and expanded American popular music. Using the long 20th century as our historical marker, this course will explore how African American women performers, across genres and time, have consciously and sometimes contradictorily navigated the racial and sexual limits of American popular culture in order to assert their own particular narratives of artistic and political freedom.
Taught by: Tillet
Course usually offered in spring term
Activity: Seminar
1 Course Unit

AFRC 345 Race and Sex in Early America
This course explores the lost worlds of sinners, witches, sexual offenders, rebellious slaves, and Native American prophets from the seventeenth to nineteenth centuries. Using the life stories of unusual individuals from the past, we try to make sense of their contentious relationships with their societies. By following the careers of the trouble-makers, the criminals, and the rebels, we also learn about the foundations of social order and the impulse to reform that rocked American society during the nineteenth century.
Taught by: Brown
Course usually offered in fall term
Activity: Lecture
0 Course Units

AFRC 346 Gender in Modern American History
This course explores how immigration, industrialization, racial segregation, and the growing authority of science transformed the fundamental conditions of women’s lives in the late nineteenth and early twentieth centuries. Building on previous efforts by female reformers to perfect society, women at the turn of the century organized large social movements dedicated to improving the lives of women and children and gaining public access to political power. We will examine the fruits of this activism as well as the consequences of subsequent events for the rise of several important social movements in the latter half of the century – including civil rights, women’s liberation, and gay rights – in which women played a vital role. The course concludes with an assessment of feminism in the present day, with special emphasis on the responses of younger women to its legacy.
Taught by: Brown, Peiss
Course usually offered in spring term
Activity: Recitation
1 Course Unit

AFRC 357 Undergraduate Topics in African Studies
SPRING 2017 - UNDERSTANDING AFRICA: This course will explore the economic, social, and political realities facing sub-Saharan Africa today by placing them in historical and global contexts. Key themes will include colonial and precolonial history, nationalist movements and cold war politics, economic development and foreign aid, ethnic and political conflicts, media representation and popular culture. The course will focus on local and global dynamics that have a role in shaping the present day Africa.
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 372 Africa & the Mid-East
This seminar will explore the historical relationship between these two regions from the early modern age to the present. We will examine the history of trade, particularly the slave trade, and its cultural and political legacy. We will compare the experiences of European imperialism—how the scramble for Africa dovetailed with the last decades of the Ottoman Empire—with an eye to how this shaped nationalist movements in both regions. The course will also explore the decades of independence with a special eye towards pan-Africanism and pan-Arabism. We will also study the ramifications of the Arab-Israeli conflict on the relationship between African and Middle-Eastern countries, from Uganda to Ethiopia, from OPEC to Darfur. This course will pay close attention to migrations through the regions, whether forced or economic or religious. Whenever possible we will explore, through film and literature, how people in Africa and the Middle East see their connections, and their differences.
Taught by: Eve Troutt Powell, Young
One-term course offered either term
Activity: Seminar
1 Course Unit
AFRC 373 The History of Foreign Aid in Africa
This course examines the history, politics, and significance of foreign aid to Africa since the late 19th century. While we do not typically think about the European colonial period in Africa in terms of 'foreign aid,' that era introduced ideas and institutions which formed the foundations for modern aid policies and practices. So we start there and move forward into more contemporary times. In addition to examining the objectives behind foreign assistance and the intentions of donors and recipients, we will look at some of the consequences (intended or unintended) of various forms of foreign aid to Africa over the past century. While not designed to be a comprehensive history of development theory, of African economics, or of international aid organizations, the course will touch on all of these topics. Previous coursework on Africa is strongly advised.
Taught by: Cassanelli
One-term course offered either term
Prerequisites: AFRC/HIST 076, AFRC 190, or AFRC 256
Activity: Lecture
1 Course Unit

AFRC 387 Topics in Africana Studies
Topics vary: Black Feminist Approaches to History & Memory - The term black feminism emerged in public discourse amidst the social, political, and cultural turbulence of the 1960s. The roots of black feminism, however, are much older, easily reaching back to the work of black women abolitionists and social critics of the nineteenth century. The concept continued to grow and evolve in the work of twentieth century black women writers, journalists, activists, and educators as they sought to document black women's lives. Collectively, their work established black feminism as a political practice dedicated to the equality of all people. More recently, black feminism has been deployed as a tool for theoretical and scholarly analysis that is characterized by an understanding that race, class, gender, and sexuality are inextricably interconnected. Using materials such as slave narratives, social criticism, and archival sources, this course will explore the theoretical and practical applications of black feminist thought in nineteenth and twentieth century North American culture and politics. In particular, we will consider the symbols and practices (storytelling, myth-making, art, archival research) that black women use to document lives. We will ask: how do these methods of documentation inform our understanding of the past and the production of historical knowledge? How can we understand black feminism as both theory and practice? And what are the implications of black feminist approaches for current research and scholarship? We will give particular attention to concepts such as gender, race, memory, archive, and embodied knowledge to complicate our understanding of historical documentation, epistemology, and authenticity. The course material will include scholarship by Harriet Jacobs, Audre Lorde, Saidiya Hartman, Hazel Carby, Hershini Young, Evelyn Brooks Higginbotham, Toni Morrison, and others. (Image: From In Praise of Shadows, Kara Walker (2009).
Taught by: Osuji, Sanders-Johnson, Willis
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 388 Top: Modern & Contemp Art: Postmodern, Postcolonial, Post-Black
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 393 Cinema and Civil Rights
Topic Varies Spring 2017: This course will examine key moments in the history of civil rights through a cinematic lens. Over the course of the semester, we will explore how filmmakers have depicted the lives, aspirations, and strategies of those who have struggled for equal rights; how different struggles have intersected with each other; what aesthetic strategies have been adopted to represent freedom and the denial of it; and how effective cinematic efforts to contribute to increased freedom have been as well as what criteria we use to evaluate success or failure in the first place. Each week, we will watch a film and read a series of texts that will be drawn from a variety of arenas, including histories of civil rights; civil rights pamphlets and speeches; filmmaker interviews; film and media theory; memoirs; and theories of race, gender and sexuality.
Course requirements: mutual respect; completion of all readings and screenings; participation in class discussion; weekly online responses; a final project that can be a research paper, film, art project, or community-based initiative.
Taught by: Redrobe
Course not offered every year
Activity: Independent Study
1 Course Unit

AFRC 399 Independent Study
A study, under faculty supervision, of a problem, area or topic not included in the formal curriculum.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Consult the Africana Studies Department for instructions.
Suite 331A, 3401 Walnut or vist the department's website at https://africana.sas.upenn.edu to submit an application.

AFRC 400 Seminar in Africana Studies
This course is an examination and analysis of the changing images and achievements of African Americans in motion pictures and television. The first half of the course focuses on African-American film images from the early years of D.W. Griffith's "renegade bucks" in The Birth of a Nation (1915); to the comic servants played by Steppin Fetchit, Hattie McDaniel, and others during the Depression era; to the post-World War II New Negro heroes and heroines of Pinky (1949) and The Defiant Ones (1958); to the rise of the new movement of African American directors such as Spike Lee (Do the Right Thing), Julie Dash (Daughters of the Dust), Charles Burnett, (To Sleep With Anger) and John Singleton (Boyz N the Hood). The second half explores television images from the early sitcoms "Amos 'n Andy" and "Beulah" to the "Cosby Show," "Fresh Prince of Bel Air," and "Martin." Foremost this course will examine Black stereotypes in American films and television—and the manner in which those stereotypes have reflected national attitudes and outlooks during various historical periods. The in-class screenings and discussions will include such films as Show Boat (1936), the independently produced "race movies" of the 1930s and 1940s, Cabin in the Sky (1943), The Defiant Ones (1958), Imitation of Life (the 1959 remake) & Super Fly (1972).
Taught by: Bogle
One-term course offered either term
Activity: Seminar
1 Course Unit
AFRC 405 Religion, Social Justice & Urban Development
Urban development has been influenced by religious conceptions of social and economic justice. Progressive traditions within Judaism, Christianity, Islam, Buddhism, Hinduism, Jainism, Bahá’í, Humanism and other religions and systems of moral thought have yielded powerful critiques of oppression and hierarchy as well as alternative economic frameworks for ownership, governance, production, labor, and community. Historical and contemporary case studies from the Americas, Europe, Africa, Asia, and the Middle East will be considered, as we examine the ways in which religious responses to poverty, inequality, and ecological destruction have generated new forms of resistance and development.
Taught by: Lamas
Course usually offered in spring term
Activity: Seminar
1 Course Unit

AFRC 420 Advanced topics in Africana Studies
Topics vary. See the Africana Studies Department’s course list at https://africana.sas.upenn.edu for a description of the current offering. Fall 2017: After an examination of the philosophical, legal, and political perspectives on Human Rights, this course will focus on US policies and practices relevant to Human Rights. Toward that end, emphasis will be placed on both the domestic and the international aspects of Human Rights as reflected in US policies and practices. Domestically, the course will discuss (1) the process of incorporating the International Bill of Human Rights into the American legal system and (2) the US position on and practices regarding the political, civil, economic, social, and cultural rights of minorities and various other groups within the US. Internationally, the course will examine US Human Rights policies toward Africa. Specific cases of Rwanda, Kenya, South Africa and Egypt, as well as other cases from the continent, will be presented in the assessment of US successes and failures in the pursuit of its Human Rights strategy in Africa. Readings will include research papers, reports, statutes, treaties, and cases.
Taught by: Charles, Hanchard, Fetni, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit

AFRC 433 Social Movement
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 435 Modern Presidency and Race
This seminar is designed to serve as a “capstone” experience for advanced undergraduates interested in American politics. It exposes students to some of the issues currently being studied and debated by the leading scholars in the field. For each topic we will read works that take competing or opposing positions on an issue; for example we will examine the current controversy over the causes and consequences of divided government. Students will write a research paper analyzing one of the debates.
Taught by: Gillion
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 436 Africana Studies Undergraduate Seminar
On the stage of modern world history, Haiti plays the unique role as both the exceptionally victorious and tragic character. This course interrogates archival documents, oral histories, historical texts, and prose created within the nation and her diaspora in order to establish a nuanced image of the projection of Haiti’s modern history. Using two classic Haitian texts, Marie Vieux-Chauvet’s Love, Anger, Madness (1968) and Michel-Rolph Trouillot’s Silencing the Past: Power and the Production of History (1995), this course examines how, why, and to what end Haiti’s history and popular narratives about the country have served to construct and dismantle global movements, popular culture, and meanings of race, gender, and citizenship in the Americas. In our historical examination, we will question some of the iconic representations of Haiti through literature that deepen the affective historical profile of Haiti with interrogations of culture, sexuality, political, and media performance. Students will become familiar with the post-colonial history of Haiti and the region, meanings of race, and the production of history. The course is a research and historical methods seminar. Students will conduct archival research and write narratives from primary source material. This course qualifies as a “methods” course for Africana Studies undergraduate majors and minors.
Taught by: Johnson
Course usually offered in spring term
Activity: Seminar
1 Course Unit

AFRC 437 Race & Criminal Justice
Why are African Americans and some other minority groups disproportionately incarcerated and subjected to penal sanctions? What are the political, social and economic consequences for individuals, communities, and the wider society? How has the criminal justice system shaped the United States? What types of reforms of the criminal justice system are desirable and possible? This advanced seminar analyzes the connection between race, crime, punishment, and politics in the United States. The primary focus is on the role of race in explaining why the country’s prison population increased six-fold since the early 1970s and why the United States today has the highest incarceration rate in the world. The class will likely take field trips to a maximum-security jail in Philadelphia and to a state prison in the Philadelphia suburbs.
Taught by: Gottschalk
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 450 Black France: History and Representations
Taught by: Moudelino
One-term course offered either term
Activity: Seminar
1 Course Unit
AFRC 480 Liberation and Ownership
Who is going to own what we all have a part of creating? The history of the Americas, and of all peoples everywhere, is an evolving answer to the question of ownership. Ownership is about: the ties that bind and those that separate; production, participation, and control; the creation of community and the imposition of hierarchies—racial, sexual, and others; dreams of possessing and the burdens of debt and ecological despoliation; dependency and the slave yearning to breathe free. Of all the issues relevant to democracy, oppression, injustice, and inequality, ownership is arguably the most important and least understood. Utilizing a variety of disciplinary perspectives—with a particular emphasis on radical and critical theories of liberation, and by focusing on particular global sites and processes of capitalism, students will assess and refine their views regarding ownership and liberation in light of their own social, political, religious, aesthetic, and ethical commitments.
Taught by: Lamas
Course usually offered in fall term
Activity: Seminar
1 Course Unit

AFRC 491 African Language Tutorial - Elementary II
Continuation of AFST 490.
For BA Students: Language Course
One-term course offered either term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFRC 493 African Language Tutorial - Intermediate II
Continuation of AFST 492
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit

AFRC 495 African Language Tutor: Adv II
Continuation of AFST 494.
Course usually offered in spring term
Prerequisite: Permission of Penn Language Center
Activity: Lecture
1 Course Unit

AFRC 497 Language & Culture II
Continuation of AFST 496
Course usually offered in spring term
Prerequisites: Permission of Penn Language Center.
Activity: Lecture
1 Course Unit

AFRC 499 Honors Course
Consult the Africana Studies Department for instructions. Suite 331A, 3401 Walnut or visit the department's website at https://africana.sas.upenn.edu to submit an application.
Course not offered every year
Activity: Independent Study
1 Course Unit

AFRC 517 Elementary Yoruba II
The main objective of this course is to further sharpen the Yoruba linguistic knowledge that the student acquired in level I. By the end of the course, the student should be able to (1) read, write, and understand simple to moderately complex sentences in Yoruba; and (2) advance in the knowledge of the Yoruba culture.
For BA Students: Language Course
Taught by: Awoyle
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFRC 518 Topics in American Religion
From Marvin Gaye, to Tammy Faye Baker, to Sarah Palin and James Baldwin, Pentecostalism has influenced many, including politicians, preachers, writers, and the media. One of the fastest growing religious movements in the world, Pentecostalism continues to have a profound effect on the religious landscape. Pentecostalism’s unique blend of charismatic worship, religious practices, and flamboyant, media-savvy leadership, has drawn millions into this understudied and often controversial religious movement. This course will chronicle the inception and growth of Pentecostalism in the United States, giving particular attention to beliefs, practices, gender, ethnicity, and Global Pentecostalism.
Taught by: Butler
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary: This course is cross-listed with RELS 517 (Topics in American Religion) when the subject matter is related to African American or other African Diaspora issues. Recent courses include "Martin Luther King, Jr," "Pentecostalism," and "Race, Poverty and Class." Consult the Department of Africana Studies for detailed course descriptions.

AFRC 522 Psychology of the African-American
Using the Afro-centric philosophical understanding of the world, this course will focus on psychological issues related to African Americans, including the history of African American psychology, its application across the life span, and contemporary community issues.
Taught by: Stevenson
Course usually offered in spring term
Activity: Lecture
1 Course Unit

AFRC 524 Inequality and Race Policy
Taught by: Gillion
Course not offered every year
Activity: Seminar
1 Course Unit
AFRC 527 Advanced Seminars in Africana Studies
SPRING 2017: Market Women, Madame, and Mother Superior studies gender, labor, sexuality, and race in the Caribbean. In our historical examination of primary source documents alongside literature, and popular media, we will question some of the iconic representations of Caribbean and Latin American women in order to understand the meaning, purpose and usages of these women’s bodies as objects of praise, possession, obsession and/or ridicule by communities, governments and religions within and outside of the region. Beginning in the late-18th century and ending with contemporary migration narratives, this course considers the relationship between slave society and colonial pasts on gender performance in the modern Caribbean, Latin America, and their diasporas.
Taught by: Sanders Johnson
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 528 Advanced Topics
This course is cross-listed with SWRK 528 (Advanced Topics) when the subject matter is related to African, African American, or other African Diaspora issues. Recent topics include, “Religion, Youth and Popular Culture” and “Anxious Identities.” See the Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 533 Advanced Selected Topics
This course is cross-listed when the subject matter is related to African, African American, or other African Diaspora issues. Courses recently offered are, “Political Culture and American Cities, Social Movements and Social Change, Critical Race Theory. See the Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings. This course brings together the vantage points of urban political economy, history and urban anthropology. Readings and discussions will cross those literatures, folding in considerations of race, ethnicity and gender in the American city life, with a focus on the relation between culture and political economy. We will reconstruct the history of the different tracks of urban studies in the U.S., beginning with its roots in sociology and anthropology in the Chicago School and in political science in reform-oriented studies of public administration. We will revisit the community power debate of the 1950s-1970s, which shook out significantly along disciplinary lines, and will examine the development of the urban political economy perspective in the 1980s and 1990s, as well as developments within U.S. urban anthropology since the 1960s. We will employ local case study materials, and at every point we will try to understand the intellectual trajectories of the urbanist discourses in relation to dynamics contemporaneously shaping urban politics and policy. Course requirements are seminar preparation which includes each student’s leading discussion around specified reading assignments – and a research paper, the topic of which must be approved by week 5.
Taught by: Charles, Zuberi, Reed, Roberts
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 534 Intermediate Yoruba II
For BA Students: Last Language Course
Taught by: Awoyale
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

AFRC 538 Topics in Medieval Art
The craft of ivory carving around the Mediterranean is contingent upon the availability of imported elephant tusks, from either South East Asia or, more frequently, from the African continent. The shifting winds of trade routes offer an interpretive paradigm with which to analyze ivory objects from a variety of different cultural groups: the lack or abundance of ivory and the resulting desire for or surfeit of the material shapes its meaning and use around the Mediterranean basin. The study of ivory objects as they migrate around the Mediterranean allows us to investigate the rich intercultural interactions between Eastern and Western Christians, and both of these with the Islamic world. This course focuses on an object oriented knowledge of ivory artefacts, with a strong emphasis on the collections at the Penn Museum, the Philadelphia Museum of Art, and other area collections.
Taught by: Guerin
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 540 Elementary Amharic I
An introductory course for students with no previous knowledge of Amharic. Amharic belongs to the southern branch of Hemeto-Semitic languages which is also referred to as “Afrasian.” Amharic is the official language of Ethiopia and is spoken by 14 million native Amharas and by approximately 19 million of the other ethnic groups in Ethiopia. The goals of this course are to introduce students to the culture, customs, and traditions of the Amharas. Students will develop communicative skills through listening, speaking, reading, and writing.
For BA Students: Language Course
Taught by: Hailu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 541 Elementary Amharic II
Continuation of Elementary Amharic I.
For BA Students: Language Course
Taught by: Hailu
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

AFRC 543 Intermediate Amharic I
Offered through the Penn Language Center
For BA Students: Language Course
Taught by: Hailu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
AFRC 544 Intermediate Amharic II  
Offered through the Penn Language Center  
For BA Students: Last Language Course  
Taught by: Hailu  
Course usually offered in spring term  
Activity: Lecture  
1 Course Unit

AFRC 545 Understanding Minority Serving Institutions  
Students taking this course will learn about the historical context of HBCUs in educating African Americans, and how their role has changed since the mid-1800’s. Specific contemporary challenges and successes related to HBCUs will be covered and relate to control, and enrollment, accreditation, funding, degree completion, and outreach/retention programming. Students will become familiar with MBCUs in their own right, as well as in comparison to other postsecondary institutions.  
Taught by: Gasman  
Course usually offered in fall term  
Activity: Seminar  
1 Course Unit

AFRC 547 Topics in Religion  
Religions of the African Diaspora - Religion shapes and defines the lives of many persons in the Africans Diaspora. This course will explore both the historical and present day manifestations of religions practices by those in the African Diaspora, including Voodoo, Candomble, Obeah, Rastafari, African Initiated Churches, Pentecostalism, and Catholicism. Theoretical issues including sexuality, gender, and material culture will also be covered in the course.  
Taught by: Butler  
One-term course offered either term  
Activity: Seminar  
1 Course Unit

AFRC 563 Old Egyptian  
This course is an introduction to the language of the Egyptian Old Kingdom. The grammar of the period will be introduced during the early part of the semester, using Edel’s ALTAGYPTISCHE GRAMMATIK as the basic reference. Other grammatical studies to be utilized will include works by Allen, Baer, Polotsky,Satzinger, Gilula, Doret, and Silverman. The majority of time in the course will be devoted to reading varied textual material: the unpublished inscriptions in the tomb of the Old Kingdom official Kapure–on view in the collection of the University Museum; several autobiographical inscriptions as recorded by Sethe in URKUNDEN I; and a letter in hieratic (Baer, ZAS 93, 1966, 1-9).  
One-term course offered either term  
Activity: Lecture  
1 Course Unit

AFRC 569 Topics in 20th-Century American Literature  
This course covers topics in 20th-century literature, its emphasis varying with instructor.  
Taught by: Beavers  
Course not offered every year  
Activity: Seminar  
1 Course Unit

Notes: This is an English topics course in 20th Century American Literature. The course is cross-listed with English 569 when the course content includes significant African American or other African Diaspora literatures. Content varies with the instructor. A frequent topic is "A Love Supreme: Literatures of Jazz"  

AFRC 570 Topics in Afro-American Literature  
Spring 2018: The aim of this seminar can be described as trying to figure out how poetry and poetics figure into the effort to theorize the African American subject in the 21st Century. At a time when the sheer number of African American poets publishing today (to say nothing of the major prizes they are winning) has exploded exponentially, why does poetry continue to be so marginal in African American literary and cultural studies? As we make our way through recently published anthologies of African American poetry, then turn to works of individual poets, we will consider issues of influence, intertextual periodization, stylization, and tradition as they impact approaches to form, structure, and craft. Ultimately, however, we will focus on the question of why are these poets writing these poems at this particular time? Technologies like PennSound and YouTube will provide time? Technologies like PennSound and YouTube will provide important critical tools in our endeavors and at various points during the term, guest lecturers will join our discussions.  
Taught by: Beavers, Tillet  
Course not offered every year  
Activity: Seminar  
1 Course Unit

AFRC 571 Visualizing W.E.B.DU BOIS  
This seminar will focus on a project that views history as a result of our contemporary society in which biographical truths are constantly shifting. So the historical biographers write about the way they remembered and visualize the past, and not about the way that it happened. We will take Du Bois’s biography in his own words and interrogate his narrative with the visual narratives of his life and influence produced by others. “Visualizing W.E.B Du Bois” focuses on photographic, film, and video representations intended to present some aspect of Du Bois’s reality, primarily for the purposes of instruction or maintaining a historical record. Such projects include photos, materials originally shot on film stock, and digital images that can be either displayed in a book or magazine, and moving images made into a film or video for a TV show or released for screening in cinemas, or other broadcast mediums like YouTube and Vimeo.  
Taught by: ZUBERI  
Course not offered every year  
Activity: Seminar  
1 Course Unit

AFRC 572 Topics in African Literature  
This course is based on a selection of representative texts written in English, as well as a few texts in English translation. It involves, a study of themes relating to social change and the persistence of cultural traditions, followed by an attempt at sketching the emergence of literary tradition by identifying some of the formal conventions of established writers in their use of old forms and experiments with new. See the Department’s website at www.africana.upenn.edu for a complete description of the current offerings.  
Course not offered every year  
Activity: Seminar  
1 Course Unit

AFRC 575 TPE: Qualitative Studies of Developmental Interventions  
This course is designed to introduce students to innovative approaches to the psychology of education, especially with regard to populations from at-risk contexts, sociocultural dimensions of education, and social-emotional learning.  
Course not offered every year  
Activity: Seminar  
1 Course Unit
AFRC 587 Race, Nation, Empire
This graduate seminar examines the dynamic relationships among empires, nations and states; colonial and post-colonial policies; and anti-colonial strategies within a changing global context. Using the rubrics of anthropology, history, cultural studies, and social theory, we will explore the intimacies of subject formation within imperial contexts—past and present—especially in relation to ideas about race and belonging. We will focus on how belonging and participation have been defined in particular locales, as well as how these notions have been socialized through a variety of institutional contexts. Finally, we will consider the relationships between popular culture and state formation, examining these as dialectical struggles for hegemony.
Taught by: Thomas
Course usually offered in spring term
Activity: Seminar
1 Course Unit

AFRC 590 Introduction to Francophone Studies
An introduction to major literary movements and authors from five areas of Francophonie: the Maghreb, West Africa, Central Africa, the Caribbean and Quebec.
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 591 Francophone Postcolonial Studies
Please see the department’s website for current course description: https://africana.sas.upenn.edu
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: An introduction to major literary movements and authors from five areas of Francophonie: the Maghreb, West Africa, Central Africa, the Caribbean and Quebec.

AFRC 594 Post-Colonialism Literature
This course covers topics in Post-Colonial literature with emphasis determined by the instructor. The primary focus will be on novels that have been adapted to film. See the Department's website at www.africana.upenn.edu for a complete description of the current offerings.
Activity: Seminar
1 Course Unit

AFRC 601 Colorism: A Global Phenomenon
Taught by: ABIOLA
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 605 Anthropology of Music
Topics may include the intellectual history of ethnomusicology, current readings in ethnomusicology, a consideration of theoretical principles based upon the reading and interpretation of selected monographs, and area studies. Please see department website for current course term description.
Taught by: Muller, Rommen, Sykes
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Open to graduate students from all departments

AFRC 610 Topics in American History
This course is cross-listed with HIST 610 (Colloquium in American History) when the subject matter is related to African, African American, or other African Diaspora issues. See the Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Savage
Course usually offered in fall term
Activity: Seminar
1 Course Unit

AFRC 620 Advanced Topics in Africana Studies
This course will deal with Law and Society in Africa. After surveying the various legal systems in Africa, the focus will be on how and to what extent the countries of Africa re-Africanized their legal systems by reconciling their legal systems that are used as instruments of social change and development. Toward this end, the experiences of various African countries covering the various legal traditions will be included. Specific focus will be on laws covering both economic and social relations. This emphasis includes laws of marriage, divorce and inheritance, laws of contracts and civil wrongs and African's law of investments and International Relations, among other laws. Throughout this course a comparative analysis with non-African countries will be stressed. Readings include research papers, reports, statutes, treaties, and cases.
Taught by: Charles, Zuberi, Fetni
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: See the Africana Studies Department's course list at https://africana.sas.upenn.edu for a description of the current offering.
AFRC 630 Advanced Special Topics in Sociology
This course will examine demographic and statistical methods used to capture the impact of racial stratification in society. This course covers the skills and insights used by demographers and social statisticians in the study of racial data. A key challenge facing researchers is the interpretation of the vast amount of racial data generated by society. As these data do not directly answer important social questions, data analysis and statistics must be used to interpret them. The course will examine the logic used to communicate statistical results from racial data in various societies. We will question the scientific claims of social science methodology by extending the critical perspective to biases that may underlie research methods. We will discuss good and bad practices within the context of the historical developments of the methods. This advanced special topics course and course description is for Fall 2017 only. Taught by: Zuberi
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is cross-listed with SOCI 630 (Advanced Topics in Sociology) when the subject matter is related to African American or other African Diaspora issues. A frequent topic of this course is "Race, Colonialism, and Methods"

AFRC 632 North Africa: History, Culture, Society
This interdisciplinary seminar aims to introduce students to the countries of North Africa, with a focus on the Maghreb and Libya (1830-present). It does so while examining the region's close economic and cultural connections to sub-Saharan Africa, Europe, and the Middle East. Readings will include histories, political analyses, anthropological studies, and novels, and will cover a wide range of topics such as colonial and postcolonial experiences, developments in Islamic thought and practice, and labor migration. This class is intended for juniors, seniors, and graduate students. Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 638 Race and Criminal Justice
Taught by: Gottschalk
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 640 Proseminar in Africana Studies
This course focuses on the historical and cultural relationship between Africans and their descendants abroad. Taught by: Beavers, Butler, Charles, Rommen, Savage, Thomas, Williams, Zuberi
Two terms. Student must enter first term.
Activity: Seminar
1 Course Unit

AFRC 641 Topics in African American History
Topics vary. See the Africana Studies Department's website at https://africana.sas.upenn.edu for a description of the current offerings. Taught by: Williams, Savage
Course usually offered in spring term
Activity: Seminar
1 Course Unit

AFRC 645 Graduate Research Seminar
SPRING 2017: This seminar is suitable for graduate students in any discipline in which historical research may be relevant. We will work with both secondary and primary sources, and students will have the opportunity to visit and undertake research in an archive. Taught by: Williams
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 650 Topics in African History
Reading and discussion course on selected topics in African history. Taught by: Babou, Cassanelli
Activity: Seminar
1 Course Unit

AFRC 650 Topics in African History
Reading and discussion course on selected topics in African history. Taught by: Babou, Cassanelli
Activity: Seminar
1 Course Unit

AFRC 670 Topics in Trans Regional History
Readings and discussion course on selected topics in Transregional History See the Africana Studies Department's website at https://africana.sas.upenn.edu for a description of the current offerings. One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 701 African Studies Seminar
Interdisciplinary seminar for discussion of issues of special interest to graduate students and faculty in Africana Studies. Topics vary according to the interests and expertise of instructors. SPRING 2017 - Readings in African American Religion: Traditional narratives of African American Religion go from slavery to civil rights to "freedom" without taking into account the complex religious lives and intellectual production of people of African descent in the Americas. This course will focus on African American Religion and the historical and theoretical frameworks that have shaped the study of this field. Readings will cover religious studies, anthropology history, and African American studies in order to provide an understanding of the varieties of religion and religious experiences with this particular segment of the African Diaspora. Taught by: Butler
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 705 Seminar in Ethnomusicology
Topics in Ethnomusicology. Please see department website at www.africana.upenn.edu for current term course descriptions. Taught by: Muller, Rommen, Sykes
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Open to graduate students from all departments.

AFRC 706 Introduction to Africa and African Diaspora Thought
This course examines the processes by which African peoples have established epistemological, cosmological, and religious systems both prior to and after the institution of Western slavery. One-term course offered either term
Activity: Seminar
1 Course Unit
AFRC 708 Cultural and Literary Theory of Africa and the African Diaspora
This course introduces students to the theoretical strategies underlying the construction of coherent communities and systems of representation and how those strategies influence the uses of expressive culture over time. Topics vary. See the Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 710 Political Economy and Social History of Africa and the African Diaspora
This course provides the opportunity for students to investigate the relationship between the emergence of African peoples as historical subjects and their location within specific geopolitical and economic circumstances. Topics vary. FALL 2017: FASCISM AND RACISM: A LOVE STORY- What is the relationship between fascism and racism in modern politics, and how have black political thinkers and organizations understood this relationship? This graduate level course is designed to familiarize students with the historical and contemporary literature on fascism as a phenomena of modern politics, and the importance of racial politics and ideologies to its constitution. Students will become familiar with the contributions of Black political actors, organizations and thinkers in Europe, Africa, Asia and the New World to fascism’s defeat in the 1920’s and 1930’s, as well as more contemporary efforts to curb more contemporary fascist movements, regimes and aesthetics in late modernity. Antonio Gramsci, Robert Paxton, Michael Mann, C.L.R. James, George Padmore, Aime Cesaire, Suzanne Cesaire and Hannah Arendt are among the thinkers, theorists and activists students will encounter in this course. The overarching aim of his course is to identify fascism in both historical and contemporary contexts as a very specific form of political organization and rule, and its interrelationship with racism, nationalism and xenophobia.
Taught by: Hanchard, Zuberi
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

AFRC 712 Comprehensive School Reform as Applied Public Policy
This course examines how K-12 education policy is designed and implemented in the United States. It uses a systems analysis as the framework for looking at who makes what kinds of demands on the education policy system, how these demands are placed on the policy agenda, the decision making process, and resulting education policies and policy outcomes. The course pays particular attention to the roles of federal, state and local governments in education policy, and the impact of our intergovernmental system on the design and implementation of policy. Students will also examine major education policies and debate key education policy issues that arise at each level of government.
Taught by: Hershberg
One-term course offered either term
Activity: Seminar
1 Course Unit

AFRC 720 Graduate Prospectus and Grant-Writing Seminar
This course is intended to help students to write a strong dissertation proposal/prospectus. A proposal is a detailed plan for a long journey of conceptualization, research, and writing that will lead to the first major, independent scholarly contribution. Students will work closely with advisors, peers, and the professor in the course, to develop the questions, methodological approaches, and theoretical perspectives that will guide their research and writing. At the end of the semester, each student will have completed a proposal, and will be ready to defend it.
Taught by: Williams
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Graduate student must be “All But Dissertation” (ABD).

AFRC 740 Research Seminar in Middle Eastern History
Taught by: Troutt-Powell
Activity: Seminar
1 Course Unit
Notes: Research seminar on selected topics in Middle Eastern history.

AFRC 770 Afro-American American Literature
How does Elizabeth Alexanders poem Praise Song for the Day, written for the inauguration of Barack Obama, relate to Amiri Barakas 9/11 poem Somebody Blew America? This seminar will explore the unnaming and experimentation that shape African American literature and theory in the early years of the 21st century. Frameworks of the seminar will include the post-9/11 novel, the poetics of the black, black abstraction, twenty-first century practices of the black diaspora Age of Obama turn to the satirical. Critical texts such as How to See a Work Total Darkness and Abstractionist Aesthetics will be as central as cutting edge such as The Psychic Hold of Slavery and signature essays such as On Failing to the Past Present. This course will focus on the new literary voices that have the 21st century and, also, writers whose 21st century art is the late stage of literary trajectory. Special attention will be given to Toni Morrison, Colson Whitehead, Octavia Butler, Claudia Rankine, Mat Johnson, and Paul Beatty.
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 771 Seminar in Afro-American Music
This seminar treats selected aspects of the history, aesthetics, criticism and historiography of African-American music. Topics vary. See the Africana Studies Department’s website at https://africana.sas.upenn.edu for a description of the current offerings.
Taught by: Ramsey
Course not offered every year
Activity: Seminar
1 Course Unit

AFRC 797 Advance Topics in Africana Studies
Topic varies.
One-term course offered either term
Activity: Seminar
1 Course Unit
AFRC 799 Topics in American Literature
An advanced topics course in American literature, with the curriculum fixed by the instructor. See the Africana Studies website at www.africana.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
ANATOMY (ANAT)

ANAT 505 Structural Adaptations to Function
Veterinary gross anatomy course. The basic principles of mammalian and avian anatomy are studied in a veterinary context. The laboratory periods are given to the dissection of the dog, cat, horse, various ruminants, various laboratory animals, chicken and fish.
Taught by: Dr Orsini and Staff
Course usually offered in fall term
Prerequisite: Permission of instructor in Veterinary School
Activity: Lecture
2 Course Units

ANAT 512 Human Anatomy: Cardiovascular, Respiratory, Digestive, and Musculoskeletal Systems
This human anatomy course will cover anatomy, embryology, histology, and imaging of the: cardiovascular system; respiratory system; digestive system; and musculoskeletal system, including the limbs, vertebral column, and back. Cardiovascular and Respiratory Systems. The objectives are to: 1) define and discuss the structures that participate in the process of respiration; 2) compare and contrast structures situated in the chest (thorax and mediastinum); 3) describe anatomic differences of the right versus the left lung, structures in each lung, and how each lung functions; 4) summarize the anatomic differences in the atra and ventricles of the heart and how these chambers contract, resulting in the opening and closing of the atroioventricular and semilunar valves; 5) compare and contrast the histology of the heart, bronchi, bronchioles, and lung alveoli; 6) analyze and identify anatomic structures in plain films and/or other imaging modalities; and 7) discuss the embryology of the heart and lungs, including fetal and postnatal circulation and common congenital heart malformations.
Taught by: White, James S.
Activity: Online Course
0.5 Course Units
Notes: This course is offered through the School of Medicine Office of Master’s Programs. For permits, please email Kim Halscheid (battillo@upenn.edu) and Kathryn Brossa (brossak@pennmedicine.upenn.edu).

ANAT 514 Human Anatomy: Digestive System
This 0.5 CU human anatomy course will cover anatomy, embryology, histology, and imaging of the digestive system. The objectives are to: 1) define the embryological basis for the formation of the gastrointestinal tract; 2) define and discuss the anatomic structures that make up the digestive system, including the mouth, larynx, esophagus, stomach, small intestine, large intestine, liver, and biliary tract; 3) compare and contrast the arterial blood supply and the functional and histologic differences in various parts of the gastrointestinal tract; and 4) analyze and identify anatomic structures in plain films and/or other imaging modalities.
Taught by: James S. White, PhD
Prerequisites: Students who have completed ANAT 512 are NOT eligible for this course.
Activity: Online Course
0.5 Course Units

ANAT 515 Human Anatomy: Musculoskeletal System
This 1.0 CU human anatomy course will cover anatomy, embryology, histology, and imaging of the musculoskeletal system, including the limbs, vertebral column, and back. The objectives are to: 1) discuss the anatomic structures that make up the major parts of the musculoskeletal system, which are the vertebral column and back, upper limbs, and lower limbs; 2) identify the blood supply, innervation, and musculature of the upper limbs, including the shoulder, elbow, wrist, and hand; 3) identify the blood supply, innervation, and musculature of the lower limbs, including the hip, knee, ankle, and foot; 4) define the components of the nervous system that affect the musculoskeletal system, limbs, vertebral column, and back and discuss nerve lesions; 5) discuss how herniated disks, fractures of the upper and lower limbs, and impingement of nerve roots can result in musculoskeletal abnormalities, and 6) analyze and identify anatomic structures in plain films and/or other imaging modalities.
Taught by: James S. White, PhD
Prerequisites: Students who have completed ANAT 512 are NOT eligible for this course.
Activity: Online Course
1 Course Unit

ANAT 516 Human Anatomy: Endocrine and Reproductive Systems
Taught by: This 0.5 CU human anatomy course will cover anatomy, embryology, histology, and imaging of the endocrine and reproductive systems. The objectives are to: 1) define mechanisms of hormonal signaling; 2) describe the anatomic relationships and gross structure of major endocrine and reproductive organs, including the hypothalamus, pituitary glands, thyroid gland, parathyroid glands, pancreas, adrenal glands, gonads, breasts, and male and female reproductive systems; 3) characterize the microscopic anatomy of major endocrine and reproductive organs; 5) assess the regulation of major hormonal axes and intuit pathophysiologic effects of hormonal dysregulation; 6) explain the effects of significant hormones on their respective target tissues; 7) trace the embryologic origins of the endocrine and reproductive organs, including the pharyngeal apparatus.
Activity: Online Course
0.5 Course Units
ANCIENT HISTORY (ANCH)

ANCH 025 Ancient Middle Eastern History and Civilization
A cultural history of Middle Eastern civilization from the invention of writing to the rise of Islam.
For BA Students: History and Tradition Sector
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANCH 026 Ancient Greece
The Greeks enjoy a special place in the construction of western culture and identity, and yet many of us have only the vaguest notion of what their culture was like. A few Greek myths at bedtime when we are kids, maybe a Greek tragedy like Sophokles' Oidipous when we are at school: these are often the only contact we have with the world of the ancient Mediterranean. The story of the Greeks, however, deserves a wider audience, because so much of what we esteem in our own culture derives from them: democracy, epic poetry, lyric poetry, tragedy, history writing, philosophy, aesthetic taste, all of these and many other features of cultural life enter the West from Greece. The oracle of Apollo at Delphi had inscribed over the temple, "Know Thyself." For us, that also means knowing the Greeks. We will cover the period from the Late Bronze Age, c. 1500 BC, down to the time of Alexander the Great, concentrating on the two hundred year interval from 600-400 BC.
For BA Students: History and Tradition Sector
Taught by: McInerney
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANCH 027 Ancient Rome
The Roman Empire was one of the few great world states-one that unified a large area around the Mediterranean Sea-an area never subsequently united as part of a single state. Whereas the great achievements of the Greeks were in the realm of ideas and concepts (democracy, philosophy, art, literature, drama) those of the Romans tended to be in the pragmatic spheres of ruling and controlling subject peoples and integrating them under the aegis of an imperial state. Conquest, warfare, administration, and law making were the great successes of the Roman state. We will look at this process from its inception and trace the formation of Rome's Mediterranean empire over the last three centuries BC; we shall then consider the social, economic and political consequences of this great achievement, especially the great political transition from the Republic (rule by the Senate) to the Principate (rule by emperors). We shall also consider limitations to Roman power and various types of challenges, military, cultural, and religious, to the hegemony of the Roman state. Finally, we shall try to understand the process of the development of a distinctive Roman culture from the emergence new forms of literature, like satire, to the gladiatorial arena as typical elements that contributed to a Roman social order.
For BA Students: History and Tradition Sector
Taught by: Cam Grey
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ANCHE 046 Myths and Religions of the Ancient World
This course will survey the religions of the ancient Middle East, situating each in its historical and socio-cultural context and focusing on the key issues of concern to humanity: creation, birth, the place of humans in the order of the universe, death, and destruction. The course will cover not only the better-known cultures from the area, such as Egypt and Mesopotamia, but also some lesser-known traditions, such as those of the Hurrians, or of the ancient Mediterranean town of Ugarit. Religion will not be viewed merely as a separate, sealed-off element of the ancient societies, but rather as an element in various cultural contexts, for example, the relationship between religion and magic and the role of religion in politics will be recurring topics in the survey. Background readings for the lectures will be drawn not only from the modern scholarly literature, but also from the words of the ancients themselves in the form of their myths, rituals, and liturgies.
For BA Students: History and Tradition Sector
Taught by: Frame
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ANCH 129 The Decline and Fall of the Roman Empire?
Activity: Lecture
1 Course Unit

ANCH 146 Ancient Mediterranean Empires
What constituted an empire in antiquity and how was imperialism legitimized? Which measures were used to maintain and organize imperial power? How did foreign rule affect the daily life of people all over the Mediterranean? In this course we will discuss and compare ancient empires from Achaemenid Persia to Alexander the Great and the Hellenistic kingdoms of his successors to the emergence of Rome as one of the most successful and influential empires in world history. Topics that will be discussed include ancient ideas and concepts of imperial rule, patterns of political, economic and cultural power and their interrelations as well as imperial crises and local resistance. All texts will be discussed in translation. There are no prerequisites.
Taught by: Wilker
Course usually offered in fall term
Activity: Lecture
1 Course Unit
ANCH 202 Cleopatra
Cleopatra VII (70/69 30 BCE) is one of the most famous women in world history. She has been remembered, admired, and reproached as a power-hungry Hellenistic queen, as the last pharaoh of Egypt, as a self-confident female ruler, and as the vicious seductress of Julius Caesar and Mark Antony. Her supposedly extravagant lifestyle, her political schemes, but also her integrity in choosing suicide over submission have inspired poets, artists, and historians from her own time to our modern world. In this seminar, we will take a closer look at some of the common perceptions and stereotypes that have shaped the image of Cleopatra for more than 2000 years. The main focus, however, will be on the historical queen, her biography, and the political and cultural contexts of her life. We will use ancient literary texts, papyri, inscriptions, coins, and archaeological evidence to analyze Cleopatra’s rise to power, how she presented herself to her subjects, and how she was perceived by others, as well as her role in the tumultuous events that led to the end of the Hellenistic period and the rise of imperial Rome under the rule of Augustus. No prerequisites, but some background in Hellenistic and/or Roman history will be helpful.
Taught by: Julia Wilker
Course not offered every year
Activity: Seminar
1 Course Unit

ANCH 220 Near East in Hellenistic and Roman Times
In this course, we will study the history of the Hellenistic and Roman period a from a Near Eastern perspective. From the conquests of Alexander the Great to the end of Roman rule in late antiquity, this region was the scene of conflicts, but also of peaceful and fruitful interactions between Greeks, Romans, Egyptians, Jews, Syrians, Arabs and many other societies. What was the impact of Greek and Roman rule and how did the inhabitants of the region react to these fundamental changes? On the other hand, how did they influence the culture and worldview of their conquerors? We will use historical texts, documents and archaeological evidence to discuss the political, cultural and religious encounters that made the Near East a key region of Greco-Roman history. All texts will be discussed in translation. No prerequisites, although it would be useful to have taken ANCH 026 and/or ANCH 027.
Taught by: Wilker
Course not offered every year
Activity: Seminar
1 Course Unit

ANCH 275 The Roman Underbelly
Conventional histories of Rome tend to focus on the actions of the named individuals who wrote the texts that have come down to us, or are the subjects of those texts. But these individuals constituted only the tiniest fraction of the population of the Roman world. In this course, we will explore the lived experience of the other 95%: peasants and the poor; prostitutes, pimps, and criminals; bandits and pirates; magicians and soothsayers. Drawing on the scattered and problematic textual sources, archaeological evidence and comparative perspectives from better-documented contexts, we will examine the various roles that these individuals played in Roman society, the collection of often discordant or dissonant attitudes of their wealthier and more powerful contemporaries, and the challenges and opportunities that attend the social history of marginality in the ancient world. No prior knowledge of Roman History is required, although it would be useful to have taken ANCH 027, the introductory survey course. Texts will be discussed in translation.
Taught by: Cam Grey
Course not offered every year
Activity: Seminar
1 Course Unit

ANCH 301 Lies My Ancient History Teacher Told Me
The neat, comforting narratives that we construct of the histories of ancient Greece and Rome cover up a collection of controversies and debates that continue to rage in contemporary scholarship. Can we use the Homeric epics as sources of early Greek history? Who was responsible for the Peloponnesian War? How can we best explain Rome’s acquisition of empire? How new was the political revolution of Augustus? What were the main reasons for the rise of Christianity? In this course, we explore these and other controversies, focusing on both modern scholarship and the ancient sources. All texts will be discussed in translation. No prior knowledge of Ancient History is required, although it would be useful to have taken ANCH 026 and/or ANCH 027.
Taught by: Grey
Course not offered every year
Activity: Seminar
1 Course Unit

ANCH 303 Power and Peril: The Paradox of Monarchy among Ancient Greeks, Romans, and Jews
We imagine Ancient Greece and Rome as the cradles of democracy and republicanism, the early Judea as pious theocracy, but the evidence tells us that monarchy was the most common and prevalent form of government in antiquity (and the premodern world in general). Despite their ubiquity, the King was a polarizing figure in reality and in conception. On the one hand, some idealized the monarchy as the ideal leader, and monarchy provided the language with which to describe and even imagine the very gods but on the other, monarchs were widely reviled in both theory and practice, from the Greek tyrant to biblical Saul. The Emperor Augustus loudly denied his own affinity to the office of king, even as he ruled alone and was revered as a god. In other words, kings stood both for the ideal ruler and the worst form of government. This class confronts the paradox of the King. This class will take a special look at the idea and institution of kingship in the Near East, among the Jews, Greeks, and Romans to assess and discuss similarities, differences, and mutual influences among these cultures. Through the lens of the king we will explore the idea of god, government, human frailty, and utopianism. Why did the rule of one prevail, why was it so attractive to so many? How was royal rule legitimized? What role did religious beliefs play for keeping a monarchical system stable? What did people expect from their rulers and what happened if the ruler failed to fulfill these expectations? How was the concept of monarchical rule adopted and transferred into other spheres, such as religious belief systems or hopes for messianic kingship? While kingship is a rich field of scholarly inquiry, the question of its ubiquity, and the entanglement and divergences of these three cultures is rarely studied in context and in comparison.
Taught by: Julia Wilker, Natalie Dohrmann
Course not offered every year
Activity: Seminar
1 Course Unit
ANCH 305 Jewish Diaspora in the Roman Empire
Under the Roman Empire, Jewish communities developed and flourished especially in the cities of the Eastern Mediterranean, in Egypt, Syria, Asia Minor, Greece, Northern Africa, and Italy proper. In many of these cities, the Jews formed a considerable part of the population; they influenced the cultural, social, and political communal life and developed an identity that was distinctively different from that in Judea. In this seminar, we will trace Jewish life in the Diaspora under Roman rule. How did Jews and non-Jews interact? What was the legal status of Jewish communities under the Roman Empire? What caused conflicts and how were they solved? What can the history of Jewish Diaspora communities tell us about minorities in the Roman Empire in general? We will use literary texts, inscriptions, papyri, and archaeological material to answer these questions and many more.

Taught by: Julia Wilker
Activity: Seminar
1 Course Unit

ANCH 311 Disasters in the Ancient World
Natural disasters occupy a powerful place in our imagination. Stories of floods, plagues, earthquakes, and storms excite and horrify us, and communities mobilize their resources quickly in response to these events. In the ancient Mediterranean world, natural disasters could take on potent meaning, indicating the anger or disfavor of the gods, acting as warnings against certain courses of action, or confirmations of individuals' fears or suspicions about the world in which they lived. In this course, we explore the evidence for some disasters in the ancient Mediterranean world, the ways in which contemporaries reacted to those disasters and interpreted their causes. This project is, of necessity, multidisciplinary, involving textual, archaeological, geological, and comparative materials and drawing on methodologies from history, political and archaeological science, and the emerging field of disaster studies. In the process, we will gain an appreciation of the social structures of communities in the period, the thought-world in which they operated, and the challenges and opportunities that attend a project of this sort. No prior knowledge of Ancient History is required, although it would be useful to have taken an introductory survey course. Texts will be discussed in translation.

Taught by: Grey & Ristvet
Course not offered every year
Activity: Seminar
1 Course Unit

ANCH 323 Greek World After Alexander the Great
This class is designed as a detailed investigation of the world created by Alexander the Great. We will cover the three hundred year period known as the Hellenistic Age from the career of Alexander the Great (354-323 BC) until the defeat of Antony and Cleopatra at the Battle of Actium (31 BC). This was a period during which the world of the Greeks underwent extraordinary and far-reaching changes, as Greek culture was established as far afield as northwestern India, central Asia and Egypt. In the same period kingdoms controlled by Alexander's Successors used Greek culture to define their rule, establishing a Greek culture of the elite in regions which previously had been dominated by the Persians. As Greek and non-Greek worlds collided, a new interpretation of Greek culture emerged, giving rise, among other things, to universities and professional schools, state subsidized health care, triumphalist architecture, the heroization of the noble savage, coinage with royal portraits, the deification of men and a multitude of other social, artistic and political forms familiar to us. It was an age of radical change, dislocation, as Greek populations colonized regions previously unknown to them.

Taught by: McInerney
Course not offered every year
Activity: Lecture
1 Course Unit

ANCH 330 The Rise and Decline of Macedonia
In this course, we will study the rise and development of Macedonia from a tiny kingdom on the northern fringes of the Greek world to one of the major powers of the region and beyond. Regarded by the Greeks as an at least semi-barbarian culture on the periphery, Macedonia became the dominant power in the Greek world during the fourth century BC and its king Alexander the Great set out to conquer the world. After his death, Macedonia was one of the Hellenistic kingdoms competing for power and influence in the Mediterranean until it finally came under Roman control. Special emphasis will therefore be laid on critical reading and interpretation of ancient literary texts, documentary evidence and archaeological material. That will be discussed include questions of ethnicity and identity, Macedonian kingship, culture and society (including the role of women) and the role of Macedonian traditions in the Hellenistic era in general. Special emphasis will therefore be laid on critical reading and interpretation of ancient literary texts, documentary evidence and archaeological material. That will be discussed include questions of ethnicity and identity, Macedonian kingship, culture and society (including the role of women) and the role of Macedonian traditions in the Hellenistic era in general.

Taught by: Wilker
Course not offered every year
Activity: Seminar
1 Course Unit
ANCH 384 The Hellenistic and Roman Near East
In this course we will study the history of the Hellenistic and Roman period from a Near Eastern perspective. From the conquests of Alexander the Great to the end of Roman rule in late antiquity, this region was the scene of conflicts, but also of peaceful and fruitful interactions between Greeks, Romans, Egyptians, Jews, Syrians, Arabs and many other societies. What was the impact of Greek and Roman rule and how did the peoples of the region react to these fundamental changes? On the other hand, how did they influence the culture and worldview of their conquerors? We will use historical texts, documents and archaeological evidence to discuss these political, cultural and religious encounters that made the Near East to a key region of Greco-Roman history. All texts will be discussed in translation. No prerequisites, although it would be useful to have some background in Hellenistic and/or Roman history.
Taught by: Julia Wilker
Activity: Seminar
1 Course Unit

ANCH 398 Honors Thesis
This course is taken in the spring of the senior year by students admitted to the honors thesis program for the Ancient History major. For policies see the Classical Studies department website.
One-term course offered either term
Activity: Independent Study
1 Course Unit

ANCH 399 Independent Study
This course is taken by students doing independent work with a faculty advisor, such as students approved to work on a senior research paper in pursuit of honors in the major.
One-term course offered either term
Activity: Independent Study
1 Course Unit

ANCH 499 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

ANCH 527 Topics in the Art of Iran
Topic varies. Spring 2018: The pro-seminar will examine aspects of continuity and rupture in the visual culture(s) of the Iranian world. This is an opportunity for students whose preparations may be centered on other contiguous periods or regions to consider the manner in which Middle Asia and its rich visual cultures contributed to the forging of Late Antique and medieval/ Islamic visual expressions of kingship, territory and religion. The seminar will consider a range of materials from archaeological sites, rock reliefs and wall paintings to textiles, silver vessels, coins and ceramics, with special attention to materials excavated or otherwise held by the Penn Museum.
Taught by: Holod, Kuttner
Course not offered every year
Activity: Seminar
1 Course Unit

ANCH 535 Problems in Greek: Archaic and Classical
This seminar is designed to introduce students to the major issues and problems in the early history of Ancient Greece, from approximately 776 BC until the reign of Alexander the Great nearly four hundred and fifty years later. A number of these issues have been the subject of academic investigation for decades: the historicity of Homeric society, the origins of democracy, the reforms of Kleisthenes, the population of Athens, for example. The investigation of many of these problems, however, has received fresh impetus from newer approaches: demographic studies of the Aegean islands, the dating of 5th century inscriptions, the study of Solons poetry have all yielded new insights and transformed our understanding of Greek culture and history. In this seminar we will explore many older questions from newer perspectives, with attention to such recent topics as gender, ethnicity and subaltern studies. The result is a view of Greece that is both more familiar and yet equally more alien.
Taught by: McInerney
1 course term offered either term
Activity: Seminar
1 Course Unit
Notes: GRADUATES ONLY

ANCH 545 Spatial Analysis of the Past
Humans continuously move through, interact with, and modify their spaces, leaving a palimpsest of human activity all around us. The ability for digital methods to deal with larger datasets, at higher accuracies, and at multiple scales, lends itself particularly well to the study of diachronic human-space interaction. In this class, we will examine space at a range of scales from landscapes, to urban settings, to archaeological contexts and architecture. We digitally represent space using a variety of 3d and 2d data types, from models of land surfaces and buildings, to multispectral satellite imagery and urban plans. We will first gain experience creating, gathering, and manipulating spatial datasets in preparation for analysis. We will next practice a variety of analytical techniques on these data and examine case studies that have used spatial methods to draw important archaeological and historical conclusions. Tools covered in this class will include geographical information systems (GIS), global navigation satellite systems (GNSS), raster image processing, photogrammetry, and 3d spatial modeling softwares. Finally, we will gain experience with the visualization of our data and results, and the presentation of those results through open online publication.
Taught by: Peter Cobb
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Archaeological fieldwork experience and basic digital skills preferred. Undergraduates can register with permission of the instructor.
ANCH 604 Provincial Perspectives
Most of the primary sources available to us reflect the ideology, concepts and realities of Hellenistic and Roman imperial rule through the lenses of ruling power and its elites. There are, however, a number of sources that provide insights into how provincials and subjects saw and depicted themselves, the imperial power and their interaction. Historiographical and auto-ethnographic works, orations, philosophical and religious texts reflect different attitudes towards the ruling imperial powers ranging from open hostility and frustrated acceptance to praise and even identification. In this seminar we will focus on how ethnic, religious, cultural and/or regional identities were developed, maintained, adapted and interpreted within and in reaction to the imperial frameworks of the Hellenistic and Roman periods. Texts to be read and discussed include some "canonical" authors such as Polybius and Flavius Josephus as well as some lesser-known works and fragments from authors like Berossus, Manetho, Nicolaus of Damascus, and Poseidonius and will be complemented by documentary, epigraphic and archaeological evidence. Special emphasis will also be laid on modern scholarly approaches, including concepts of identity, hybridization and cultural change and the dynamics of empire in general.
Taught by: Wilker
Course not offered every year
Activity: Seminar
1 Course Unit

ANCH 607 Gloss & Commentary
Activity: Lecture
1 Course Unit

ANCH 611 Greek Epigraphy
An introduction to the principles and practices of Greek Epigraphy. Study of selected Greek inscriptions.
Taught by: McInerney
Course not offered every year
Activity: Seminar
1 Course Unit

ANCH 616 Ancient Economies
Scholars have long debated the nature of the ancient economy, the terms in which it can best be approached, and the decision-making processes that underpinned economic behavior in antiquity. In particular, controversy has surrounded the extent to which the economies of Greco-Roman antiquity can be modeled using contemporary tools of analysis. In recent scholarship, many of the tenets laid down by Moses Finley in his The Ancient Economy have been re-evaluated, with the result that the field is currently in a state of intellectual ferment. It is the purpose of this course to explore the terms in which contemporary debates over ancient economic systems are formulated, with reference to a variety of societies and periods, from the palace economies of the Mycenaean period to the system of taxation introduced in the early fourth century by the emperor Diocletian and his colleagues in the Tetrarchy.
Taught by: Grey
One-term course offered either term
Activity: Seminar
1 Course Unit

ANCH 999 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
ANCIENT NEAR EAST LANGUAGES (ANEL)

ANEL 440 First Year Akkadian I
Introduction to the grammar of the Akkadian language with emphasis on developing skills in the cuneiform writing system and reading of selected texts.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANEL 441 First Year Akkadian II
Introduction to the grammar of the Akkadian language with emphasis on developing skills in the cuneiform writing system and reading of selected texts.
Course usually offered in spring term
Prerequisites: ANEL 440, ANEL 640 or permission of the instructor.
Activity: Lecture
1 Course Unit

ANEL 446 Beginning Sumerian
Taught by: Tinney
One-term course offered either term
Activity: Lecture
1 Course Unit

ANEL 460 Middle Egyptian
Introduction to the grammar of Middle Egyptian.
Taught by: Silverman
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

ANEL 461 Middle Egyptian Texts
This course will deal with those texts of the Middle Kingdom that are written in the classical form of the language. It will include both monumental inscriptions, such as autobiographical stela inscriptions (P. Newberry, BENI HASSAN) and stelae (Seth, LESESTUCKE) as well as narratives in prose (DeBuck, READING BOOK). Religious texts (ibid. and COFFIN TEXTS) will also be studied and analyzed. Distinctions between the grammar of the literary and non-literary genres will be discussed.
Taught by: Silverman
One-term course offered either term
Prerequisite: ANEL 460
Activity: Lecture
1 Course Unit

ANEL 540 Akkadian Literary Texts
Readings in Akkadian literary texts from ancient Mesopotamia.
Taught by: Frame
One-term course offered either term
Prerequisite: ANEL 441/641
Activity: Lecture
1 Course Unit

ANEL 541 Akkadian Historical Texts
Readings in Akkadian historical texts from ancient Mesopotamia
Taught by: Frame
One-term course offered either term
Prerequisite: ANEL 441/641
Activity: Lecture
1 Course Unit

ANEL 542 Akkadian Letters
Readings in Akkadian letters from ancient Mesopotamia.
Taught by: Frame
One-term course offered either term
Prerequisite: ANEL 441/641
Activity: Lecture
1 Course Unit

ANEL 546 Intermediate Sumerian
Taught by: Tinney
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

ANEL 550 Late Egyptian
Introduction to the grammar of Late Egyptian.
One-term course offered either term
Prerequisite: ANEL 460
Activity: Lecture
1 Course Unit

ANEL 561 Middle Egyptian Texts
This course will concentrate on the literary texts of the New Kingdom: Late Egyptian narratives such as THE DOOMED PRINCE, THE TWO BROTHERS, and HOURS AND SETH (Gardiner, LATE EGYPTIAN STORIES) and poetry; (Gardiner, CHESTER BEATTY I and Muller, LIEBESPOESIE). The grammar will be analyzed (Erman, NEUAGYPTISCHE GRAMMATIK and Korostovtzev, GRAMMARIE DU NEO-EGYPTIEN) and compared to that used in non-literary texts (Groll, THE NEGATIVE VERBAL SYSTEM OF LATE EGYPTIAN, NON-VERBAL SENTENCE PATTERNS IN LATER EGYPTIAN, and THE LITERARY AND NON-LITERARY VERBAL SYSTEMS IN LATE EGYPTIAN).
Taught by: Silverman
One-term course offered either term
Prerequisite: ANEL 560
Activity: Lecture
1 Course Unit

ANEL 563 Old Egyptian
This course is an introduction to the language of the Egyptian Old Kingdom. The grammar of the period will be introduced during the early part of the semester, using Ededl's ALTAGYPTISCHE GRAMMATIK as the basic reference. Other grammatical studies to be utilized will include works by Allen, Baer, Polotsky,Satzinger, Gilula, Doret, and Silverman. The majority of time in the course will be devoted to reading varied textual material: the unpublished inscriptions in the tomb of the Old Kingdom official Kapure—on view in the collection of the University Museum; several autobiographical inscriptions as recorded by Sethe in URKUNDEN I; and a letter in hieratic (Baer, ZAS 93, 1966, 1-9).
Taught by: Silverman
One-term course offered either term
Prerequisite: ANEL 460; knowledge of German
Activity: Lecture
1 Course Unit

ANEL 640 First Year Akkadian I
Introduction to the grammar of the Akkadian language with emphasis on developing skills in the cuneiform writing system and reading of selected texts.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
ANEL 641 1st Year Akkadian II
Introduction to the grammar of the Akkadian language with emphasis on developing skills in the cuneiform writing system and reading of selected texts.
Course not offered every year
Prerequisites: ANEL 440, ANEL 640 or permission of the instructor.
Activity: Lecture
1 Course Unit

ANEL 644 Readings in Akkadian Texts I
Readings in Akkadian texts on selected topics.
Taught by: Frame
Course not offered every year
Prerequisite: ANEL 441/641
Activity: Seminar
1 Course Unit

ANEL 646 The Land of Sumer: Writing, Language, and Culture
This self-contained course sets the Sumerian language, writing system and use of writing in their social and historical context. The aim is to provide students of ancient history and culture from diverse disciplines with a good grounding in Sumerian culture, familiarity with the Sumerian language and cuneiform writing system and the requisite knowledge for critical assessment of published translations and of the secondary literature. The course is organized as two threads, culture on the one hand and language on the other. The two threads are united by taking examples in the language exercises, vocabulary assignments, etc., as far as possible from the domain of the week’s cultural topics. The net effect is to examine the culture both through contemporary secondary literature and through direct contact with elementary primary texts of relevance to the various topics of discussion. The language component of the course will be carried out in a combination of transliteration and cuneiform, with an expectation that all students will gain familiarity with at least the core 80 syllabic signs, and about 100 additional logographic signs.
Taught by: Tinney
Course not offered every year
Activity: Lecture
1 Course Unit

ANEL 647 Sumerian Daily Texts
Taught by: Tinney
Course not offered every year
Activity: Seminar
1 Course Unit

ANEL 661 Old Egyptian Texts: Secular
This is the beginner course in Modern Standard Arabic (MSA). It will introduce you to the speaking, listening, reading and writing skills in the standard means of communication in the Arab World. The course is proficiency-based, implying that all activities within the course are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. Evaluation is done by the more traditional testing methods (vocabulary tests, dictations, grammar and translation exercises). We anticipate that by the end of this course (ARAB 031) students will range in proficiency from Novice High to Intermediate Low on the ACTFL scale; in other words (using the terminology of the government’s Foreign Service Institute), from ‘incipient survival’ to ‘full survival’ in the native-speaking environment.
Taught by: Silverman
One-term course offered either term
Prerequisite: ANEL 563
Activity: Lecture
1 Course Unit

ANEL 664 Coptic
The course will be an introduction to the writing, grammar, and literature of Coptic.
Taught by: Silverman
Course not offered every year
Activity: Lecture
1 Course Unit

ANEL 740 Akkadian Religious and Scientific Texts
Readings in Akkadian of religious and scientific texts from ancient Mesopotamia.
Taught by: Frame
One-term course offered either term
Prerequisite: ANEL 441/641
Activity: Lecture
1 Course Unit

ANEL 741 Akkadian Legal Texts
Readings in Akkadian legal texts and law corpora from ancient Mesopotamia.
Taught by: Frame
One-term course offered either term
Prerequisite: ANEL 441/641
Activity: Lecture
1 Course Unit

ANEL 742 Akkadian Economic Texts
Readings in Akkadian economic texts from ancient Mesopotamia.
Taught by: Tinney
One-term course offered either term
Prerequisite: ANEL 441/641
Activity: Seminar
1 Course Unit

ANEL 743 Peripheral Akkadian
Readings in selected texts in Akkadian from the periphery of Mesopotamia, including Alalah, Ugarit, Nuzi, Suza and El-Amarna.
One-term course offered either term
Prerequisite: ANEL 441/641
Activity: Lecture
1 Course Unit

ANEL 746 Readings in Sumerian Texts
Selected readings in Sumerian texts.
Taught by: Tinney
One-term course offered either term
Prerequisite: ANEL 246/646
Activity: Lecture
1 Course Unit
ANTHROPOLOGY (ANTH)

ANTH 001 Archaeology: Window to the Human Past
This course will introduce students to the methods and theory of archaeology by exploring how we turn archaeological data into statements about cultural behavior. We will discuss the place of archaeology in the broader field of anthropology and debate issues facing the discipline today. The course will rely on case studies from around the world and from many different time periods to introduce students to the research process, field and lab methods, and essential questions of archaeological anthropology. Students will have the opportunity to work hands-on with archaeological materials through visiting the galleries and working with Penn Museum collections.
For BA Students: History and Tradition Sector
Course usually offered in fall term
Activity: Recitation
1 Course Unit

ANTH 002 Introduction to Cultural Anthropology
An introduction to the anthropological study of human social and cultural diversity throughout the world, with special emphasis on the development of the idea of culture as an analytical concept. The course includes sections on the ethnographic research method and on the library of ethnographic material relating to cultural change in different parts of the world that anthropology has produced since the 19th century.
For BA Students: Society Sector
Course usually offered in fall term
Activity: Recitation
1 Course Unit

ANTH 003 Introduction to Human Evolution
How did humans evolve? When did humans start to walk on two legs? How are humans related to non-human primates? This course focuses on the scientific study of human evolution describing the emergence, development, and diversification of our species, Homo sapiens. First we cover the fundamental principles of evolutionary theory and some of the basics of genetics and heredity as they relate to human morphological, physiological, and genetic variation. We then examine what studies of nonhuman primates (monkeys and apes) can reveal about our own evolutionary past, reviewing the behavioral and ecological diversity seen among living primates. We conclude the course examining the “hard” evidence of human evolution: the fossil and material culture record of human history from our earliest primate ancestors to the emergence of modern Homo sapiens. You will also have the opportunity, during recitations, to conduct hands-on exercises collecting and analyzing behavioral, morphological, and genetic data on both humans and nonhuman primates and working with the Department of Anthropology’s extensive collection of fossil casts.
For BA Students: Living World Sector
Course usually offered in fall term
Activity: Recitation
1 Course Unit

ANTH 004 The Modern World and Its Cultural Background
An introduction to the diversity of cultures in the world. This course is divided into two parts. The first briefly examines different models of understanding human diversity: ethnicities, religions, languages, political forms, economic structures, cultures, and “civilizations”. Students will learn to think about the world as an interconnected whole, and know the significance of culture on a global scale. The second part is an introduction to area studies, in which we undertake a survey of the different regions of the world. We conduct the survey paying attention to the different aspects of human diversities, which we examine in the first part of this course. Students will acquire a greater appreciation and understanding of cultural differences in the more comprehensive social context.
For BA Students: Humanities and Social Science Sector
Course usually offered in spring term
Activity: Recitation
1 Course Unit

ANTH 005 Great Transformations
This course explores the history and archaeology of the last 20,000 years from the development of agriculture to the industrial revolution. Why did people across the world abandon foraging for farming? How and why did cities and states develop? Why did societies succeed or fail? How have humans transformed themselves and the natural world, including the landscape and the climate? We will explore the methods that archaeologists use to consider these questions and analyze evidence for social and economic change from the Middle East, the Americas, Asia, Africa, Australia and Europe. In addition, students will have a chance to conduct hands-on exercises with artifacts from the Penn Museum during practicums.
For BA Students: History and Tradition Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ANTH 012 Globalization And Its Historical Significance
This course describes and analyses the current state of globalization and sets it in historical perspective. It applies the concepts and methods of anthropology, history, political economy and sociology to the analysis and interpretation of what is actually happening in the course of the semester that relates to the progress of globalization. We focus on a series of questions not only about what is happening but about the growing awareness of it and the consequences of the increasing awareness. In answering these questions we distinguish between active campaigns to cover the world (e.g. Christian and Muslim proselytism, free-trade agreements, democratization) and the unplanned diffusion of new ways of organizing trade, capital flows, tourism and remote interaction via the Internet. The body of the course deals with particular dimensions of globalization, reviewing both the early and recent history of each. The overall approach is historical and comparative, setting globalization on the larger stage of the economic, political and cultural development of various parts of the modern world. The course is taught collaboratively by an anthropologist, an historian, and a sociologist, offering the opportunity to compare and contrast distinct disciplinary approaches. It seeks to develop a general social-science-based theoretical understanding of the various historical dimensions of globalization: economic, political, social and cultural.
For BA Students: Humanities and Social Science Sector
Taught by: Spooner
Course usually offered in fall term
Activity: Lecture
1 Course Unit
ANTH 022 World Music and Cultures
This course examines how we as consumers in the "Western" world engage with musical difference largely through the products of the global entertainment industry. We examine music cultures in contact in a variety of ways—particularly as traditions in transformation. Students gain an understanding of traditional music as live, meaningful person-to-person music making, by examining the music in its original site of production, and then considering its transformation once it is removed, and recontextualized in a variety of ways. The purpose of the course is to enable students to become informed and critical consumers of "World Music" by telling a series of stories about particular recordings made with, or using the music of, peoples culturally and geographically distant from the US. Students come to understand that not all music downloads containing music from unfamiliar places are the same, and that particular recordings may be embedded in intriguing and controversial narratives of production and consumption. At the very least, students should emerge from the class with a clear understanding that the production, distribution, and consumption of world music is rarely a neutral process. Fulfills College Cross Cultural Foundational Requirement.
For BA Students: Arts and Letters Sector
Taught by: Muller, Rommen, Sykes
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Open to all students

ANTH 055 Cultural Heritage, Politics and War in the Middle East
Political upheaval in the Middle East has brought cultural heritage studies to the forefront. From playing a role in the making of national identity and economy of Middle Eastern countries to falling prey to armed conflicts, cultural heritage remains an important element of the political and social scene. This seminar will examine the relatedness of cultural heritage to questions of identity and politics in the Middle East, and the impact of recent wars on such heritage. The seminar will start by outlining the ancient and modern history of the Middle East, and reviewing the production of cultural heritage and its contemporary management in several Middle Eastern countries. It will then proceed to discuss the following major topics: 1) Cultural diversity of modern Middle Eastern societies, the perception of cultural heritage in these societies, and the survival of long-living historical places, old traditions, and material culture of all kinds. 2) The influence of ancient cultures on common fixation and beliefs of modern identity in Middle Eastern societies (e.g. particular ethnic and religious group see themselves as direct descendents of one or a number of ancient groups such as Phoenicians, Israelites, Assyrians). 3) The use of archeological and historical data to create narratives of the past that promote specific political ideologies in the modern Middle East and, in some cases fabricate novel cultural and political realities. 4) The damage done to Cultural Heritage by recent wars in Iraq, Syria, and Lebanon, and (i) how these wars are/were the makers of a new time that disrupted the living past through the destruction of cultural landscapes; and (ii) the involvement of cultural heritage institutions and archaeologists in rescuing cultural heritage in the event of war.
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 056 Seeing/Hearing South Africa: Politics and History through Contemporary Performance
This course begins in the regular semester—students are provided a general introduction to South African history, politics, environment, and performance through a range of resources: scholarly literature, film, music, and online resources; with particular focus on sites, communities, and events included in the two week intensive travel to South Africa (either Fall semester Intro with winter break travel; or spring semester Intro with late spring intensive travel). Students are given guidelines for writing about and representing live performances and experiences of exhibits and heritage sites. For fall/winter travel: focus is on Cape Town's New Year's Festival performed by those historically called "Cape Coloured" a Festival that makes complicated understandings of race, slavery, and transatlantic translation of borrowed culture. For the Spring/late spring travel, the destination is music festivals in mid-May. Both classes include visits to Robben island, Kirstenbosch gardens; "Cape Malay" heritage sites; travel to KwaZulu Natal, and to Johannesburg's apartheid museum, Soweto's anti apartheid destinations, the Cradle of Humankind works heritage site, a game park, and the Union Buildings in Pretoria. En route we will stop over to view Khoisan rock art. Taught by: Muller
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Application required through Penn Global: https://global.upenn.edu/pennabroad/PGS

ANTH 058 Freshman Seminar
This interdisciplinary course introduces students to qualitative research methods and frameworks in the social sciences and humanities. The goals of the semester will be for each student to develop their own research proposal for a specific project that they could imagine pursuing over the summer or later in their undergraduate career, and to develop a web-based exhibit of one Penn-based research collection of interest. Students will be introduced to a range of textual, archival and media collections and databases available at Penn, with particular attention to South Asia and other specific regions of interest to course participants. The class will visit the Penn Museum object collections and archives, the Art library, the Kislak Center for Rare Books and Manuscripts, Film Archives, and other special collections on campus, and meet with a representative from the Center for Undergraduate Research Funding (CURF). Students will learn how to frame an effective research question, situate it in relation to existing research, select the most appropriate methods for addressing the question, and develop an effective research plan. Each week students will be introduced to a new set of frameworks for analysis, see specific examples of their application drawn from anthropological, historical, and related scholarship and have opportunities to practice applying and evaluating the strengths and weaknesses of specific methodological tools. Students will also have the opportunity to identify sources of funding for summer research projects and prepare applications for these opportunities as part of the course. The course is ideal as an introduction to both the excellent libraries and research collections housed at Penn, and toub wide range of intellectual frameworks for engaging with these collections - a great way to kick off your undergraduate experience at Penn!
Taught by: Mitchell
Activity: Seminar
1 Course Unit
Notes: Topic varies by semester; see subtitle and Professor
ANTH 086 Desire and Demand: Culture and Consumption in the Global Marketplace
Does consumption shape culture or does culture shape consumption? As even the most mundane purchase becomes socially symbolic and culturally meaningful we can persuasively argue that the concept of "need" has been transformed. Analyzing a variety of physical and virtual consumer venues, the goal of this seminar is to understand and to analyze historical and contemporary issues related to a culture of consumption. We investigate social and political-economic factors that impact when and how people purchase goods and argue that behavior attached to consumption includes a nexus of influences that may change periodically in response to external factors. Readings and research assignments are interdisciplinary and require a critical analysis of global/local linkages. The city of Philadelphia becomes the seminar’s laboratory as we ask: how have issues of culture, consumption, and global capitalism become intertwined around the world?
Taught by: Diggs-Thompson
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Freshman Seminar

ANTH 100 Topics In Anthropology and the Modern World
This course relates anthropological models and methods to current problems in the Modern World. The overall objective is to show how the research findings and analytical concepts of anthropology may be used to illuminate and explain events as they have unfolded in the recent news and in the course of the semester. Each edition of the course will focus on a particular country or region that has been in the news.
Taught by: Spooner
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ANTH 104 Sex and Human Nature
This course is an introduction to the scientific study of sex in humans. Within an evolutionary framework, the course examines genetic, physiological, ecological, social and behavioral aspects of sex in humans. After providing the basic principles of evolutionary biology, the course delves into the development of sexual anatomy and physiology. Among the subjects to be explored are sex determination, the nature of orgasms, and the sexual development of females and males from birth to adulthood. The role of ecology and social life in shaping human mating patterns is also evaluated using ethnographic and cross-cultural materials from a variety of human cultures. In particular, the course examines why humans marry or pair bond, whether there is a biological basis of love, which biological and psychological factors produce jealousy. Finally, the course explores topics relevant to human sexuality today, such as the "hook-up culture", contraception and abortion, sex work, sexual transmitted diseases, and the ethical and legal dimensions of human sexuality.
For BA Students: Living World Sector
Taught by: Schurr
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 105 Human Adaptation
This course concerns evolutionary processes using humans (Homo sapiens) as a case study. Through a study of the anatomical, genetic, and behavioral adaptations in our species, we will explain and explore our biology through mammalian, primate, and hominin evolutionary histories. Through evolutionary theory, we explore why humans are imperfectly adapted and not an end product of evolutionary change, and how we create and modify, not just respond to, evolutionary pressures. Through this approach, we gain insights into how and why our biology functions (and sometimes malfunctions) in the way that it does. Then, we will explore topics including human birth, growth, locomotion, reproduction, and diet as part of human biocultural adaptation. This course will involve the analysis of hominin fossil casts and human skeletal material from the Penn Museum Physical Anthropology section.
Taught by: Mitchell
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 110 Water in the Middle East Throughout History
The role of water in the Middle East cannot be overstated. The Middle East is an arid region, but human and natural systems have interacted to determine relative water scarcity and abundance at different times and places. The location, accessibility, yield, and quality of natural and managed water resources significantly influenced the location and longevity of ancient and modern settlements. Control of water has always affected the economic, political, social life of the communities inhabiting these settlements. This course examines the distribution of water resources throughout the Middle East and the archaeology and anthropology of water exploitation and management over the last 9000 years. It will consider water in river valleys, deserts, highland zones, steppes, and coastal areas of Mesopotamia, Egypt, the Levant, and Arabia from environmental, political, social, cultural, and technical perspectives. We will engage with a variety of media, including academic readings, popular journalism, films, satellite imagery, and digital maps. We will examine irrigation, water supply, sanitation, and water-driven power systems known from ethnographic studies and archaeological excavations. These data will allow us to engage with debates in Middle Eastern anthropology, including those concerning the relationship between water and political power, the environment in which the earliest cities arose, and present and potential future water crises and "water wars." In our final weeks, we will discuss archaeology and historical anthropology's contribution to conceptions of water "sustainability" and examine attempts to revive traditional and ancient technologies in an effort to better manage modern water resources.
Taught by: Emily Hammer
Course not offered every year
Activity: Lecture
1 Course Unit
ANTH 111 Introduction to Mediterranean Archaeology
The cultures of Greece and Rome, what we call classical antiquity, span over a thousand years of multicultural achievement in the Mediterranean. This course tells the story of what it was like to live in the complex societies of ancient Greece and Rome. This story is told principally using the art, architecture, pottery and coins produced by these societies. We will examine both the bold and sexy, and the small and humble, from the Parthenon to wooden huts, from the Aphrodite of Knidos to the bones of a fisherman named Peter.
For BA Students: History and Tradition Sector
Taught by: Bowes
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANTH 112 Sacred Stuff: Religious Bodies, Places, and Objects
Does religion start with what’s in our heads? Or are religious commitments made, shaped and strengthened by the people, places, and things around us? This course will explore how religion happens in the material world. We’ll start with classical and contemporary theories on the relationship of religion to stuff. We’ll then consider examples of how religion is animated not just by texts, but through interactions with objects, spaces, bodies, monuments, color, design, architecture, and film. We’ll ask how these material expressions of religion move beyond private faith and connect religion to politics and identity.
Taught by: Schaefer
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 116 Caribbean Culture and Politics
This course offers anthropological perspectives on the Caribbean as a geo-political and socio-cultural region, and on contemporary Caribbean diaspora cultures. We will examine how the region’s long and diverse colonial history has structured relationships between race, ethnicity, class, gender and power, as well as how people have challenged these structures. As a region in which there have been massive transplantations of peoples and their cultures from Africa, Asia, and Europe, and upon which the United States has exerted considerable influence, we will question the processes by which the meeting and mixing of peoples and cultures has occurred. Course readings include material on the political economy of slavery and the plantation system, family and community life, religious beliefs and practices, gender roles and ideologies, popular culture, and the differing ways national, ethnic, and racial identities are expressed on the islands and throughout the Caribbean diaspora.
Taught by: Thomas
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 118 Witchcraft & Possession
This course explores world witchcraft and possession from the persecutions of the early seventeenth century through the rise of Wicca in the twentieth century. The mere mention of these terms, or of such close cousins as demonology, sorcery, exorcism, magic, and the witches Sabbath, raises clear ethnographic and historical challenges. How can the analysis of witchcraft— including beliefs, patterns of accusation, the general social position of victims, the intensity and timing of witch hunts, and its relation to religious practice, law, language, gender, social marginalization, and property—lead us to a more humane understanding of belief and action? Films such as The Exorcist, The Blair Witch Project, The Crucible, and Three Sovereigns for Sarah will focus discussion.
For BA Students: Humanities and Social Science S
Taught by: St. George
One-term course offered either term
Activity: Recitation
1 Course Unit

ANTH 121 Origin and Cultures of Cities
The UN estimates that 2.9 of the world’s 6.1 billion people live in cities and that this percentage is rapidly increasing in many parts of the world. This course examines urban life and urban problems by providing anthropological perspectives on this distinctive form of human association and land use. First we will examine the “origin” of cities, focusing on several of the places where cities first developed, including Mesopotamia and the Valley of Mexico. We will then investigate the internal structure of non-industrial cities by looking at case studies from around the world and from connections between the cities of the past and the city in which we live and work today.
For BA Students: History and Tradition Sector
Taught by: Zettler
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANTH 122 Becoming Human
Human evolutionary studies is a composite product of the fieldwork of both Paleolithic archaeology and human paleontology (or what we refer to as “stones and bones”). This marriage of two subdisciplines of anthropology produces a unique set of data that is intellectually managed and driven by theories within anthropology as a whole and even beyond – to fields such as biology, psychology, and primate ethology, as we try to understand the origins of language, culture, and our unique physical characteristics. In this course, we will jointly discuss and debate the actual evidence of human evolution, describing what the actual evidence is and exploring how far can we take these interpretations.
For BA Students: Natural Science and Math Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
ANTH 123 Communication & Culture
The course looks at varieties of human expression – such as art, film, language and song – as communicative practices that connect persons together to form a common culture. Discussion is centered around particular case studies and ethnographic examples. Examination of communicative practices in terms of the types of expressive signs they employ, their capacity to formulate and transmit cultural beliefs and ideals (such as conceptions of politics, nature, and self), and to define the size and characteristics of groups and communities sharing such ideals. Discussion of the role of media, social institutions, and technologies of communication (print, electronic). Emphasis on contemporary communicative practices and the forms of culture that emerge in the modern world.
For BA Students: Society Sector
Taught by: Agha
One-term course offered either term
Activity: Recitation
1 Course Unit

ANTH 124 Archaeology & The Bible
Archaeology and the Bible is a chronological survey of the long span of human occupation in the Land of the Bible, known by the names of the modern nation-states and political entities that occupy the area, as well as various short hands such as Levant and Syria-Palestine, from ca. 10,000 BCE, when humans first began to farm and herd animals through the time of the Divided Monarchy of Israel and Judah. While archaeology has moved beyond a primary concern with illuminating the Bible, NELC 155 will investigate the broader import of archaeological discoveries for our understanding of ancient Israel and its neighbors.
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 127 The Material Past in a Digital World
The material remains of the human past -objects and spaces- provide tangible evidence of past people’s lives. Today’s information technologies improve our ability to document, study, and present these materials. But what does it mean to deal with material evidence in a virtual context? In this class, students will learn basic digital methods for studying the past while working with objects, including those in the collections of the Penn Museum. This class will teach relational database design and 3d object modeling. As we learn about acquiring and managing data, we will gain valuable experience in the evaluation and use of digital tools. The digital humanities are a platform both for learning the basic digital literacy students need to succeed in today’s world and for discussing the human consequences of these new technologies and data. We will discuss information technology’s impact on the study and presentation of the past, including topics such as public participation in archaeological projects, educational technologies in museum galleries, and the issues raised by digitizing and disseminating historic texts and objects. Finally, we will touch on technology’s role in the preservation of the past in today’s turbulent world. No prior technical experience is required, but we hope students will share an enthusiasm for the past.
Taught by: Peter Cobb
Activity: Lecture
1 Course Unit

ANTH 134 Making the Natural World: An Introduction to Political Ecology
What are the limits of nature? When do natural systems become human or socio-natural systems? In this course, we examine the human construction of nature both conceptually, through ideas about environment, ecosystem, organism, and ecology, and materially, through trajectories of direct action in and on the landscape. Beginning with a consideration of foundational concepts in human ecology, we will discuss current problems and approaches, centering on political ecology. Readings and case studies are drawn from human-environmental contexts in Oceania, South Asia, Southeast Asia, Sub-Saharan Africa, Latin America, Europe, and North America. We will also consider topics including a) the relationship between indigenous and technocratic knowledge and resource governance, b) environmental movements themselves as objects of ethnographic study; c) justice and sustainability as environmental goals; d) inequality, displacement and violence as environmental problems; and e) fair trade and food security or sovereignty.
Taught by: Lycett
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 139 Ancient Civilizations of the World
This course explores the archaeology (material culture) of early complex societies or civilizations in Egypt, Mesopotamia, and the Aegean. According to the traditional paradigm, civilization first emerged during the fourth millennium BCE in Egypt and Mesopotamia. In the Mediterranean, state-level societies first appeared in Crete and mainland Greece in the early second millennium BCE. This course investigates how and why these civilizations developed, as well as their appearance and structure in the early historic (or literate) phases of their existence. A comparative perspective will illustrate what these early civilizations have in common and the ways in which they are unique. This course will consist largely of lectures which will outline classic archaeological and anthropological theories on state formation, before turning to examine the available archaeological (and textual) data on emerging complexity in Egypt, Mesopotamia, and the Aegean. This course does not presuppose any knowledge of archaeology or ancient languages; the instructor will provide any background necessary. Because this is a course on material culture, some of the class periods will be spent at the Penn Museum of Archaeology and Anthropology. These will consist largely of a guided tour of a relevant gallery, as well as a hands-on object-based lab with archaeological materials selected by the instructor. This course meets the General Education Curriculums Cross Cultural Analysis foundational approach, whose aim is to help students understand and interpret the cultures of peoples (even long-dead peoples) with histories different from their own; it also fulfills the History and Tradition Sector breadth requirement.
For BA Students: History and Tradition Sector
Taught by: Zettler
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit
ANTH 141 Public Policy, Museums, and the Ethics of Cultural Heritage
This course will focus upon and examine the ethics of international heritage and the role that Museums play in the preservation of identity and cultural heritage. The mission of this course will be to inform and educate students about the role of Museums within the 21st century. What is the role and position of antiquities and important cultural objects in Museums? How should Museums acquire these objects and when should they be returned to countries and cultural groups? Examples from current issues will be included in the reading and discussions along with objects and issues within the Penn Museum.
Taught by: Leventhal
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANTH 143 Being Human: Biology, Culture & Human Diversity
This course will investigate human biology from evolutionary and biocultural perspectives. Using this approach, the class will explore what it means to be human. We will examine humans as mammals, as primates, and as hominins (our own lineage). We will also study the basics of human genetics, growth and development, immune function, nutrition, life history, and adaptations to diet and disease. In addition, we will review biological variation in contemporary and past societies and the evolutionary processes that helped to shape them.
Taught by: Schurr
One-term course offered either term
Activity: Lecture
1 Course Unit

ANTH 148 Food and Fire: Archaeology in the Laboratory
This course will let students explore the essential heritage of human technology through archaeology. People have been transforming their environment from the first use of fire for cooking. Since then, humans have adapted to the world they created using the resources around them. We use artifacts to understand how the archaeological record can be used to trace breakthroughs such as breaking stone and bone, baking bread, weaving cloth and firing pottery and metals. The seminar will meet in the Penn Museum's Center for the Analysis of Archaeological Materials. Students will become familiar with the Museum's collections and the scientific methods used to study different materials. Class sessions will include discussions, guest presentations, museum field trips, and hands-on experience in the laboratory.
For BA Students: Humanities and Social Science S
Taught by: Katherine Moore
One-term course offered either term
Activity: Lecture
1 Course Unit

ANTH 149 Introduction to Native American and Indigenous Studies
This course offers a broad introduction to the linked fields of Native American Studies and Indigenous Studies. Students will gain foundational understandings of the ways that Indigenous peoples and academic researchers engage with Indigenous knowledges in diverse worldwide settings, while also exploring the impacts of settler colonialism and the influence of recent decolonizing methodologies. Students will examine topics from a variety of disciplinary traditions, using historical texts, anthropological studies, oral literature, and modern media. Special case studies will focus on: links between oral traditions and archaeological research; relations among archives, museum representation, and Indigenous heritage; legal interventions and protections for Indigenous sovereignty; and language restoration and cultural recovery.
Taught by: M. Bruchac
Activity: Seminar
1 Course Unit

ANTH 151 Archaeology of American History: The Colonial Period
Over the last fifty years archaeologists have been exploring historic sites in the United States dating from both the Colonial Period and the 19th/20th centuries. What can archaeology now tell us about the origins of American society, the invasion of North America by various European peoples (Spanish, English, Dutch), the impact on native peoples, the rise of African American and Asian American cultures, major crisis (e.g. the revolution, Civil War, and the Great Depression), the settlement of the Far American West, and the final emergence of a truly national culture in the 20th century? A basic question will be how an American history based on both archaeology and archival sources is different and more complete than an image of the past drawn only from written sources.
For BA Students: History and Tradition Sector
Taught by: Schuyler
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 154 Liquid Histories and Floating Archives
Climate change transforms the natural and built environments, and it is re-shaping how we understand, make sense, and care for our past. Climate changes history. This course explores the Anthropocene, the age when humans are remaking earth’s systems, from an on-water perspective. In on-line dialogue and video conferences with research teams in port cities on four continents, this undergraduate course focuses on Philadelphia as one case study of how rising waters are transfiguring urban history, as well as its present and future. Students projects take them into the archives at the Independence Seaport Museum and at Bartram’s Garden. Field trips by boat on the Schuylkill and Delaware Rivers and on land to the Port of Philadelphia and to the John Heinz National Wildlife Refuge invite transhistorical dialogues about how colonial and then industrial-era energy and port infrastructure transformed the region’s vast tidal marshlands wetlands. Excursions also help document how extreme rain events, storms, and rising waters are re-making the built environment, redrawing lines that had demarcated land from water. In dialogue with one another and invited guest artists, writers, and landscape architects, students final projects consider how our waters might themselves be read and investigated as archives. What do rising seas subsume and hold? Whose stories do they tell? What floats to the surface?
Taught by: Wiggin
Course not offered every year
Activity: Lecture
1 Course Unit
ANTH 155 Globalization: Causes & Effects
Class sessions will be devoted to discussion of the dynamics of globalization with the objective of illuminating the world-historical context of the changes that are happening around us unevenly in different parts of the world today, and developing critical approaches to the available research methodologies and explanatory theories. Weekly readings will be selected from the major researchers in the field, and students will test their ideas in short research projects of their own on questions arising from the discussions. The overall approach will be historical and comparative. Apart from weekly assigned readings and participation in class discussions, requirements for the course include three short research papers.
Taught by: Spooner
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Freshman Seminar

ANTH 158 The Neolithic Revolution
The advent of food production/agriculture in prehistory, sometimes referred to as the "Neolithic Revolution," represents key economic, social, and biological transitions for human groups. Food production was characterized by the possibility for the accumulation of food surpluses, which could be used as a form of wealth. It also resulted in the reorganization of social and ritual life as people settled more permanently in villages or were involved in pastoral lifeways. Additionally, densely packed living conditions and a close association with domesticated animals led to the spread of diseases, and new forms of labor related to farming tasks, as well as diets focused on a narrower range of foods, created biological stresses in these populations. This course examines several examples of the "Neolithic Revolution" throughout the world, including the Middle East, China, Europe, Mesoamerica, South America, and the North American Southwest.
Taught by: Olszewski
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 159 Population and Public Health in Eastern Europe
Since the collapse of communism in 1989 in Eastern Europe (and 1991 in the Soviet Union), many of the countries in the region have experienced public health crises and demographic catastrophe. Below replacement fertility rates and massive out migration have decimated the populations of these countries even as populations age and place unsustainable strains on pension systems and medical services. The demographic collapse has also been accompanied by falling male life expectancy and the rise of alcoholism, depression, domestic violence, and suicide. The economic exigencies of the transition from communism to capitalism dismantled welfare states at the exact moment when health services were most needed, leaving charities and nongovernmental organization to try to fill in the gaps. Through a combination of readings from the fields of epidemiology, demography, and medical anthropology, this course examines the public health implications of poverty and social dislocation in post-communist states. All readings and assignments are in English.
Taught by: GHODSEE
Activity: Lecture
1 Course Unit

ANTH 169 Merchants, Saints, Slaves and Sojourners: the Worlds of the Indian Ocean
Do oceans serve to divide and demarcate distinct cultures and regions? Or do they facilitate exchange, connection and cosmopolitanism? This course will explore the manner in which the Indian Ocean has played both roles throughout history, and how the nature of those divisions and connections has changed over time from the ancient to the modern world. We will reconstruct the intertwined mercantile, religious and kinship networks that spanned the Indian Ocean world, across the Middle East, East Africa, South Asia, Southeast Asia and China, illuminating the histories of Hinduism, Buddhism and Islam, while also considering the role of successive imperial political formations, from Rome to Britain. Throughout the semester we will seek to understand the Indian Ocean through the people who lived and worked in its milieu - from consuls and military commanders, to traders, brokers, sailors, prisoners and slaves. Course materials will draw on a variety of disciplines (anthropology, archaeology, material culture, religious studies) to construct the cultural, economic, and environmental history of the Indian Ocean.
Taught by: Petrie
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 190 Introduction to Africa
This course provides an introduction to the study of Africa in all its diversity and complexity. Our focus is cultural, geographical, and historical: we will seek to understand Africa's current place in the world political and economic order and learn about the various social and physical factors that have influenced the historical trajectory of the continent. We study the cultural formations and empires that emerged in Africa before European colonial invasion and then how colonialism reshaped those sociocultural forms. We'll learn about the unique kinds of kinship and religion in precolonial Africa and the changes brought about by the spread of Islam and Christianity. Finally, we'll take a close look at contemporary issues such as ethnic violence, migration, popular culture and poverty, and we'll debate the various approaches to understanding those issues.
For BA Students: Society Sector
Taught by: Hasty
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANTH 199 Independent Study in Anthropology
A study under faculty supervision of a problem area or topic not included in the formal curriculum.
One-term course offered either term
Prerequisites: Junior or senior standing and written permission of instructor and undergraduate chair
Activity: Independent Study
1 Course Unit
Notes: See Department for Advisor
ANTH 202 Language, Migration, Diaspora
Centering on the relation between language, migration, and diaspora, this course uses linguistic anthropological approaches to understand how the 'very big' is reflected in the 'very small.' We will approach language use as a process that unfolds in the microclimate of everyday interaction, but whose effects extend to and shape large-scale social processes. We will ask a number of interrelated questions: How does language use shape global phenomena like transnationalism and diasporic populations? How do globalizing forces impact and shape language structure and use? How are mobility and (im)migration enabled or constrained through everyday communicative interaction? We begin by exploring the ideologies inherent in everyday speech, evaluating how language is linked to social identities like class, race, gender, and sexuality, and to social personae like 'the migrant,' 'the refugee,' 'the foreigner,' or to the 'diasporic subject' more generally. We then explore the cultural politics of languages in and across nation-states, attending to their uses and values in unprecedented global flows of information, goods, and people.
Taught by: Carruthers
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 204 Theoretical Foundations
Ever wonder what the point was of reading the "founding fathers" of the discipline (and yes, they were most often fathers)? Ever feel like the "old stuff" and the "old questions" have no relevance to your contemporary interests? This course, designed primarily for cultural anthropology majors, will provide clues. This is NOT a comprehensive history of the discipline. Instead, we will examine some of the main issues that have been foundational to anthropology, and will explore how approaches to these issues have changed over time. To do so, we will contextualize our analysis of transformations in anthropological knowledge production within historical and contemporary political economies. By exploring core issues that continue to inspire and inform anthropological theory and ethnographic practice, we will solidify our commitment to a holistic and relational understanding of social processes.
Course not offered every year
Prerequisite: Students should have completed at least one anthropology course before registering for ANTH 204
Activity: Seminar
1 Course Unit

ANTH 205 American Folklore
This course will examine American expressive culture, including everyday speech, narrative, music, foodways, religion, public celebrations, and material culture through an exploration of the multiple and changing avenues of diversity in the United States. Folklore can be considered the unofficial culture that exists beneath and between the institutions of power that we read about in our history books, and that is what we will be studying--the 99% of American life that goes unseen and unnoticed in other college courses. Some of the topics we will examine are: campus folklore; body art and adornment; contemporary (urban) legends and beliefs; public celebrations and rituals; and the adaptation and commodification of folk culture in popular media.
One-term course offered either term
Activity: Recitation
1 Course Unit

ANTH 210 Death: Anthropological Perspectives
This course will cover the topic of DEATH from a bio/cultural perspective including the evolution of life history (aging and demography - mortality) as well as from an archaeological perspective (prehistory) and early history of mortuary practices. Nothing in the lifespan of humans is so revealing on the interface of culture and biology as is death and the experience of death. This course is not concerned specifically with how an individual experiences death, but in the ways that culture and biology have come to define and deal with physical death and the death experience.
Taught by: Monge
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 211 Religion and Ecology
This class will introduce the overlaps between religion and ecology. Rather than assuming that there is a necessary positive or negative relationship between religion and ecology, we will look at how these relationships have materialized in complicated ways at different moments in history. We'll consider perspectives and case studies from a range of different moments in history. We'll consider perspectives and case studies from a range of different traditions, with a special attention paid to the genesis of the field of Religion and Ecology in critiques of Christian attitudes toward the environment in the 1960s and 1970s.
Taught by: Covey
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 219 Archaeology Field Project
First-hand participation in research project in historical archaeology in Southern New Jersey. Transportation provided by the university. Students will assist in excavations and archival research on local archaeological sites. Class is open to all undergraduates, no previous archaeological experience is required. Attendance will involve Fridays or Saturdays, all day from 8:00 to 5:00 including travel time to the excavations and back to the University Museum. Students enroll for only one day (F or S). Enrollment is limited so specific permission of the instructor is required (Robert L. Schuyler: schuyler@sas.upenn.edu; (215)898-6965; U Museum 412). A follow up laboratory course (Anth 220 in the spring semester) will also be available during which the artifacts and documentary sources collected in the fall will be analyzed at the University Museum. Course may be repeated for credit.
For BA Students: Humanities and Social Science S
Taught by: Schuyler
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Permission of instructor required
**ANTH 220 Archaeology Laboratory Field Project**
Follow-up for ANTH 219. Students may enroll in either or both courses, and in any sequence; however, preference will be given to those previously enrolled in ANTH 219 that Fall. Class will meet in three hour sections on Fridays or Saturdays and will involve the analysis of artifacts, documentary records, oral historic sources and period illustrations collected on Southern New Jersey historic sites that Fall. No previous archaeological or lab experience is required. (Robert L. Schuyler: schuyler@sas.upenn.edu; (215) 898-6965; UMuseum 412). Course may be repeated for credit.
For BA Students: Humanities and Social Science S
Taught by: Schuyler
Course usually offered in spring term
Activity: Laboratory
1 Course Unit

**ANTH 221 Material World in Archaeological Science**
By focusing on the scientific analysis of inorganic archaeological materials, this course will explore processes of creation in the past. ANTH 221/521 will take place in the Center for the Analysis of Archaeological Materials (CAAM) and will be team taught in three modules: analysis of lithics, analysis of ceramics and analysis of metals. Each module will combine laboratory and classroom exercises to give students hands-on experience with archaeological materials. We will examine how the transformation of materials into objects provides key information about past human behaviors and the socio-economic contexts of production, distribution, exchange and use. Discussion topics will include invention and adoption of new technologies, change and innovation, use of fire, and craft specialization.
Taught by: Boileau/Dibble/Jansen
Course not offered every year
Activity: Lecture
1 Course Unit

**ANTH 230 Forensic Anthropology**
This course will investigate and discuss the various techniques of analysis that biological anthropologists can apply to forensic cases. Topics include human osteology, the recovery of bodies, the analysis of life history, the reconstruction of causes of death, and various case studies where anthropologists have contributed significantly to solving forensic cases. Discussions will include the limitations of forensic anthropology and the application of DNA recovery to skeletal/mummified materials.
Taught by: Monge
Course not offered every year
Activity: Lecture
1 Course Unit

**ANTH 236 Iraq: Ancient Cities & Empires**
Iraq: Ancient Cities and Empires is a chronological survey of the ancient civilization that existed in the drainage basin of the Tigris and Euphrates Rivers from the early settled village farming communities of the 7th millennium BCE to the middle of the 1st millennium BCE, when Nebuchadnezzar II ruled Babylon and much of the Middle East. Though organized period by period, NELC 241 explores various social, political, economic, and ideological topics, exposing students to various strands of evidence, including settlement survey data, excavated architectural remains, artifacts, and documentary sources, as well as an eclectic mix of theoretical perspectives. The course aims to provide students with a strong foundation for the further study of the ancient and pre-modern Middle East.
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit

**ANTH 238 Introduction to Medical Anthropology**
Introduction to Medical Anthropology takes central concepts in anthropology -- culture, adaptation, human variation, belief, political economy, the body -- and applies them to human health and illness. Students explore key elements of healing systems including healing technologies and healer-patient relationships. Modern day applications for medical anthropology are stressed.
For BA Students: Humanities and Social Science S
Taught by: Barg
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**ANTH 241 Performing History**
This seminar concentrates on the ways that various peoples in the world make their history by means other than relying on written texts alone. Over the course of the semester, we therefore may be examining such different public events and civic rituals as parades, political and religious processions, local historical pageants, carnivals, historic preservation, museums, military reenactments, and history theme parks. The emphasis in each of these forms, places, and semiotic processes will be on their identity and function as key performances that transform consciousness, shift individuals alternately into both actors and spectators, reframe the everyday as the metaphysical, and intensify the status of cultural values in the histories they present to view. Course requirements: a seminar paper, the topic of which you will discuss with me no later than week five of the course; and a working annotated bibliography and statement of your paper's main thesis. I will say more about these assignments as they approach.
Activity: Seminar
1 Course Unit
ANTH 244 Disease and Human Evolution
This course will explore the role played by disease in human evolution, from the emergence of the human lineage to the present day. We will evaluate both infectious and non-infectious diseases and examine the way in which populations and disease organisms have co-evolved. Related issues to be explored include the nature of the virulence and pathogenicity of infectious agents, and the impact of vaccination on pathogen evolution. In addition, we will discuss the epidemiological transition and the rise of complex diseases of modernization (e.g., diabetes, cancer) that has occurred in the past several centuries. Overall, the course will provide a broader understanding of the influence of disease processes on the evolution of the human species.
Taught by: Schurr
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 246 Molecular Anthropology
In this course, we will explore the molecular revolution in biological anthropology. In particular, we will examine how molecular data can be used to illuminate anthropological question concerning human origins, evolution and biological variation. Some of the specific topics to be covered in this course are the phylogenetic relationships among primates, kinship in apes and monkeys, the hominoid trichotomy, modern human origins and migrations, Neanderthal and Denisovan admixture with modern humans, biogenetics of skin color, and physiological, phenotypic and disease adaptations.
Taught by: Schurr
Course not offered every year
Prerequisites: ANTH 003, Intro to Human Evolution; some background in biology and genetics will also be useful.
Activity: Seminar
1 Course Unit

ANTH 248 Food and Feasting: Archaeology of the Table
Food satisfies human needs on many levels. ANTH 248 explores the importance of food in human experience, starting with the nutritional and ecological aspects of food choice and going on to focus on the social and ritual significance of foods and feasts. Particular attention will be paid to the way that archaeologists and biological anthropologists find out about food use in the past. Contemporary observations about the central significance of eating as a social activity will be linked to the development of cuisines, economies, and civilizations in ancient times. The course will use lectures, discussions, films, food tastings, and fieldwork to explore the course themes.
Taught by: Moore
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 249 Evolutionary Medicine
Evolutionary medicine is the application of modern evolutionary theory to studies of health and disease in humans. In taking this approach, the course will explore the role that disease played in human evolution. We will examine both infectious and non-infectious diseases, and assess the way in which populations and disease organisms have co-evolved. Related issues to be examined are the nature of the virulence and pathogenicity of infectious agents, and their efforts to subvert the immune system's responses to infection. We will also explore the evolved responses that enable individuals to protect, heal and recuperate themselves from infections and injuries, such as fever and sickness behavior, and the fitness enhancing aspects of these processes. Finally, we will study how past adaptations of early humans to their environments now affects modern humans, who have very different diets, life expectancy, activity patterns, and hygiene than their ancestors.
Taught by: Schurr
Course not offered every year
Prerequisites: ANTH 003 and ANTH 143 (or permission for undergraduates)
Activity: Seminar
1 Course Unit

ANTH 253 Violence, Tolerance, Freedom
This seminar examines how the adjective "religious" has been used to modify the nouns "violence," "tolerance," and "freedom." It traces the historical development of liberal ideas of tolerance and human rights, interrogates the common assumption that religion exerts a perverse influence on politics and vice versa, critically examines the concept of terrorism, and connects the neoliberal ideal of unfettered free markets to the idea of being "spiritual but not religious."
Taught by: Jolyon Thomas
Activity: Seminar
1 Course Unit

ANTH 254 Archaeology of the Inca
The Inca created a vast and powerful South American empire in the high Andes Mountains that was finally conquered by Spain. Using Penn's impressive museum collections and other archaeological, linguistic, and historical sources, this course will examine Inca religion and worldview, architecture, sacred temples, the capital of Cuzco, ritual calendar, ceque system, textiles, metalworking, economic policies and expansionist politics from the dual perspectives of Inca rulers and their subjects. Our task is to explain the rise, dominance, and fall of the Incas as a major South American civilization.
For BA Students: History and Tradition Sector
Taught by: Erickson
Course not offered every year
Activity: Seminar
1 Course Unit
ANTH 255 Modern Southeast Asia
This freshman-friendly course provides a broad introductory overview of modern Southeast Asia, surveying the region’s extraordinary diversity and ongoing social, economic, and political transformations. Centering on the nation-states that have emerged following the second World War, we will assess elements of Southeast Asian geography, history, language and literature, cosmologies, kinship systems, music, art and architecture, agriculture, industrialization and urbanization, politics, and economic change. We will remain particularly attentive to the ways Southeast Asians negotiate and contend with ongoing challenges with modernization, development, and globalization.
Taught by: Carruthers
Activity: Lecture
1 Course Unit

ANTH 258 Visualizing the Past/Peopling the Past
This highly interdisciplinary course approaches fundamental issues in Anthropology and Computer Science. Using an anthropological perspective, this course focuses on the history, theory, and methods of how archaeology and visualizations of the past are created, presented and used in scholarly media (e.g., traditional publications, conference papers, and project databases), and popular culture (e.g., artists reconstructions, movies, TV documentaries, museum exhibits, games, the internet, and art), and contemporary computer technology (e.g., 3D modeling, Animation, virtual reality, and simulation). From the computer science perspective, the challenge becomes how we can transform known and often incomplete information into engaging and plausible digital models of a past culture and its people. Students gain acquisition of fundamental computer programming, data analysis, and 3D modeling and animation tools. The course material is broad and requires conceptual integration by the student. The instructors use the SEAS Open Learning Classroom for programing and the Penn Museum to explore artifact collections through Object-Based Learning and evaluate public exhibits and complete an original Final Project to people and visualize the past.
Taught by: Badler/Erickson
Course not offered every year
Also Offered As: CIS 106
Activity: Lecture
1 Course Unit

ANTH 260 Cultures of Science and Technology
Science and technology figure centrally in the economic, political, and socio-cultural changes that impact our worlds. Happenings in the life sciences, including the discovery of new genes, pathways, and processes, are drawing new forms of the body and human nature and refiguring social and political relations. The seminar starts from the premise that scientific facts are made, not things existing a priori in the world and that they are merely picked up by researchers and consumed by lay audiences. Likewise, technologies are created through a process of intense negotiation between producers and their sophisticated users. Focusing on the biosciences, we explore the production of science and technology and how they 1) affect individuals, self-identities, subjectivity, kinship, and social relationships; 2) have interacted with or reinforced political programs, racial classifications, unequal access to knowledge, and patterns of social injustice; 3) inform contemporary institutional structures, strategies of governance, and practices of citizenship. We will combine methods and perspectives from social and cultural anthropology, and the social studies of science and technology, and will draw from historical case studies, contemporary ethnographies of science, scientific and medical journals, documentary films and media reports.
Taught by: Petryna
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 267 Living World in Archaeological Science
By focusing on the scientific analysis of archaeological remains, this course will explore life and death in the past. It takes place in the Center for the Analysis of Archaeological Materials (CAAM) and is team taught in three modules: human skeletal analysis, analysis of animal remains, and analysis of plant remains. Each module will combine laboratory and classroom exercises to give students hands-on experience with archaeological materials. We will examine how organic materials provide key information about past environments, human behavior, and cultural change through discussions of topics such as health and disease, inequality, and food.
Taught by: White, Monge, Moore
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 268 Anthropology of Museums
This course examines museums as sites where issues of Indigenous identity, memory, place and power intersect. Museums have long been engaged in the selective preservation, representation, and contextualization of Indigenous objects, cultures, and histories. We will examine antiquarian impulses that inspired the collecting of curiosities, scientific studies that drove the collection of biological specimens, and nationalist ideals that shaped monuments to house imperialist memories. Museums are now sites for complex, often contentious discourse around Indigenous collections. Students will review histories of local and national collecting processes, with a particular focus on Native American collections and concerns. We will also consider how Indigenous curators and new kinds of museums have developed innovative displays and interpretations.
Taught by: Bruchac
Activity: Seminar
1 Course Unit
ANTH 271 Ancient Mexico and Central America
This course will provide an overview of the diverse cultures of ancient Mesoamerica. Across the landscape that is now Mexico and Central America, the societies that inhabited highlands and tropical lowlands developed agricultural lands, built towering pyramids and cities, and forged great civilizations all before the arrival of Europeans to the New World. In this course, students will learn about these diverse civilizations and the many similarities and continuities among them. They will also learn about the legacy left by these cultures on today's modern peoples of Central Mexico and Central America.
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 273 Global Health: Anthropological Perspectives
In some parts of the world spending on pharmaceuticals is astronomical. In others, people struggle for survival amid new and reemerging epidemics and have little or no access to basic or life-saving therapies. Treatments for infectious diseases that disproportionately affect the world’s poor remain under-researched and global health disparities are increasing. This interdisciplinary seminar integrates perspectives from the social sciences and the biomedical sciences to explore 1) the development and global flows of medical technologies; 2) how the health of individuals and groups is affected by medical technologies, policy, and the forces of globalization as each of these impacts local worlds. The seminar is structured to allow us to examine specific case material from around the world (Haiti, South Africa, Brazil, Russia, China, India, for example), and to address the ways in which social, political-economic, and technological factors -- which are increasingly global in nature -- influence basic biological mechanisms and disease outcomes and distribution. As we analyze each case and gain familiarity with ethnographic methods, we will ask how more effective interventions can be formulated. The course draws from historical and ethnographic accounts, medical journals, ethical analyses, and films, and familiarizes students with critical debates on globalization and with local responses to globalizing processes.
Taught by: Petryna
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 276 Ethnographic Approaches to Urban Athletics and Human Movement
Rooted in the rubric of public interest social science, the course focuses on bridging theory and practice motivated by a commitment to social justice through original ethnographic research. In particular, this course will focus on kinesiology and the anthropology of sports and well-being through intense analysis of the Young Quakers Community Athletics (YQCA) program, a collaboration between the Netter Center for Community Partnerships and Penn Athletics. In guest lecturers from multiple disciplines will help to round out the course. The core learning objective is to bring a broad range of specialized expertise to foster a holistic examination of a complex institutional partnership intended to promote positive social transformation and improved human health and well-being.
Taught by: Frank Johnston, Gretchen Suess
Activity: Seminar
1 Course Unit

ANTH 294 Cities of the Future: Urbanization in the Global South
This course examines the futures of urbanization in most of the world. With cities in “developing” countries set to absorb 95% of urban population growth in the next generation, the course explores the plans, spaces and social experiences of this dramatic urban century. How do proliferating urban populations sustain themselves in the cities of Latin America, Africa and Asia? What kinds of social and political claims do these populations make more just and sustainable cities? The course investigates the ongoing experiences in urban planning, infrastructure development and environmental governance in cities of the Global South. In so doing, it imagines new forms of citizenship, development and sustainability that are currently unfolding in these cities of the future.
Taught by: Anand
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 300 Research Seminar in Anthropology
ANTH 300 is a Research Seminar for anthropology majors. It defines the Penn anthropology major by bringing together and inter-relating major threads from the different subfields of the Penn anthropology curriculum. Each session includes contributions from members of the standing faculty and seminar discussions of a research theme in which anthropological knowledge is currently progressing.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Open to junior and senior anthropology majors

ANTH 301 Senior Thesis
Individual research under faculty supervision culminating in a thesis. One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Permit required

ANTH 303 Research Methods in Cultural Anthropology
This undergraduate seminar is about how ethnographers do research. It introduces fundamental concepts and techniques - research design, participant observation, interviews, questionnaires, field notes, archives, data collection and analysis. It also addresses ethical and legal issues - cultural protocols, intellectual property rights, collaborative anthropology, and institutional review boards. Students will conduct original ethnographic research in partnership with the Netter Center.
Course not offered every year
Activity: Seminar
1 Course Unit
ANTH 305 Anthropology and Policy: History, Theory, Practice
From the inception of the discipline, anthropologists have applied their ethnographic and theoretical knowledge to policy issues concerning the alleviation of practical human problems. This approach has not only benefited peoples in need but it has also enriched the discipline, providing anthropologists with the opportunity to develop new theories and methodologies from a problem-centered approach. The class will examine the connection between anthropology and policy, theory and practice (or ‘praxis’), research and application. We will study these connections by reading about historical and current projects. As an ABCS course, students will also volunteer in a volunteer organization of their choice in the Philadelphia area, conduct anthropological research on the organization, and suggest ways that the anthropological approach might support the efforts of the organization.
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 307 Contemporary Native Americans
This course examines the social and political lives of contemporary Native American Indians in the United States and Canada. Topics include: Indigenous identity; homelands and natural resources; popular culture and media; Indigenous arts and cultural expression; museum representations; athletics; gender relations; tribal recognition and sovereignty; and resistance movements. We will consider the origins of federal programs and legislation that have become essential to the protection of Native American freedoms. Students can expect to gain an appreciation of the complexity and cultural diversity of Native communities and tribal nations and insights into their interactions with other cultures over time.
Taught by: Bruchac
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 308 Ethnohistory of the Native Northeast
Ethnohistory is a multi-disciplinary form of ethnographic study and documentary research that employs both anthropological and historical approaches. This course examines the foundations of the ethnohistorical method as a means to interpret cross-cultural colonial interactions and conflicts, and to better understand the complex histories of Native American Indian peoples from Pennsylvania and northward and eastward. Students will develop skills and strategies for interpreting and contextualizing primary and secondary source materials, oral traditions, colonial records, historical maps, and material culture. Hands-on study will include visits to local archives and historical sites to view relevant documents and landscapes.
Taught by: Bruchac
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 309 Psychoanalysis and Anthropology
This course will introduce students to the rich literature that has grown up around the encounter between psychoanalysis and anthropology, from totem and taboo, to studies of the Oedipus complex, child-rearing practices, ritual symbolism, mythology, and dreams. The class will also look to the future, endeavoring to examine as well such issues as the role of computers (are they self objects?) and the internet (including such online games as "Second Life"), dreams in space alien abduction narratives, sexuality in advertising, political psychology, and other contemporary issues. This course counts towards the Psychoanalytic Studies (PSYS) Minor.
Taught by: Urban/Blum
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 317 The Politics of Matter and the Matter of Politics
What is nature? What is culture? What kinds of practices and actors constitute what we call science? Who and what constitute the sphere we refer to as politics? A number of theoretical developments in cultural anthropology, political theory, critical geography, and feminist science studies have problematized the modernist ontological divide between Nature and Culture and a whole series of binary oppositions (such as objects/subjects, matter/form, bio/geo) that follow from it. Taking inspiration from this literature and placing it in conversation with Native and Indigenous scholarship and a series of contemporary socio-environmental struggles occurring in Latin America and beyond, this course will discuss the conceptual-methodological tools that a concern with politics of matter has generated. The epistemic and political implications of these tools go beyond their analytical usefulness as innovative devices to explore novel phenomena. They complicate well-established fields of inquiry, such as political ecology and economy, environmental studies, ethics, social justice, and modern politics; and, indeed, the singular ontology that these fields may inadvertently and explicitly sustain. We will explore how it is that things, stuff, matter, ‘nature’ came to fall outside modern politics as such, and the kinds of ethico-political repercussions that problematizing this division may produce.
Taught by: Lyons
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 319 Pottery and Archaeology
Pottery is the most ubiquitous material recovered from most archaeological sites of the last 10,000 years; all archaeologists must be capable of working with it. This course presents the basics on the recovery, documentation, and analysis of archaeological pottery. Instruction includes treatment of pottery in the field, museum, and laboratory. Students will develop critical awareness of the potentials and problems of interpreting pottery within the wider social contexts of production, exchange and consumption. This course will foster an appreciation of the range and complexity of pottery studies and encourage students to understand the materials and technological processes used in the manufacture of pottery.
Taught by: Boileau
Course not offered every year
Activity: Seminar
1 Course Unit
ANTH 323 Origins of Art / Origins of Writing
Each of the earliest systems of writing had intimate and enduring ties to pictorial traditions. This seminar addresses the fundamental relationship between texts and visual imagery in the Mesopotamian, Egyptian, Chinese, and Maya traditions. The class will take a comparative approach to examine the parallel development of scripts and images, extending from their earliest beginnings to their on-going lives as mature systems. As the individual scripts became more capable of representing speech, the subject matter, composition, and function of images changed, and one goal of this class is to identify these processes. Emphasis will be put on seeing text and image as collaborative and interactive constructions, in which parts of a single message can be encoded and presented in different ways. The class will make extensive use of the collections and the curatorial expertise of the Penn Museum.
Taught by: Pittman
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 328 Performing Culture, Native American Arts
This course analyzes cultural performances as sites for the formation, expression, and transmission of social identity. Students will read ethnographies, critiques, and reports of performance genres including ritual, theater, music, dance, art, and spoken word, with a particular focus on Native American and Indigenous arts and expressions. Topics include: expressive culture as survivance; debates around authenticity and invented traditions; public identity and sexuality; political resistance; the effects of globalization; transnationalism and hybridity; cultural appropriation; and the transformation of folk performances in the wake of modern media.
Taught by: Bruchac
One-term course offered either term
Activity: Lecture
1 Course Unit

ANTH 329 Psychoanalytic and Anthropological Perspectives on Childhood
This course will consider the interaction between culture and individual psychology, and between nature and nurture from birth to adulthood. Through an examination of phases of human development described by psychoanalysis, and evidence concerning psychoanalytic ideas from around the world, we will consider questions such as: How do people become who they are, both similar to others and uniquely individual? How do we develop emotionally? What features are and are not universal for our species? What is and is not known about these questions. The instructors are both psychoanalysts, one a psychiatrist, one a pediatrician. This course counts towards the Psychoanalytic Studies (PSYS) Minor.
Taught by: Blum/Shapiro
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 332 Medicine and the Language of Pain
Pain can be a particularly complex and morally charged object of biomedicine. The interiority of pain- the deeply private nature of pain experience- complicates its communication. Pain, particularly its chronic form, defies purely biological explanation, troubling fundamental biomedical distinctions between mind and body, subject and object. And decisions about analgesia are fraught, as doctors and patients pursue relief from pain amidst a widespread epidemic of opiate abuse that infuses their interaction with concerns about addiction, drug seeking, culpability, and responsibility. This seminar seeks to shed light on these issues by using concepts from linguistic and medical anthropology to explore how we experience, think about, and talk about pain. As an interdisciplinary endeavor, the course is of relevance not only to anthropology but also to medical sociology, medical ethics, public health, health policy, and science and technology studies.
Taught by: Justin Clapp
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 334 Feminist Ethnography
This course will investigate the relationships among women, gender, sexuality, and anthropological research. We will begin by exploring the trajectory of research interest in women and gender, drawing first from the early work on gender and sex by anthropologists like Margaret Mead and Ruth Benedict; moving through the 1970s and 1980s arguments about gender, culture, and political economy; arriving at more current concerns with gender, race, sexuality, and empire. For the rest of the semester, we will critically read contemporary ethnographies addressing pressing issues such as nationalism, militarism, neoliberalism and fundamentalism. Throughout, we will investigate what it means not only to "write women's worlds", but also to analyze broader socio-cultural, political, and economic processes through a gendered lens. We will, finally, address the various ways feminist anthropology fundamentally challenged the discipline's epistemological certainties, as well as how it continues to transform our understanding of the foundations of the modern world.
Taught by: Thomas
Course not offered every year
Prerequisites: Should have some fundamental knowledge of Cultural Anthropology.
Activity: Seminar
1 Course Unit
ANTH 337 Applying Anthropology Methods in Policy and Practice
This course will introduce students to applied anthropology methods for doing research that can change policy and practices. Examples of policy and practice change include clinical practices in health care settings, social welfare policy, and legal advocacy. Students will be trained in multiple anthropology research methods, including brief participant-observation, presentation of self in the field, entering the field in diverse cultural environments, qualitative interviewing, life story interviewing, and ethnographic content analysis of textual material. Students will also learn how to use NVivo software for analyzing qualitative and some quantitative data from their field notes, interviews, and analysis of popular articles/websites. Finally, students will practice writing products for non-academic audiences, such as policymakers, the media, and the general public. The course will emphasize using anthropology research methods to address real-world problems in policy and practice in diverse cultural contexts. This course is a service learning class affiliated with the Netter Center and a Benjamin Franklin Scholars course.
Taught by: Sahota
Activity: Seminar
1 Course Unit

ANTH 342 Dress and Fashion in Africa
Throughout Africa, social and cultural identities of ethnicity, gender, generation, rank and status were conveyed in a range of personal ornamentation that reflects the variation of African cultures. The meaning of one particular item of clothing can transform completely when moved across time and space. As one of many forms of expressive culture, dress shape and give forms to social bodies. In the study of dress and fashion, we could note two distinct broad approaches, the historical and the anthropological. While the former focuses on fashion as a western system that shifted across time and space, and linked with capitalism and western modernity; the latter approach defines dress as an assemblage of modification the body. The Africanist proponents of this anthropological approach insisted that fashion is not a dress system specific to the west and not tied with the rise of capitalism. This course will focus on studying the history of African dress by discussing the forces that have impacted and influenced it over time, such as socio-economic, colonialism, religion, aesthetics, politics, globalization, and popular culture. The course will also discuss the significance of the different contexts that impacted the choices of what constitute an appropriate attire for distinct situations. African dress in this context is not a fixed relic from the past, but a live cultural item that is influenced by the surrounding forces.
Taught by: Ali-Dinar
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ANTH 346 GIS for the Digital Humanities and Social Sciences
This course introduces students to the theory and methodology of the geospatial humanities and social sciences, understood broadly as the application of Geographical Information Systems (GIS) and spatial analysis techniques to the study of social and cultural patterns in the past and present. By engaging with spatial theory, spatial analysis case studies, and technical methodologies, students will develop an understanding of the questions driving, and tools available for, humanistic and social science research projects that explore change over space and time. We will use ESRI’s ArcGIS software to visualize, analyze, and integrate historical, anthropological, and environmental data. Techniques will be introduced through the discussion of case studies and through demonstration of software skills. During supervised laboratory sessions, the various techniques and analyses covered will be applied to sample data and also to data from a region/topic chosen by the student.
Taught by: Hammer
Activity: Lecture
1 Course Unit

ANTH 347 Anthropology of Corporations
Modern business corporations can be characterized as having their own internal cultures, more or less distinct from one another. They also exist within encompassing cultures and cultural flows. At the same time, corporations are producers and disseminators, and thus have effects on their surrounding environments, effects that extend from the local to the global. This course examines modern corporations from these three perspectives through theoretical and ethnographic readings, guest speakers from the corporate world, and independent research conducted by the students. Course requirements include student presentations of their research and readings; one or more take-home exams; and a final research paper.
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 359 Nutritional Anthropology
This course will explore the significance as it relates to food behaviors and nutritional status in contemporary human populations. The topics covered will be examined from a biocultural perspective and include 1) definition and functions of nutrients and how different cultures perceive nutrients, 2) basic principles of human growth and development, 3) methods to assess dietary intake, 4) food taboos, 5) feeding practices of infants and children, 6) food marketing, 7) causes and consequences of under- and over-nutrition, and 8) food insecurity and hunger.
Course not offered every year
Activity: Seminar
1 Course Unit
ANTH 362 Intro to Digital Archaeology
Digital methods allow archaeologists to approach research questions about the human past with increasing accuracies on larger datasets and at multiple scales. This class introduces students to the three main steps of digital archaeology: data management, analysis, and sharing. Data management involves the design, creation, and curation of digital objects that capture the archaeological process and evidence. Students will gain deep familiarity in working with the main types of digital archaeological data: structured data (relational databases), 3D models/spatial data, and raster images. The class will provide abundant hands-on experience with the latest equipment and software for working with many different kinds of data. We will learn about data analysis techniques through a close examination of a variety of case studies in the literature that demonstrate how other archaeologists have applied digital methods to their archaeological questions. Finally, we will discuss the importance of sharing data through open access data publication and we will apply our skills with structured data to existing online archaeological datasets. The goal of this class is to prepare students to make methodological decisions during future research endeavors, both in the field and in the archaeological lab.
Taught by: PETER COBB
Prerequisite: Prior archaeological classwork and/or experience preferred
Activity: Lecture
1 Course Unit

ANTH 375 Quantitative Analysis of Anthropological Data
Taught by: Dibble
One-term course offered either term
Activity: Lecture
1 Course Unit

ANTH 386 Desire and Demand II: Culture, Production, and Consumption in the Global Marketplace
The goal of this course is to understand and to investigate both historical and contemporary issues related to a culture of consumption. Reading topics cover both contemporary and scholarly issues in cultural anthropology, popular culture, consumer behavior, off-shore production, social networking, media and communications, financial and real estate markets and marketing. Class distinctions are equally interdisciplinary as we focus on investigating and identifying critical global/local linkages. We analyze the various ways in which Philadelphia and other "global cities" are competing for consumer revenues. We ask what factors have led contemporary society reaching its current stage of mass consumption and how have certain goods and services been reconfigured, packaged or re-packaged to attract new consumers. In order to better understand the link between consumption and production factors we explore the relationship between outsourcing and/or offshore production and modern consumption. Approximately sixty percent of the seminar takes place in the classroom and will include lecture, class discussion, and films. The remaining portion of the class meetings will involve local and regional travel. Research assignments emphasize the use of anthropological participant-observation techniques to investigate the relationships between culture and contemporary mass consumption within the contexts of re-gentrification, urbanization, and globalization.
Taught by: Diggs-Thompson
Activity: Seminar
1 Course Unit

ANTH 391 Multi-Modal Ethnography: Anthropology Beyond Text
What does the digital age mean for humanistic, social scientific, and professional inquiry and practice? How do non-text based formats - such as film, dance and other kinds of performance, creative writing, and soundscapes - transform both the processes and products of research? How do they inform and transform our disciplines, and what might this mean for the communities with which we work? This advanced undergraduate seminar will address these (and other related) questions. Taught by the invited Fellows from the Center for Experimental Ethnography, this course will take shape differently each semester according the Fellow’s area of expertise and practice. Students will be encouraged to explore alternative formats of representation that move beyond text while still being grounded in ethnographic research, and they will develop skills in relevant media. https://www.sas.upenn.edu/anthropology/courses/topics-courses
Taught by: Varied
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 402 Applied Research Skills in Global Community Health
While political borders remain, social and human borders fall with the increasing movement of people, ideas, and resources across geographies. What is global becomes local. While biomedical and counting sciences advance, the human experience and influence remain core to understanding behavior, beliefs, and awareness. What is human remains paramount. The Maya Western Highlands of Guatemala are undergoing health changes (trauma, maternal-infant health, diabetes, mental health) through economic development and continued human migration to and from the US. The Cobbs Creek neighborhood in West Philadelphia is also facing epidemics of non-communicable diseases. In this context, Applied Skills in Global Community Health will provide academic and professional skills development in comparing the role of culture, history and politics in the health of a population in transition (demographic, nutritional, epidemiologic, economic) in both settings. Classroom work will occur in the spring of each year combined with a short (1 wk) field experience in the Western Highlands of Guatemala. In addition students will examine health and community research in the Cobbs Creek neighborhood of West Philadelphia. Students may substitute 10 week field work as part of the companion course ANTH 403 for the 1 week experience.
Taught by: Barg/Bream
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ANTH 403 Field Experience in Global Community Health
The Maya Western Highlands of Guatemala are undergoing health changes (trauma, maternal-infant health, diabetes, mental health) through economic development and continued human migration to and from the US. The communities of Santiago Atitlan, Solola, San Jaun Sacatepequez, and Coatepeque have community based infrastructures (public health clinics, private NGOs, and research projects) that work to address these health changes. In this context, the Field Experience in Global Community Health will provide applied academic and professional skills development in data collection, analysis, and reporting. Field work will occur in the summer of each year combined with a campus based skills development experience.
Taught by: Barg/Bream
Course usually offered in fall term
Activity: Independent Study
0.5 Course Units
ANTH 404 Introduction to the Human Skeleton
An introduction to the anatomy and biology of the human skeleton. Laboratory work will be supplemented by lectures and demonstrations on the development structure, function, and evolution of the human skeleton.
Taught by: Monge
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 407 Human Evolution
An examination of fossils and other evidence documenting human evolution. Lectures and readings are supplemented with slide and fossil reproduction materials.
Course not offered every year
Prerequisite: ANTH 003
Activity: Lecture
1 Course Unit

ANTH 415 Archaeology of Animals
This course introduces the study of animal bones from archaeological sites. Faunal analysis is an interdisciplinary science which draws methods from archaeology, biology, and paleontology. Bones, shells, and other remains yield evidence for the use of animals by humans, and evidence for the biology of animals and for past environments. The course will focus on research approaches to important transitions in human-animal relationships: the development of human hunting and fishing, animal domestication, early pastoralism, and the emergence of market economies in animal products. Class presentations will include lectures and discussion concerning research design and archaeological case material, with additional videos, slidework with field and laboratory equipment, and supervised work identifying and describing archaeological materials from the University Museum's collections. This class is taught in the Zooarchaeology Laboratory of the Center for the Analysis of Archaeological Materials
Taught by: Moore
Course not offered every year
Prerequisites: ANTH 001 or permission from instructor.
Activity: Lecture
1 Course Unit

ANTH 419 Mining Archaeology
In ancient times, materials such as stone and metals were used to produce artifacts including pigments, jewelry, tools, and weapons. This course is designed to introduce students to research on the early exploitation of mineral resources. Which techniques were used to access and process raw materials in antiquity? Which archaeological methods can be used to investigate these features and artifacts? The course will provide worldwide examples through time, ranging from Stone Age flint mining, Iron Age rock salt mining to Medieval silver mining. Ethnographic studies and hands-on activities will contribute to our understanding of mining in archaeology, and artifacts from the Museum's collections will undergo scientific analysis in the Center for the Analysis of Archaeological Materials.
Taught by: Jansen
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 429 Anthropology of the Environment
This seminar draws from social scientific and scientific literatures to explore current themes in the anthropology of the environment. We will investigate the links between climate change science and social science, and the ways in which anthropologists can contribute via in-depth fieldwork methodology and long engagement in issues of society-environment interactions. We will also explore how potential environmental, social, and biological impacts of global warming on the future are being assessed through conceptual paradigms linked to risk, probability, scenario forecasting, tipping points, planetary boundaries, and extinction.
Taught by: Petryna
Activity: Seminar
1 Course Unit

ANTH 433 Andean Archaeology
Consideration of the culture history of the native peoples of the Andean area, with emphasis on the pre-conquest archaeology of the Central-Andean region.
Taught by: Erickson
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 440 Plants and Society
Interactions between humans and the living landscape around us have played - and continue to play - a fundamental role in shaping our worldview. This course is designed to introduce students to the diverse ways in which humans interact with plants. We will focus on the integration of ethnographic information and archaeological case studies in order to understand the range of interactions between humans and plants, as well as how plants and people have profoundly changed one another. Topics will include the origins of agriculture; cooking and plant processing; human health and the world of ethnomedicine; and poisonous and psychoactive plants. We will examine ancient plant material firsthand at the Center for the Analysis of Archaeological Materials (CAAM) and will handle botanical ecofacts from the Penn Museum's collections. Students will also carry out a substantial research project focused on an archaeological culture and plant species of their own interest.
Taught by: WHITE
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 441 Cross Cultural Approaches to Health and Illness
This course will explore the ways that health and illness-related beliefs and behaviors develop within communities. We will identify the forces that shape these beliefs and behaviors and ultimately affect who gets sick, who gets well, and the very nature of the illness experience. Emphasis will be given to the relationships among sociocultural, political and biological factors and the ways that these factors interact to produce the variation that we see in health and illness related attitudes, behaviors and outcomes across cultures.
Course not offered every year
Activity: Seminar
1 Course Unit
ANTH 444 Human Growth and Development
In this course we will examine key issues and the processes involved in human growth and development. By their very nature, growth and development are biocultural processes that require an integrated analysis of social construction and biological phenomena. As such, we will incorporate insight from evolutionary theory, ecology, developmental biology, psychology, human biology, and cultural anthropology in our study of growth and development. Such an integrated perspective will help students to see that development is not just a biological unfolding from birth through adolescence and adulthood. Rather, development is best understood as a process that is deeply intertwined with the environment within which the organism develops. Additionally, we will apply these biocultural and socio-ecological insights to emerging health challenges associated with various developmental stages. The study of human growth and development is useful to all students in biological, health-related, and social sciences. Course enrollment is restricted to juniors, seniors, and graduate students only.
Taught by: Hoke
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 451 Historical Archaeology
Archaeology of the Modern World from the Columbian voyage (1492) to the 20th century. Topics such as the rise of early modern Europe, European exploration and colonization, African American Archaeology, Asian American Archaeology, the rise of colonial society, contact with native peoples, the Industrial Revolution, and the archaeology of the 20th century will be covered.
Taught by: Schuyler
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 454 Quantitative Analysis of Anthropological Data
This course is designed to provide students with a basic understanding of how to work with and present quantitative data. Topics include graphical display of numerical data, probability, sampling, descriptive and inferential statistics (parametric and non-parametric two-and three group tests, regression and correlation). Using examples drawn from the social sciences and anthropology, the focus is on teaching the logic behind quantitative arguments and statistical tests, rather than on the mathematical formulas, making the course especially relevant for students who do not have a strong background in mathematics. This course fulfills the Colleges Quantitative Data Analysis requirement.
Taught by: Dibble
One-term course offered either term
Activity: Lecture
1 Course Unit

ANTH 458 Introduction to Paleopathology
Disease evaluated in its culture context, based on findings in skeletal and mummified paleopathologic specimens. Instruction in examination of specimens. For senior anthropology majors, graduate and medical students.
Taught by: Zimmerman
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 508 Conservation of Archaeological Sites and Landscapes: Impossible Ruins
Archaeological sites and landscapes have long been considered places of historical and cultural significance and symbols of national and ethnic identity. More recently they have offered new opportunities for economic and touristic development in both urban and rural settings. With a unique set of physical conditions including fragmentation, illegibility, extreme environmental exposure and material deterioration, as well as contested ownership and control, their conservation, management, and interpretation as heritage places require special knowledge and methodologies for both heritage specialists and archaeologists. This seminar will address the history, theories, principles, and practices of the preservation and interpretation of archaeological sites and landscapes. The course will draw from a wide range of published material and experiences representing both national and international contexts. Topics will include site and landscape documentation and recording; site formation and degradation; intervention strategies including interpretation and display, legislation, policy, and contemporary issues of descendent community ownership and global heritage. The course will be organized as a seminar incorporating readings, lectures and discussions on major themes defining the subject of ruins and archaeological site conservation. Readings have been selected to provide exposure to seminal works in the development of theory and method as well as current expressions of contemporary practice. This will set the background for the selected case study site which will provide students the opportunity to work with primary and secondary materials related to archaeological and ruin sites: excavation reports, stabilization work, conservation and interpretation plans, etc. Students will study specific issues leading toward the critique or development of a conservation and management program in accordance with guidelines established by UNESCO/ICOMOS/ICAHM and other organizations. This year the course site will be FORT UNION NATIONAL MONUMENT, NM.
Taught by: Erickson/Matero
One-term course offered either term
Activity: Seminar
Notes: For advanced undergraduates and graduate students
1 Course Unit

ANTH 511 Ethics, Archaeology, and Cultural Heritage
This seminar will explore some of the most important issues that are now a central part of archaeological, anthropological and historical research throughout the world. The identification and control of cultural heritage is a central part of the framework for research within other communities. Issues for this course will also include cultural identity, human rights, repatriation, colonialism, working with communities and many other topics. Field research today must be based upon a new series of ethical standards that will be discussed and examined within this class. Major topics include: cultural heritage - definitions and constructs, cosmopolitanism and collecting, archaeology and looting, cultural heritage preservation, museums - universal and national, museum acquisition policies, cultural identity, international conventions (including underwater issues), national laws of ownership, community based development, cultural tourism, development models, and human rights.
Taught by: Leventhal
Course not offered every year
Activity: Seminar
1 Course Unit
ANTH 514 Petrography of Cultural Materials
Introduction to thin-section petrography of stone and ceramic archaeological materials. Using polarized light microscopy, the first half of this course will cover the basics of mineralogy and the petrography of igneous, metamorphic and sedimentary rocks. The second half will focus on the petrographic description of ceramic materials, mainly pottery, with emphasis on the interpretation of provenance and technology. As part of this course, students will characterize and analyze archaeological samples from various collections. Prior knowledge of geology is not required.
Taught by: Boileau
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 519 Psychoanalysis and Anthropology
This course will introduce students to the rich literature that has grown up around the encounter between psychoanalysis and anthropology, from totem and taboo, to studies of the Oedipus complex, child-rearing practices, ritual symbolism, mythology, and dreams. The class will also look to the future, endeavoring to examine as well such issues as the role of computers (are they self objects?) and the internet (including such online games as "Second Life"), dreams in space alien abduction narratives, sexuality in advertising, political psychology, and other contemporary issues. This course counts towards the Psychoanalytic Studies (PSYS) Minor.
Taught by: Urban/Blum
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 521 Material World in Archaeological Science
By focusing on the scientific analysis of inorganic archaeological materials, this course will explore processes of creation in the past. ANTH 221/521 will take place in the Center for the Analysis of Archaeological Materials (CAAM) and will be team taught in three modules: analysis of lithics, analysis of ceramics and analysis of metals. Each module will combine laboratory and classroom exercises to give students hands-on experience with archaeological materials. We will examine how the transformation of materials into objects provides key information about past human behaviors and the socio-economic contexts of production, distribution, exchange and use. Discussion topics will include invention and adoption of new technologies, change and innovation, use of fire, and craft specialization.
Taught by: Boileau/Dibble/Jansen
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 527 Cultural Heritage and Conflict
Intentional destruction of cultural heritage is designed to erase the presence of a people in history and has become an all too familiar feature of the devastation wrought by contemporary violence and "ethnic cleansing." Recent cases appear frequently in news headlines and include such well-known examples as the 2001 demolition of the Bamiyan Buddhas in Afghanistan, the 2012 destruction of Sufi shrines in Timbuktu, Mali, and the recent obliteration of historic sites across Syria and Iraq. This course explores this phenomenon by examining such questions as: Why is cultural heritage targeted in conflict? Under what circumstances? By whom? In so doing, we will engage with readings that discuss the historical development of the international laws and norms that aim to protect cultural heritage during conflict and examples successful and unsuccessful humanitarian interventions.
Taught by: Brian Daniels
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 529 Psychoanalytic and Anthropological Perspectives on Childhood
This course will consider the interaction between culture and individual psychology, and between nature and nurture from birth to adulthood. Through an examination of phases of human development described by psychoanalysis, and evidence concerning psychoanalytic ideas from around the world, we will consider questions such as: How do people become who they are, both similar to others and uniquely individual? How do we develop emotionally? What features are and are not universal for our species? What is and is not known about these questions. The instructors are both psychoanalysts, one a psychiatrist, one a pediatrician. This course counts towards the Psychoanalytic Studies (PSYS) Minor.
Taught by: Blum/Shapiro
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 533 Archaeobotany Seminar
In this course we will approach the relationship between plants and people from archaeological and anthropological perspectives in order to investigate diverse plant consumption, use, and management strategies. Topics will include: plants as foods and intoxicating beverages, medicines, poisons, and psychoactive plants; plants as building supplies and textiles; wild plant collection, and the origins of plant domestication. Students will learn both field procedures and laboratory methods of archaeobotany through a series of hands-on activities and lab-based experiments. The final research project will involve an original in-depth analysis and interpretation of archaeobotanical specimens. By the end of the course, students will feel comfortable reading and evaluating archaeobotanical literature and will have a solid understanding of how archaeobotanists interpret human activities of the past.
Taught by: Chantel White
Course not offered every year
Activity: Seminar
1 Course Unit
ANTH 543 Public Environmental Humanities
This broadly interdisciplinary course is designed for Graduate and Undergraduate Fellows in the Penn Program in Environmental Humanities (PPEH) who hail from departments across Arts and Sciences as well as other schools at the university. The course is also open to others with permission of the instructors. Work in environmental humanities by necessity spans academic disciplines. By design, it can also address and engage publics beyond traditional academic settings. This seminar, with limited enrollment, explores best practices in public environmental humanities. Students receive close mentoring to develop and execute cross-disciplinary, public engagement projects on the environment. In spring 2018, participants have the opportunity to participate in PPEH’s public engagement projects on urban waters and environmental data. These ongoing projects document the variety of uses that Philadelphians make of federal climate and environmental data, in and beyond city government; they also shine light on climate and environmental challenges our city faces and the kinds of data we need to address them. Working with five community partners across Philadelphia, including the City’s Office of Sustainability, students in this course will develop data use stories and surface the specific environmental questions neighborhoods have and the kinds of data they find useful. The course hosts guest speakers and research partners from related public engagement projects across the planet; community, neighborhood, open data, and open science advocates; and project partners in government in the City of Philadelphia and Commonwealth of Pennsylvania. Course assignments include: * 2 short-form essays (course blog posts); * a 12-hour research stay (conducted over multiple visits) with a community course partner to canvas data uses and desires; * authorship of 3 multimedia data stories; * co-organization and participation in a city-wide data storytelling event on May 2, 2018.
Taught by: Wiggin
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 547 Anthropology and Education
An introduction to the intent, approach, and contribution of anthropology to the study of socialization and schooling in cross-cultural perspective. Education is examined in traditional, colonial, and complex industrial societies.
Taught by: Hall or Posecznizk
One-term course offered either term
Activity: Lecture
1 Course Unit

ANTH 549 Topics in Archaeological Method and Theory
It is the stated purpose of archaeology to interpret the human past. However, this fascination with the things that came before is not new. Social memory, the construction of a collective notion about the way things used to be, looms large in the archaeological record, particularly through the material representations of these memories – monuments. This class explores memory and monumentality, both ancient and modern, through world-wide case studies ranging from the American South to the islands of Polynesia and from 5000 BC to the present.
Taught by: Kassabaum
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 551 Experimental Ethnography at the Interfaces of the Arts & Sciences
This course takes inspiration from conversations and practices occurring at the interfaces of cultural anthropology, the environmental humanities, and feminist science studies. Anthropologist Stuart McLean (2017) asked: “What might become of anthropology if it were to suspend its sometime claims to be a social science? What if it were to turn instead to exploring its affinities with art and literature as a mode of engaged creative practice carried forward in a world heterogeneously composed of humans and other than humans?” At the same time, the emergence of the environmental humanities as an academic discipline in the twenty-first century reflects the growing conviction on the part of the diverse sectors that “environmental” problems cannot be solved by science and technology alone. Instead, cultivation of experimental methods and alliance building between the arts and social and natural sciences has become ever more important strategy in terms of fomenting public engaged scholarship. In this course, we will not necessarily suspend the social scientific claims of anthropology, and ethnography more specifically, but we will push our methodological premises and conceptual work to experiment with our objects of study, matters of concern, and the diverse materialities that emerge from and participate in our ethnographic work.
Taught by: Lyons
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 553 Archaeology of East Asia
This is an introductory survey course on the ancient societies and civilizations of East Asia, especially in the areas known today as Japan, China, and Korea. This course will explore the general lifeway of the peoples in these regions during the prehistoric periods, specifically from the Mesolithic/Neolithic periods about 8,000 BC up to the era of political unification around 700 AD in both the Japanese archipelago and the Korean peninsula. By examining primarily the art and architecture of these prehistoric societies, this course will explore important sociocultural aspects, including subsistence, sedentism, state formation, social stratification, leadership, warfare, trade, technology, population movement, and mortuary custom. The course aims to provide a thorough foundation for further study in the histories and cultures of ancient Japan, China, and Korea.
Taught by: Nishimura,Y
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 554 Experimental Ethnography at the Interfaces of the Arts & Sciences
This course takes inspiration from conversations and practices occurring at the interfaces of cultural anthropology, the environmental humanities, and feminist science studies. Anthropologist Stuart McLean (2017) asked: “What might become of anthropology if it were to suspend its sometime claims to be a social science? What if it were to turn instead to exploring its affinities with art and literature as a mode of engaged creative practice carried forward in a world heterogeneously composed of humans and other than humans?” At the same time, the emergence of the environmental humanities as an academic discipline in the twenty-first century reflects the growing conviction on the part of the diverse sectors that “environmental” problems cannot be solved by science and technology alone. Instead, cultivation of experimental methods and alliance building between the arts and social and natural sciences has become ever more important strategy in terms of fomenting public engaged scholarship. In this course, we will not necessarily suspend the social scientific claims of anthropology, and ethnography more specifically, but we will push our methodological premises and conceptual work to experiment with our objects of study, matters of concern, and the diverse materialities that emerge from and participate in our ethnographic work.
Taught by: Lyons
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 555 Seminar in Archaeological Theory and Method: Archaeology of Landscapes
Advanced seminar for potential professional archaeologists. Course will examine critically main past and present theoretical issues in archaeological research and interpretation, and consider various methodologies utilized towards these interpretive ends.
Taught by: Erickson
Course not offered every year
Prerequisites: ANTH 241 or ANTH 600 and one archaeology area course or permission from instructor
Activity: Seminar
1 Course Unit
ANTH 562 Intro to Digital Archaeology
Digital methods allow archaeologists to approach research questions about the human past with increasing accuracies on larger datasets and at multiple scales. This class introduces students to the three main steps of digital archaeology: data management, analysis, and sharing. Data management involves the design, creation, and curation of digital objects that capture the archaeological process and evidence. Students will gain deep familiarity in working with the main types of digital archaeological data: structured data (relational databases), 3D models/spatial data, and raster images. The class will provide abundant hands-on experience with the latest equipment and software for working with many different kinds of data. We will learn about data analysis techniques through a close examination of a variety of case studies in the literature that demonstrate how other archaeologists have applied digital methods to their archaeological questions. Finally, we will discuss the importance of sharing data through open access data publication and we will apply our skills with structured data to existing online archaeological datasets. The goal of this class is to prepare students to make methodological decisions during future research endeavors, both in the field and in the archaeological lab.
Taught by: Peter Cobb
Course not offered every year
Prerequisite: Prior archaeological classwork and/or experience preferred
Activity: Lecture
1 Course Unit

ANTH 564 Colonial Ecologies
This seminar explores the historical ecology of European colonial expansion in a comparative framework, concentrating on the production of “periphery” and the transformation of incorporated societies and environments. We begin with a discussion of the theoretical frameworks, sources of evidence, and analytical strategies employed by researchers to address the conjunction of environmental and human history in colonial contexts, including underdevelopment and global systems of circulation; political ecology; and ecological imperialism. We then discuss the circulation of persons, crops, invasives, and microbes as fundamental conditions of emerging global systems. Drawing on these elements, we discuss landscapes as sites of misrecognition, rationalization, and cultural production. This discussion sets the stage for an examination of novel forms of economic and ecological production, including the emergence of the ‘drug foods’, the transformation of forest products, and the rise of the plantation. We then consider the political ecology of crisis in colonial settings, including agrarian collapse, famine, and ‘ecological poverty’.
Taught by: Lycett
Course not offered every year
Prerequisite: Open to advanced undergraduates
Activity: Seminar
1 Course Unit

ANTH 567 Living World in Archaeological Science
By focusing on the scientific analysis of archaeological remains, this course will explore life and death in the past. It takes place in the Center for the Analysis of Archaeological Materials (CAAM) and is team taught in three modules: human skeletal analysis, analysis of animal remains, and analysis of plant remains. Each module will combine laboratory and classroom exercises to give students hands-on experience with archaeological materials. We will examine how organic materials provide key information about past environments, human behavior, and cultural change through discussions of topics such as health and disease, inequality, and food.
Taught by: White, Monge, Moore
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 575 Quantitative Analysis of Anthropological Data
Taught by: Dibble
One-term course offered either term
Activity: Lecture
1 Course Unit

ANTH 581 Environmental Activism with Indigenous Communities
We are living in a moment of Environmental crisis as the oceans rise and carbon emissions warm the planet. And yet more than half the US population believes climate change will not harm them personally and 30% feel they cannot trust science. As the standoff at Standing Rock and the #NoDapl movement made clear, Native Americans’ spirituality is playing a central role in galvanizing the public and providing alternative narratives to capitalist consumption. Students will work on ongoing projects to build partnerships between Penn and two Native American communities—Sitting Bull College on the Standing Rock Sioux reservation in South Dakota and a UNESCO World Heritage Site nomination submitted by Ojibwe First Nations in Canada to preserve 24,000 sq. kms. of boreal forest through the use of Traditional Ecological Knowledge. This class will learn to build multi-media exhibits using Scalar, Omeka, Google Earth, and StoryMap. No previous experience is necessary. Students will learn about choosing a platform, creating dynamic narratives that incorporate videos and interactive features, and learning about grant writing in order to sustain digital projects and benefit Indigenous communities. Although the emphasis will be on practical applications or praxis, the course will also engage with new theories from the fields of Digital Humanities and Environmental Humanities as a basis for building new exhibits.
Taught by: Powell
Activity: Seminar
1 Course Unit
ANTH 583 Ethnographic Filmmaking
This ethnographic methodology course considers filmmaking/ videography as a tool in conducting ethnographic research as well as a medium for presenting academic research to scholarly and non-scholarly audiences. The course engages the methodological and theoretical implications of capturing data and crafting social scientific accounts/narratives in images and sounds. Students are required to put theory into practice by conducting ethnographic research and producing an ethnographic film as their final project. In service to that goal, students will read about ethnography (as a social scientific method and representational genre), learn and utilize ethnographic methods in fieldwork, watch non-fiction films (to be analyzed for formal properties and implicit assumptions about culture/sociality), and acquire rigorous training in the skills and craft of digital video production. This is an ABCS course, and students will produce short ethnographic films with students in Philadelphia high schools as part of a partnership project with the School District of Philadelphia. Due to the time needed for ethnographic film production, this is a year-long course, which will meet periodically in both the fall and spring semesters.
Taught by: Hall, Kathleen & Das, Amit
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ANTH 586 Desire and Demand II: Culture, Production, and Consumption in the Global Marketplace
The goal of this course is to understand and to investigate both historical and contemporary issues related to a culture of consumption. Reading topics cover both contemporary and scholarly issues in cultural anthropology, popular culture, consumer behavior, off-shore production, social networking, media and communications, financial and real estate markets and marketing. Class distinctions are equally interdisciplinary as we focus on investigating and identifying critical global/local linkages. We analyze the various ways in which Philadelphia and other "global cities" are competing for consumer revenues. We ask what factors have led contemporary society reaching its current stage of mass consumption and how have certain goods and services been reconfigured, packaged or re-packaged to attract new consumers. In order to better understand the link between consumption and production factors we explore the relationship between outsourcing and/or offshore production and modern consumption. Approximately sixty percent of the seminar takes place in the classroom and will include lecture, class discussion, and films. The remaining portion of the class meetings will involve local and regional travel. Research assignments emphasize the use of anthropological participant-observation techniques to investigate the relationships between culture and contemporary mass consumption within the contexts of re-gentrification, urbanization, and globalization.
Taught by: Diggs-Thompson
Course not offered every year
Activity: Seminar
1 Course Unit

Notes: See course description for ANTH 386.
ANTH 598 The Economics of Heritage
Governmental resources for archaeological and heritage sites are declining worldwide while commercial and economic development initiatives are threatening the fabric of heritage and the larger landscape environment to ever greater degrees. As a consequence, the competition for resources to protect and preserve heritage is intensifying, as is the challenge to articulate the value of heritage resources vs. competing commercial or public projects. This is the context for understanding the issues surrounding the definition of the value of cultural heritage assets and the tools available for their measurement and management. This course explores in some depth issues relating to the economic analysis of heritage and culture. It is designed to provide students with a foundational understanding of the economics of heritage-related projects, the tools and techniques available for their analysis and the ethical and practical issues of public policy and private actions that determine the future of heritage resources. Readings and case studies will explore technical, practical and ethical issues that arise in cultural heritage economics. Relevant analytical techniques will be introduced and particular emphasis will be placed on commercial, government and community issues unique to heritage-related activities. Special emphasis will be placed upon developing pertinent strategies for the tourist industry. Students will produce one case-study project intended to integrate the technical and practical aspects of the course.
Taught by: Peter Gould
Activity: Seminar
1 Course Unit

ANTH 600 Contemporary Archaeology in Theory
This graduate seminar addresses contemporary anthropological archaeology and considers the varied ways inferences are made about past and present human behavior from the archaeological record. It reviews such fundamental topics as the use of analogy, Middle Range theory, symbolism and meaning, social and cultural evolution, ideology and power, feminism and gender, and indigenous (non-Western) perspectives. It also foregrounds basic issues regarding heritage, looting, and ethics.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: First-year anthropology graduate students.

ANTH 602 Evolutionary Anthropology
This course will explore various subfields of biological anthropology to better understand what it means to be human. Special attention will be paid to current issues and problems in these subfields, and the different ways in which researchers are attempting to understand and uncover the details of human evolution. Among the areas that are explored in this course are paleoanthropology, primatology, human biology, molecular anthropology, evolutionary medicine, epigenetics, and human life history. Specific issues to be explored include the primate roots of human behavior, brain and language evolution, new fossil hominins, the origins of anatomically modern humans, and modern human migration history.
Taught by: Schurr
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: First-year anthropology graduate students.

ANTH 603 Language in Culture and Society
First-year anthropology graduate students or Instructor Permission. Examination of properties of human language which enable social persons to interpret the cultural world and to act within it. Topics include: principles of lexical and grammatical organization; the role of language structure (grammar) and linguistic context (indexicality) in discursive activity; referential uses of language; social interaction; markers of social role, identity, and group-belonging; criteria by which models of linguistic form and function are formulated; the empirical limits within which different models have explanatory value.
Taught by: Agha
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: First-year anthropology graduate students.

ANTH 607 Contemporary Native Americans
This course examines the social and political lives of contemporary Native American Indians in the United States and Canada. Topics include: Indigenous identity; homelands and natural resources; popular culture and media; indigenous arts and cultural expression; museum representations; athletics; gender relations; tribal recognition and sovereignty; and resistance movements. We will consider the origins of federal programs and legislation that have become essential to the protection of Native American freedoms. Students can expect to gain an appreciation of the complexity and cultural diversity of Native communities and tribal nations and insights into their interactions with other cultures over time.
Taught by: Bruchac
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 610 Films of Utility: Analysis, Argument and Building Block
This course explores non-fiction film as a tool in creating discourse and catalyzing progressive social change. Our specific purpose will be to understand how non-fiction filmmaking - documentary and the essay film - can be used as a cultural strategy to affect political movement. Screening and analyzing a wide range of contemporary independent films, many produced in community settings outside the commercial entertainment marketplace, class participants will explore the forms and methods of these films of utility. Part of the course work will involve applying these filmmaking approaches to a short film project in support of a movement of importance to the student participant. A permit is required to enroll in this course. Please contact the instructor at Lmassiah@scribe.org
Taught by: Louis Massiah
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 617 Contemporary Approaches to the Study of Culture and Society
A critical examination of recent history and theory in cultural and social anthropology. Topics include structural-functionalism; symbolic anthropology; post-modern theory. Emphasis is on major schools and trends in America, Britain, and France.
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: First-year anthropology graduate students.
ANTH 620 Directed Reading and Research
To be arranged only by consultation with academic adviser and faculty member(s) to be involved; a proposed syllabus must be presented for approval, and written papers will be required without exception. On approval of these papers one copy must be presented to the Department of Anthropology office for filing.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: May be repeated for credit

ANTH 621 Directed Field Training and Research
To be arranged only by consultation with academic adviser and the faculty member(s) to be involved; a proposed syllabus must be presented for approval and written papers will be required without exception. On approval of these papers, one copy must be presented to the Department of Anthropology office for filing.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: May be repeated for credit

ANTH 626 Intensity
This course examines the manner in which humans encounter the continuous and gradable features of phenomena in social life - sensory qualities of objects, people’s aspirations and affect, pitch movement during voiced talk, monsoons and sea breezes, biological growth and environmental degradation, migratory flows in transnational settings - and attempt to evaluate or convert them into discrete dimensions of social life. We examine how intensities and gradients are managed in everyday life as well as in institutional settings - through government policies, scientific protocols, surveillance regimes, infrastructural agendas - and we survey the ways in which everyday and institutional practices reflect and shape each other in societies across the world. In particular, we explore the question of what an anthropology of intensity might look like, and how it may reconfigure approaches to the ethnographic study of human affairs.
Taught by: Carruthers
Activity: Seminar
1 Course Unit

ANTH 628 Language in Culture and Society: Special Topics
The course is devoted to a single research topic of contemporary interest in linguistic anthropology. Topics vary from year to year. Readings locate current debates in relation to longstanding assumptions in the literature and new directions in contemporary research.
Taught by: Agha
Course not offered every year
Prerequisite: ANTH 603 or Instructor Permission
Activity: Seminar
1 Course Unit

ANTH 633 Forensic Anthropology
This course will investigate and discuss the various techniques of analysis that biological anthropologists can apply to forensic cases. Topics include human osteology, the recovery of bodies, the analysis of life history, the reconstruction of causes of death, and various case studies where anthropologists have contributed significantly to solving forensic cases. Discussions will include the limitations of forensic anthropology and the application of DNA recovery to skeletal/mummified materials.
Taught by: Monge
Course not offered every year
Activity: Lecture
1 Course Unit

ANTH 634 Feminist Ethnography
This course will investigate the relationships among women, gender, sexuality, and anthropological research. We will begin by exploring the trajectory of research interest in women and gender, drawing first from the early work on gender and sex by anthropologists like Margaret Mead and Ruth Benedict; moving through the 1970s and 1980s arguments about gender, culture, and political economy; arriving at more current concerns with gender, race, sexuality, and empire. For the rest of the semester, we will critically read contemporary ethnographies addressing pressing issues such as nationalism, militarism, neoliberalism and fundamentalism. Throughout, we will investigate what it means not only to “write women’s worlds”, but also to analyze broader socio-cultural, political, and economic processes through a gendered lens. We will, finally, address the various ways feminist anthropology fundamentally challenged the discipline’s epistemological certainties, as well as how it continues to transform our understanding of the foundations of the modern world.
Taught by: Thomas
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 636 Iraq: Ancient Cities and Empires
Iraq: Ancient Cities and Empires is a chronological survey of the ancient civilization that existed in the drainage basin of the Tigris and Euphrates Rivers from the early settled village farming communities of the 7th millennium BCE to the middle of the 1st millennium BCE, when Nebuchadnezzar II ruled Babylon and much of the Middle East. Though organized period by period, NELC 241 explores various social, political, economic, and ideological topics, exposing students to various strands of evidence, including settlement survey data, excavated architectural remains, artifacts, and documentary sources, as well as an eclectic mix of theoretical perspectives. The course aims to provide students with a strong foundation for the further study of the ancient and pre-modern Middle East.
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit
ANTH 643 Globalization And Its Historical Significance
Globalization is one of the most comprehensive topics of our time, and also one of the most controversial. This course assesses the current state of globalization, considering it in terms of economic, political, and cultural change, and follows its progress through the semester. The class will be led through the main topics and debates, introduced to conceptual and empirical tools for framing academic discussion and research about its dynamics, how and when it began, and (most particularly) how it differs from earlier episodes of historical change.
Taught by: Spooner
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 649 Molecular Anthropology
In this course, we will explore the molecular revolution in biological anthropology. In particular, we will examine how molecular data can be used to illuminate anthropological questions concerning human origins, evolution and biological variation. Some of the specific topics to be covered in this course are the phylogenetic relationships among primates, kinship in apes and monkeys, the hominoid trichotomy, modern human origins and migrations, Neanderthal and Denisovan admixture with modern humans, biogenetics of skin color, and physiological, phenotypic and disease adaptations.
Taught by: Schurr
Course not offered every year
Activity: Seminar
1 Course Unit

ANTH 654 Topics In Anthropology and the Modern World
This course relates anthropological models and methods to current problems in the Modern World. The overall objective is to show how the research findings and analytical concepts of anthropology may be used to illuminate and explain events as they have unfolded in the recent news and in the course of the semester. Each edition of the course will focus on a particular country or region that has been in the news.
Taught by: Spooner
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANTH 655 Methods and Grantwriting for Anthropological Research
This course is designed for third- and fourth-year graduate students in anthropology who are working on their dissertation research proposals and submitting grants. Graduate students from other departments who will be submitting grant proposals that include an ethnographic component are also welcome. Students will develop their proposals throughout the course of the semester, and will meet important fall submission deadlines. They will begin by working with various databases to search funding sources relevant to the research they plan to conduct. In class sessions, they will also work with the professor and their peers to refine their research questions, their methods, the relationship of any previous research to their dissertation fieldwork, and the broader theoretical and “real-world” significance of their proposed projects. Finally, students will also have the opportunity to have live “chats” with representatives from funding agencies, thereby gaining a better sense of what particular foundations are looking for in a proposal.
Taught by: Thomas
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ANTH 658 Discourse-Centered Research Seminar
This seminar explores the interface between discourse, culture, and social processes. It is designed for graduate students in anthropology and related disciplines who (1) wish to study the current literature in linguistic anthropology concerned with discourse-centered approaches to culture; and (2) themselves have or will acquire during the semester discourse materials (texts, recordings, ethnographic data, etc.) that they wish to analyze from an anthropological point view. The instructor will spend time discussing his own past and current research. Class sessions will also include discussion of the writings of contemporary anthropologists investigating culture through discourse. The seminar is designed for maximum flexibility in accommodating students’ research interests and needs.
Taught by: Urban
One-term course offered either term
Activity: Seminar
1 Course Unit

ANTH 704 Culture/Power/Subjectivities
This doctoral level course will introduce students to a conceptual language and theoretical tools for analyzing and explaining the complex intersection of racialized, ethnic, gendered, sexual, and classed differences and asymmetrical social relations. The students will examine critically the interrelationships between culture, power, and subjectivity through a close reading of classical and contemporary social theory. Emphasis will be given to assessing the power of various theories for conceptualizing and explaining mechanisms of social stratification as well as the basis of social order and processes of social change.
Taught by: Hall
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ANTH 707 Craft of Ethnography
This course is designed to follow after Ethnographic Research Methods (EDUC 721). In the introductory course, students learned how to use qualitative methods in conducting a brief field study. This advanced level course focuses on research design and specifically the craft of ethnographic research. Students will apply what they learn in the course in writing a proposal for a dissertation research project.
Taught by: Hall
Course usually offered in spring term
Prerequisites: Must have completed EDUC 721 or equivalent introductory qualitative methods course.
Activity: Lecture
1 Course Unit

ANTH 709 Current Research in Paleoanthropology
An intensive review of the major topics relating to Pleistocene human evolution, focusing on the integration of data from both biology and archeology.
Taught by: Dibble
One-term course offered either term
Activity: Seminar
1 Course Unit
ANTH 719 Archaeology Field Project
This is a parallel course to ANTH 219, but on the graduate level. It will only be open to select graduate students (i.e. historical archaeology students and some CGS MA students). Specific permission of the instructor is required in each case.
Taught by: Schuyler
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Permission of instructor required.

ANTH 720 Archaeology Laboratory Field Project
Follow-up for ANTH 719 and parallel course to ANTH 220. Class will meet in three hour sections on Fridays and Saturdays and will involve the analysis of artifacts, documentary records, oral historic sources and period illustrations collected on Southern New Jersey historic sites that Fall. No previous archaeological or lab experience is required. (Robert L. Schuyler: schuyler@sas.upenn.edu; (215) 898-6965; UMuseum 412). Course may be repeated for credit.
Taught by: Schuyler
Course usually offered in spring term
Activity: Laboratory
1 Course Unit

ANTH 730 Readings & Research In Linguistic Anthropology
The course is designed for students and faculty interested in discussing current research and/or research topics in any area of linguistic or semiotic anthropology. The primary intent of the course is to familiarize students with the literature on selected research topics and to develop their own research agendas in the light of the literature. Students may enroll on an S/U basis for 0.5 CU per semester. The course may be repeated for credit up to 4 times.
Taught by: Agha
Two terms. student may enter either term.
Prerequisite: ANTH 603 OR INSTRUCTOR PERMISSION
Activity: Seminar
1 Course Unit

ANTH 733 Colloquium Seminar
This graduate seminar is a full year course open to second year anthropology graduate students. Other interested students should contact the instructors for permission before enrolling. Topic changes each year, corresponding to the Penn Anthropology Department Colloquium series.
Taught by: Smit and Urban
Two terms. student may enter either term.
Activity: Seminar
1 Course Unit

ANTH 751 Historical Archaeology
Archaeology of the Modern World from the Columbian voyage (1492) to the 20th century. Topics such as the rise of early modern Europe, European exploration and colonization, African American Archaeology, Asian American Archaeology, the rise of colonial society, contact with native peoples, the Industrial Revolution, and the archaeology of the 20th century will be covered.
Taught by: Schuyler
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit.

ANTH 752 Archaeology of American History: The Colonial Period
Over the last fifty years archaeologists have been exploring historic sites in the United States dating from both the Colonial Period and the 19th/20th centuries. What can archaeology now tell us about the origins of American society, the invasion of North America by various European peoples (Spanish, English, Dutch), the impact on native peoples, the rise of African American and Asian American cultures, major crisis (e.g. the revolution, Civil War, and the Great Depression), the settlement of the Far American West, and the final emergence of a truly national culture in the 20th century? A basic question will be how an American history based on both archaeology and archival sources is different and more complete than an image of the past drawn only from written sources.
Taught by: Schuyler
Course not offered every year
Activity: Seminar
1 Course Unit
APPLIED MATH & COMPUTATIONAL SCIENCE (AMCS)

AMCS 510 Complex Analysis
Complex numbers, DeMoivre’s theorem, complex valued functions of a complex variable, the derivative, analytic functions, the Cauchy-Riemann equations, complex integration, Cauchy’s integral theorem, residues, computation of definite integrals by residues, and elementary conformal mapping.
Taught by: Staff.
One-term course offered either term
Activity: Lecture
1 Course Unit

AMCS 514 Advanced Linear Algebra
Topics will include: Vector spaces, Basis and dimension, quotients; Linear maps and matrices; Determinants, Dual spaces and maps; Invariant subspaces, Cononical forms; Scalar products: Euclidean, unitary and symplectic spaces; Orthogonal and Unitary operators; Tensor products and polylinear maps; Symmetric and skew-symmetric tensors and exterior algebra.
Prerequisite: Math 114 or Math 115
Activity: Lecture
1 Course Unit

AMCS 520 Ordinary Differential Equations
After a rapid review of the basic techniques for solving equations, the course will discuss one or more of the following topics: stability of linear and nonlinear systems, boundary value problems and orthogonal functions, numerical techniques, Laplace transform methods.
One-term course offered either term
Prerequisite: Math 240
Activity: Lecture
1 Course Unit

AMCS 525 Partial Dif Equations
Method of separation of variables will be applied to solve the wave, heat, and Laplace equations. In addition, one or more of the following topics will be covered: qualitative properties of solutions of various equations (characteristics, maximum principles, uniqueness theorems), Laplace and Fourier transform methods, and approximation techniques.
Course usually offered in fall term
Prerequisites: MATH 240 or permission of instructor. Knowledge of PHYS 150-151 will be helpful.
Activity: Lecture
1 Course Unit

AMCS 567 Mathematical and Computational Modeling of Biological Systems.
This is an introductory course in mathematical biology. The emphasis will be on the use of mathematical and computational tools for modeling physical phenomena which arise in the study biological systems. Possible topics include random walk models of polymers, membrane elasticity, electrodiffusion and excitable systems, single-molecule kinetics, and stochastic models of biochemical networks.
Course not offered every year
Also Offered As: BE 567
Prerequisites: BE 324 and BE 350
Activity: Lecture
1 Course Unit

AMCS 584 Math of Med Imag&Measure
Course not offered every year
Also Offered As: BE 584
Activity: Lecture
1 Course Unit

AMCS 599 Independent Study
Activity: Independent Study
1 Course Unit

AMCS 602 Algebraic Techniques for Applied Mathematics and Computational Science, I.
We turn to linear algebra and the structural properties of linear systems of equations relevant to their numerical solution. In this context we introduce eigenvalues and the spectral theory of matrices. Methods appropriate to the numerical solution of very large systems are discussed. We discuss modern techniques using randomized algorithms for fast matrix-vector multiplication, and fast direct solvers. Topics covered include the classical Fast Multipole Method, the interpolative decomposition, structured matrix algebra, randomized methods for low-rank approximation, and fast direct solvers for sparse matrices. These techniques are of central importance in applications of linear algebra to the numerical solution of PDE, and in Machine Learning. The theoretical content of this course is illustrated and supplemented throughout the year with substantial computational examples and assignments.
Course not offered every year
Activity: Lecture
1 Course Unit

AMCS 603 Algebraic Techniques for Applied Mathematics and Computational Science, II.
We begin with an introduction to group theory. The emphasis is on groups as symetries and transformations of space. After an introduction to abstract groups, we turn our attention to compact Lie groups, in particular SO(3), and their representations. We explore the connections between orthogonal polynomials, classical transcendental functions and group representations. This unit is completed with a discussion of finite groups and their applications in coding theory.
Course not offered every year
Activity: Lecture
1 Course Unit

AMCS 608 Analysis
Course not offered every year
Prerequisite: Math 508-509
Activity: Lecture
1 Course Unit

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AMCS 609 Analysis
Course not offered every year
Prerequisites: Math 608 or permission of the instructor.
Activity: Lecture
1 Course Unit

AMCS 610 Functional Analysis
Prerequisites: Math 608 or 609, some elementary complex analysis is essential.
Activity: Lecture
1 Course Unit

AMCS 999 Independent Study & Research
Study under the direction of a faculty member.
Activity: Independent Study
1 Course Unit
ARABIC (ARAB)

ARAB 031 Elementary Arabic I
This is the beginners course in Modern Standard Arabic (MSA). It will introduce you to the speaking, listening, reading, and writing skills in the standard means of communication in the Arab World. The course is proficiency-based, implying that all activities within the course are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. Evaluation is done by the more traditional testing methods (vocabulary tests, dictations, grammar and translation exercises). We anticipate that by the end of this course (ARAB 031) students will range in proficiency from Novice High to Intermediate Low on the ACTFL scale; in other words (using the terminology of the government's Foreign Service Institute), from 'incipient survival' to 'full survival' in the native-speaking environment.

For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ARAB 032 Elementary Arabic II
This course is a continuation of ARAB 031/631.
For BA Students: Language Course
Course usually offered in spring term
Prerequisite: ARAB 031
Activity: Lecture
1 Course Unit

ARAB 033 Intermediate Arabic III
This is the continuation of the Elementary course in Modern Standard Arabic (MSA). This course is also proficiency-based, implying that all activities within the course are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. This is the continuation of ARAB031 and ARAB 032, the elementary course in Modern Standard Arabic (MSA). This course is also proficiency-based, implying that all activities within the course are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. As in ARAB 031-032, evaluation is done by the more traditional testing methods (vocabulary tests, grammar and translation exercises). We anticipate that students range from Intermediate Low to Intermediate High according to the ACTFL scale.
For BA Students: Language Course
Course usually offered in fall term
Prerequisites: ARAB 032 or equivalent.
Activity: Lecture
1 Course Unit

ARAB 034 Intermediate Arabic IV
This course is a continuation of ARAB 033/633.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisite: ARAB 033
Activity: Lecture
1 Course Unit

ARAB 035 Advanced Intermediate Arabic I
This is a proficiency-based course which continues from the first intermediate course, ARAB 033/034. Emphasis continues to be on all four language skills: Speaking, Listening, Reading, & Writing. The readings for the class are chosen from actual texts from both medieval and modern Arabic in a variety of fields and subjects. Students will be expected to give classroom presentations and to write short essays in Arabic. Evaluation will be both Achievement- and proficiency-based.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: ARAB 034
Activity: Lecture
1 Course Unit

ARAB 036 Advanced Intermediate Arabic II
This course is a continuation of ARAB 035/635.
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisite: ARAB 035
Activity: Lecture
1 Course Unit

ARAB 037 Advanced Arabic and Syntax I
Advanced syntax through the reading of Arab grammarians. Development of reading in bulk. Emphasis on classical Arabic read in works by medieval and modern writers. This course is designed to give the student experience in reading whole works in Arabic and giving reports on them.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisites: ARAB 036/636 or permission of the instructor.
Activity: Lecture
1 Course Unit

ARAB 039 Colloquial Arabic
A one-semester, introductory course to the spoken Arabic of one of the regions of the Arab world, chosen according to the dialect of instructor. One-term course offered either term
Prerequisite: ARAB 032
Activity: Lecture
1 Course Unit

ARAB 041 Beginning Arabic I
This is a beginner course in Modern Standard Arabic (MSA). It will introduce you to the speaking, listening, reading, and writing skills in the standard means of communication in the Arab world. The course is proficiency-based, implying that all activities are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. Evaluation is done by the more traditional testing methods (vocabulary tests, dictations, grammar and translation exercises). We anticipate that by the end of this course (ARAB 041) students will range in proficiency from Novice High to Intermediate Low on the ACTFL scale; in other words (using the terminology of the government’s Foreign Service Institute), from 'incipient survival' to 'full survival' in the native-speaking environment.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: See the LPS Course Guide. **This course does not fulfill the College/Wharton language requirement.
ARAB 042 Beginning Arabic II
For BA Students: Language Course
Course usually offered in spring term
Prerequisites: ARAB 041 or permission of the instructor. See the LPS Course Guide. **This course does not fulfill the College language requirement.
Activity: Lecture
1 Course Unit

ARAB 043 Continuing Arabic III
This is the continuation of ARAB041 and ARAB 042, the elementary course in Modern Standard Arabic (MSA). This course is also proficiency-based, implying that all activities within the course are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. As in ARAB 041-042, evaluation is done by the more traditional testing methods (vocabulary tests, grammar and translation exercises). Completion of this course fulfills the College of Liberal and Professional Studies language requirement in Arabic but not for the School of Arts and Sciences. However, it should be emphasized that you will need a longer period of study to achieve proficiency in Arabic. We anticipate that students range from Intermediate Low to Intermediate High according to the ACTFL scale.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: See the CLPS Course Guide. **This course does not fulfill the College language requirement.

ARAB 044 Continuing Arabic IV
Course usually offered in spring term
Prerequisites: ARAB 043 or permission of the instructor See the LPS Course Guide. **This course does not fulfill the College language requirement.
Activity: Lecture
1 Course Unit
Notes: See the LPS Course Guide. **This course does not fulfill the College language requirement.

ARAB 133 Intensive Intermediate Arabic I&II
This is a six-week intensive course offered in the summer through LPS; see the Penn Summer Course Guide. This is the continuation of ARAB031-32 or ARAB 131, the elementary course in Modern Standard Arabic (MSA). This course is also proficiency-based, implying that all activities within the course are aimed at placing the student in the context of the native-speaking environment from the very beginning. As in ARAB 031-032 or ARAB 131, evaluation is done by the more traditional testing methods (vocabulary tests, grammar and translation exercises). Completion of this course fulfills the College of Arts and Sciences language requirement in Arabic. However, it should be emphasized that the student will need a longer period of study to achieve proficiency in Arabic. We anticipate that students range from Intermediate Low to Intermediate High according to the ACTFL scale.
For BA Students: Last Language Course
Course usually offered summer term only
Activity: Lecture
2 Course Units
Notes: Offered through the College of Liberal and Professional Studies Summer Session I.

ARAB 135 Intensive Advanced Intermediate Arabic I&II
This is a six-week intensive course offered in the summer through LPS; see Penn Summer Course Guide. It continues from the first intermediate course, ARAB 033/034 or ARAB 133. Emphasis continues to be on all four language skills: speaking, listening, reading, and writing. Students will be expected to give classroom presentations and to write short essays in Arabic. Evaluation will be both achievement-based and proficiency-based. There is no Oral Proficiency Interview at the end of this session, but we anticipate that by the end of this, third year students will range in proficiency from Intermediate High to Advanced Mid on the ACTFL scale.
For BA Students: Advanced Language Course
Course usually offered summer term only
Activity: Lecture
2 Course Units
Notes: Offered through the College of Liberal and Professional Studies Summer Session I.

ARAB 180 Arabic in Residence
The Arabic House is dedicated to practicing Modern Standard Arabic outside of the classroom setting. The group meets two evenings per week for an hour of conversation practice, snacks, and mint tea. Conversations are both casual and group-led. Members are encouraged to bring any questions about their homework from class or about the Arabic language in general. Most activities are held in the Greenhouse of the Class of 1925 building located at 3941 Irving Street. Additional cultural activities may take place in Gregory, elsewhere at Penn or throughout Philadelphia. All students and Arabic enthusiasts, whether graduate or undergraduate, first-semester beginners or native speakers, are welcome to attend. Dedicated undergraduate students may choose to enroll for credit (Arabic 180).
Activity: Seminar
0.5 Course Units

ARAB 235 The Adab Tradition
Taught by: Fakhreddine, H.
Course not offered every year
Activity: Seminar
1 Course Unit
ARAB 331 Advanced Spoken Standard Arabic
The course will concentrate on the reading and speaking skills at the advanced level. Students will be assigned reading and audio-visual materials on which to prepare oral classroom presentations. Final examination in the course will be based on performance in the oral proficiency interview. For BA Students: Advanced Language Course
One-term course offered either term
Prerequisite: ARAB 036/636
Activity: Lecture
1 Course Unit

ARAB 333 Readings in the Qur’an and Tafsir
This course has two goals: to introduce undergraduate students to reading the Qur’an in Arabic, and to enhance the speaking, listening, and writing skills in MSA. Through the reading and study of selected major Qur’anic narratives and commentary (tafsir), students will become familiar with Qur’anic vocabulary, style, recitation practices, and other intricacies of the Qur’anic text. All students will also memorize a short sura of their choice and practice reciting it in an aesthetically appropriate manner (typically suras 1, 112, 113, or 114). Taught in MSA with writing assignments in MSA.
Taught by: Lowry
Course offered spring; even-numbered years
Prerequisites: ARAB 35 or permission of the instructor.
Activity: Seminar
1 Course Unit

ARAB 432 Arabic Readings in Belles-Lettres
This course aims to improve reading skills and vocabulary by introducing students to extensive passages taken from a variety of Arabic literary genres from all periods. Taught in MSA with writing assignments in MSA.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Prerequisite: Proficiency in ARAB 036/636
Activity: Seminar
1 Course Unit

ARAB 433 Arabic Readings in the Social Sciences and the Media
This course trains students to be proficient with written materials and media in MSA. This class will explore the Middle East through timely analysis of Arabic media as well as original analysis of the ideological, intellectual, social, cultural, and religious background to current events, including the Arab Spring and its aftermath. It is intended that, upon completion of this course, students will be able to work independently with a variety of media texts at different levels. Taught in MSA with writing assignments in MSA.
Course offered spring; odd-numbered years
Prerequisites: Completion of ARAB 036/636 or permission of the instructor.
Activity: Lecture
1 Course Unit

ARAB 434 Readings in Arabic Literature
Course not offered every year
Prerequisite: Reading knowledge of Arabic
Activity: Seminar
1 Course Unit

ARAB 436 Introduction to Pre-Modern Arabic Texts
This course aims to provide incoming graduate students and advanced undergraduate students with an introduction to issues in Arabic grammar and syntax that commonly arise in pre-modern Arabic texts. Students will also be introduced to, and expected to consult, the standard reference works used as aids in reading such texts. Students will be expected to prepare a text or set of texts assigned by the instructor for each session. It is intended that, upon completion of this course, students will be able to work independently with a wide variety of pre-modern Arabic texts. Although the texts in this course are pre-modern, the course reinforces MSA reading skills.
Taught by: Lowry
Course offered fall; even-numbered years
Prerequisites: Completion of ARAB 036/636 Advanced Intermediate Arabic; or permission of the instructor.
Activity: Seminar
1 Course Unit
Notes: May be taken twice for credit with instructors permission.

ARAB 437 History & Fiction in Arabic
Activity: Seminar
1 Course Unit

ARAB 531 Advanced Spoken Standard Arabic
The course will concentrate on the reading and speaking skills at the advanced level. Students will be assigned reading and audio-visual materials on which to prepare oral classroom presentations. Final examination in the course will be based on performance in the oral proficiency interview. Taught in MSA with writing assignments in MSA.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: ARAB 036/636 Advanced Intermediate Arabic; or permission of the instructor.
Activity: Lecture
1 Course Unit

ARAB 533 Readings in Islamic Law
Taught by: Lowry
Course not offered every year
Prerequisites: Completion of ARAB036/636 or permission of the instructor.
Activity: Seminar
1 Course Unit

ARAB 534 Arabic: Reading Historical Manuscripts
Arabic language is used by many societies not only in communication but also in correspondence and in documenting the affairs of their daily lives. Arabic script is adopted by many groups who native languages are not Arabic, in writing their language before some moved to the Roman alphabet. In many historical documents specific style of writing and handwriting are dominant. This specificity is influenced by the dialectical variations, the historical development of each region and the level of Arabic literacy and use.
Taught by: Dinar
Course not offered every year
Activity: Seminar
1 Course Unit
ARAB 631 Elementary Arabic I
This is the beginner course in Modern Standard Arabic (MSA). It will introduce you to the speaking, listening, reading and writing skills in the standard means of communication in the Arab World. The course is proficiency-based, implying that all activities within the course are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. Evaluation is done by the more traditional testing methods (vocabulary tests, dictations, grammar and translation exercises). We anticipate that by the end of this course (ARAB 002) students will range in proficiency from Novice High to Intermediate Low on the ACTFL scale; in other words (using the terminology of the government’s Foreign Service Institute), from ‘incipient survival’ to ‘full’ survival in the native-speaking environment.
For BA Students: Language Course
Two terms. student must enter first term.
Prerequisites: For the second semester: completion of the first semester or permission of the instructor.
Activity: Lecture
1 Course Unit

ARAB 632 Elementary Arabic II
This course is a continuation of ARAB 031/631.
For BA Students: Language Course
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

ARAB 633 Intermediate Arabic III
This is the continuation of the Elementary course in Modern Standard Arabic (MSA). This course is also proficiency-based, implying that all activities within the course are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. This is the continuation of ARAB031 and ARAB 032, the elementary course in Modern Standard Arabic (MSA). This course is also proficiency-based, implying that all activities within the course are aimed at placing you, the learner, in the context of the native-speaking environment from the very beginning. As in ARAB 031-032, evaluation is done by the more traditional testing methods (vocabulary tests, grammar and translation exercises). We anticipate that students range from Intermediate Low to Intermediate High according to the ACTFL scale.
For BA Students: Language Course
Two terms. student must enter first term.
Prerequisites: ARAB 033 or equivalent. For the second semester: completion of the first semester or permission of the instructor.
Activity: Lecture
1 Course Unit

ARAB 634 Intermediate Arabic IV
This course is a continuation of ARAB 033/633.
For BA Students: Last Language Course
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

ARAB 635 Advanced Intermediate Arabic I
This is a proficiency-based course which continues from the first intermediate course, ARAB 033/034. Emphasis continues to be on all four language skills: Speaking, Listening, Reading, & Writing. The readings for the class are chosen from actual texts from both medieval and modern Arabic in a variety of fields and subjects. Students will be expected to give classroom presentations and to write short essays in Arabic. Evaluation will be both Achievement- and proficiency-based. The test of speaking ability will
For BA Students: Advanced Language Course
Prerequisites: ARAB 033 or permission of instructor.
Activity: Lecture
1 Course Unit

ARAB 636 Advanced Intermediate Arabic II
This course is a continuation of ARAB 035/635.
For BA Students: Advanced Language Course
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

ARAB 637 Advanced Arabic and Syntax I
Advanced syntax through the reading of Arab grammarians. Development of reading in bulk. Emphasis on classical Arabic read in works by medieval and modern writers. This course is designed to give the student experience in reading whole works in Arabic and giving reports on them.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: ARAB 036/636 or permission of the instructor.
Activity: Lecture
1 Course Unit

ARAB 639 Colloquial Arabic
A one-semester, introductory course to the spoken Arabic of one of the regions of the Arab world, chosen according to the dialect of instructor. Course not offered every year
Activity: Lecture
1 Course Unit

ARAB 731 Topics in Islamic Studies
Topics vary from year to year in accordance with the interests and needs of students. Although this course typically focuses on premodern Arabic texts, the readings reinforce MSA reading skills.
Taught by: Lowry
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: ARAB 436 or equivalent

ARAB 733 Arabic Texts in Islamic History
This is a graduate seminar course in which different genres of premodern Arabic texts are covered at the advanced graduate level. Students in this course are expected to be able to read and prepare (vowel, parse, and translate) passages from Arabic texts on a weekly basis and to be able to discuss them critically during the class itself. Topics are chosen to reflect student interest. Recent and potential topics include: Geographers and travel accounts; biographical dictionaries; chronicles; heresiography; poetry; memoir and sira. Although this course typically focuses on premodern Arabic texts, the readings reinforce MSA reading skills.
Taught by: Cobb
Course not offered every year
Prerequisites: ARAB 036 or permission of the instructor.
Activity: Seminar
1 Course Unit
ARAB 734 Selected Topics in Arabic Literature
This is a survey of Arabic poetry from the Pre-Islamic era until today. Readings will be selected to trace major thematic and formal developments in Arabic poetry. Readings also include excerpts from modern critical scholarship on the topic in Arabic. The class aims to introduce students to the basics of academic research and writing in Arabic. The class is taught in MSA with oral presentations and writing assignments in MSA.
Taught by: Fakhreddine
Course not offered every year
Activity: Seminar
1 Course Unit

ARAB 735 The Adab Tradition
This is a survey of pre-modern Arabic prose. Selections will be made from major books of Adab, compilations of akhbár, the Qurán, the sūrah, and critical treatise. Readings will be accompanied by excerpts from modern critical scholarship on the topic in Arabic. The class is taught in MSA with oral presentations and writing assignments in MSA.
Taught by: Fakhreddine, H.
Course not offered every year
Activity: Seminar
1 Course Unit
ARCHITECTURE (ARCH)

ARCH 102 Introduction to Design
An exploration of the design process utilizing drawing and model-making techniques. Skills of representation and fabrication are introduced in the context of the development of each student's capacity to observe, interpret, and translate design concepts into physical form. The course includes a weekly lecture and a biweekly studio component.
Taught by: Faculty
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ARCH 111 Architecture in the Anthropocene
This course will use architecture and the built environmental as a lens to investigate the emerging field of the environmental humanities. Our goal will be to analyze and understand these new intellectual frameworks in order to consider the relationship between global environmental challenges and the process of constructing the built environment. As such, we will oscillate between social and political theory, environmental history, and architectural history and theory. Issues of importance will include: theories of risk, the role of nature in political conflicts; images, design and environmental communication; and the relationship between speculative design and other narratives of the future. These conceptual frameworks will be read alongside examples of related creative projects in art, literature, and architecture, and will be amplified through presentations and discussions with studio faculty and other visitors to the course.
Taught by: Barber
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ARCH 112 Villa Gardens and Villa Life
This seminar will study the idea of villeggiature (villa life) and the ideology associated with countryside gardens and plantations. In an examination of the circularity of villa ideology across the centuries, other themes will emerge that address the relationship between urban and rural life, between architecture and natural environment and between social, cultural, economic, and political forces and landscape design. These themes will be explored through the study of selected villas and through the reading of sources drawn from villa literature, including architectural and agricultural treatises, epistolary exchanges, and drawings.
Taught by: Giannetto
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 201 Design Fundamentals I
This studio course develops drawing and model-making skills with emphasis on digital representation and digital fabrication. The capacity of nature-inspired design is explored as a foundation for the creative production of new forms of expression.
Taught by: Faculty
Course usually offered in fall term
Prerequisite: ARCH 102
Activity: Studio
1.5 Course Unit

ARCH 202 Design Fundamentals II
A studio course exploring the relationship between two-dimensional images and three-dimensional digital and physical models. This studio course develops advanced techniques in digital representation and fabrication through an investigation of the theme of inhabitation in architecture.
Taught by: Faculty
Course usually offered in spring term
Prerequisite: ARCH 201
Activity: Studio
1.5 Course Unit

ARCH 301 Design I
An introduction to the design of architecture in the city. Students explore the relationships between two-dimensional patterns and their corresponding three-dimensional patterns and the orthographic drawings of plan, section, and elevation and three-dimensional digital and physical models.
Taught by: Faculty
Course usually offered in fall term
Prerequisite: ARCH 202
Activity: Studio
2 Course Units

ARCH 302 Design II
An introduction to the design of architecture in the landscape. Issues of mapping, placement, scale, and construction are explored through studio design projects, site visits, and discussions. Course work focuses on the preparation and presentation of design projects emphasizing analytical skills along with the development of imaginative invention and judgment.
Taught by: Faculty
Course usually offered in spring term
Prerequisite: ARCH 301
Corequisite: ARCH 312
Activity: Studio
2 Course Units

ARCH 303 Integrated Product Design Fundamentals
The creation of a successful product requires the integration of design, engineering, and marketing. The purpose of this intensive studio course is to introduce basic concepts in the design of three-dimensional products. For purposes of the course, design is understood as a creative act of synthesis expressed through various modes of 2-dimensional and 3-dimensional representation. The course develops basic design skills ranging from hand sketching to the use of digital modeling software and rapid prototyping. Fulfills the requirement for a design background course in the interdisciplinary graduate program in Integrated Product Design (IPD).
Taught by: Wesley
Course usually offered summer term only
Also Offered As: IPD 503
Activity: Studio
1 Course Unit

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ARCH 311 Venice: Self-Representation, Performance, and Reception
This course focuses on the city of Venice and its elusive identity as represented in written, visual and built form. Structured as a series of topics and case studies (including primary visual and written sources; buildings and gardens) the course aims to introduce students to the material and cultural landscape of Venice and develop their ability to “read” the urban fabric and its unique physical context by identifying its various features and explaining the political, social, economic and cultural agendas that brought them into existence. The course includes visits to Venice, Van Pelt Library Library and the Philadelphia Museum of Art.
Taught by: Finotti and Fabiani Giannetto
Activity: Seminar
1 Course Unit

ARCH 312 Topics in Theory I
This course examines the development of modern architecture in the early-twentieth century. Case studies and selected texts are used to explore how modern architecture responded to the challenges of the Industrial Revolution and social modernization.
Taught by: Faculty
Course usually offered in spring term
Corequisite: ARCH 302
Activity: Lecture
1 Course Unit

ARCH 316 Systems and Environments: Interdisciplinary History of Architectural Ideas
This seminar will discuss the emergence of 20th century environmentalist thought and practice through the lens of architectural, landscape, and urban practices and ideas. The course does not presuppose advanced knowledge in the histories of architecture, of science, or of environmentalism; rather, it will introduce students to a set of historical and intellectual frameworks broadly aware of and engaged in environmental challenges. The material covered will be relevant to those interested in architecture, art, and urban studies, and students in economics, engineering, political science, and the environmental sciences, as well as in the history of science, will find much to engage. In this sense, the course will also offer an interdisciplinary forum for inquiry and discussion around environmental issues as they are reflected in contemporary scholarly and professional practices.
Taught by: Barber
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 320 Media and Memories of the Future: Sound and Environment in Berlin.
This global cities seminar will discuss the cultural politics of memory as they develop through the spatial and sonic atmosphere of post-war Berlin. A city rich in history and focused on the future, Berlin is a laboratory for how exploration of the recent past is re-scripting the near future. The city becomes a palimpsest sonically, visually, and spatially that is available for investigation and interpretation as a means to understand historical patterns and their relationship to novel practices and methods in the present. Media, and in particular sonic cultures, as well as real estate economics and ecological design will form interrelated prisms through which to understand cities, urban practices, urban memory and the transformation of the environment. Methodologically, the course will be an experiment in the use of media to understand cities and engage with urban practices.
The course also involves a mandatory, funded field trip to Berlin during spring break when students will participate in the ongoing Anthropocene Curriculum at the Haus der Kultur der Welt and will visit sound art galleries and sound design studios, as well as meeting with practitioners and researchers. Entrance to the course is via application.

Music320(naomiwial@sas.upenn.edu)&ARCH320(barberda@design.upenn.edu)
Taught by: Daniel Barber and Naomi Waltham Smith
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 370 Twentieth Century New York: Theories, Images, Realities
"New York is the perfect model of a city, not the model of a perfect city." -Lewis Mumford. This course is constructed as an argument among four visionary thinkers whose differing theories of the twentieth-century city were shaped by their response to New York City's modern urban architectural, and environmental development: Lewis Mumford (1895-1990), Robert Moses (1888-1981), Jane Jacobs (1916-2006), and Rem Koolhaas (1944-). The seminar explores the central problems that preoccupied each, from civic representation and sustainability to large-scale infrastructure and urban renewal, from community and complexity to urban experience and the urban imaginary. Readings of key texts by and about the four main figures are supplemented with related material and with case studies of New York's built environment.
The class includes two trips to New York to visit selected sites. The focus is double: on the role and agency of the "urban intellectual" in the production of urban culture; and on New York's material history and visual representations. New York has been called the capital of the twentieth century. The seminar aims to assess the continuing relevance of the ideas of this quartet of influential thinkers and to reflect on twenty-first-century New York in light of its evolution over the last hundred years.

Taught by: Joan Ockman and Lee Ann Custer
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 401 Advanced Design
Content and technique are explored in this studio course through the vehicle of a design project focused on the development of a critical understanding of geometries and mathematics in the representation and fabrication of contemporary architecture.
Taught by: Faculty
Course usually offered in fall term
Prerequisite: ARCH 302
Corequisite: ARCH 411
Activity: Studio
2 Course Units
ARCH 411 Theory II
This course examines the development of geometries in modern architecture. Primary and secondary texts are used to explore the origin and evolution of geometrical thinking in architecture.
Taught by: Faculty
Course usually offered in fall term
Prerequisite: ARCH 312
Corequisite: ARCH 401
Activity: Lecture
1 Course Unit

ARCH 431 Construction I
Course explores basic principles and concepts of architectural technology and describes the interrelated nature of structure, construction and environmental systems. Open to Intensive Majors only.
Taught by: Faculty
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ARCH 432 Construction II
A continuation of Construction I, focusing on light and heavy steel frame construction, concrete construction, light and heavyweight cladding systems and systems building. Open to Intensive Majors only.
Taught by: Faculty
Course usually offered in spring term
Prerequisite: ARCH 431
Activity: Lecture
0.5 Course Units

ARCH 433 Building Systems Integration
What makes buildings livable and buildable. After the initial concept design and massing studies are complete the next step is detailing. This seminar will examine the detail, how they can inform and enhance a building's design. The primary goals of a building is that it stands up to external forces, protects inhabitants from the elements and provides a healthy environment. This course will look at the individual components of structure, skin and systems. More importantly though, it will examine the connections between them. The class will begin with lectures examining the different systems and then progress into applying these ideas as a whole to individual studio projects. The final results of this course will be a 3D wall section with accompanying details. These details will be developed in a variety of software as chosen by the student.
Recommended options are Revit, Rhino, AutoCAD.
Taught by: Faculty
Course usually offered in fall term
Activity: Seminar
0.5 Course Units

ARCH 435 Structures I
Theory applied toward structural form. A review of one-dimensional structural elements; a study of arches, slabs and plates, curved surface structures, lateral and dynamic loads; survey of current and future structural technology. The course comprises both lectures and a weekly laboratory in which various structural elements, systems, materials and technical principles are explored. Open to Intensive Majors only.
Taught by: Faculty
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

ARCH 436 Structures II
A continuation of the equilibrium analysis of structures covered in Structures I. The study of static and hyperstatic systems and design of their elements. Flexural theory, elastic and plastic. Design for combined stresses; prestressing. The study of graphic statics and the design of trusses. The course comprises both lectures and a weekly laboratory in which various structural elements, systems, materials and technical principles are explored. Open to Intensive Design majors only.
Taught by: Faculty
Course usually offered in spring term
Prerequisite: ARCH 435
Activity: Lecture
0.5 Course Units

ARCH 437 Parametric Modeling and Construction I
An introduction to the principles of construction using Building Information Modeling (BIM), a process involving the generation and manipulation of digital representations of building components defined as parameters in relation to other components. The course will explore the performance of building materials and methods of on-site and off-site assembly in load-bearing masonry structures and heavy and light wood frame construction. Topics include sustainable construction, emerging and engineered materials, and integrated building practices.
Taught by: Morgan
Course usually offered in fall term
Prerequisite: ARCH 431
Activity: Lecture
0.5 Course Units

ARCH 482 Environmental Readings
In this seminar, we will explore this green thread and analyze its influence on how we shape our environments through design and planning. The course has three parts. Throughout, the influence of literature on design and planning theory will be explored. The first part will focus on three most important theorists in environmental planning and landscape architecture: Frederick Law Olmstead Sr., Charles Eliot and Ian McHarg. The second part of the course will critically explore current theories in environmental planning and landscape architecture. The topics include: frameworks for cultural landscape studies, the future of the vernacular, ecological design and planning, sustainable and regenerative design, the languages of landscapes, and evolving views of landscape aesthetics and ethics. In the third part of the course, students will build on the readings to develop their own theory for ecological planning or, alternatively, landscape architecture. While literacy and critical inquiry are addressed throughout the course, critical thinking is especially important for this final section.
Taught by: Frederick Steiner
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 490 Independent Study
Taught by: Faculty
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Permission of the Undergraduate Chair.

ARCH 492 Senior Thesis
Taught by: Faculty
Course usually offered in spring term
Prerequisite: ARCH 301
Activity: Independent Study
1 Course Unit
Notes: Permission of the Undergraduate Chair.
ARCH 498 Senior Honors Thesis
Taught by: Faculty
Course usually offered in spring term
Prerequisite: ARCH 401
Activity: Independent Study
1 Course Unit
Notes: Permission of the Undergraduate Chair

ARCH 500 Summer Preparatory Design Studio
The Summer Preparatory Studio offers an intensive drawing and design experience to candidates for admission to the Graduate Program in Architecture who have not completed the necessary design studio prerequisites or who are required to have additional design experience to qualify for matriculation into the Master of Architecture Professional Degree Program in September. Enrollment in this program does not count towards the Master of Architecture degree. The intent of the drawing component of the course is to familiarize the student with primarily black and white mediums (pencil, charcoal, ink, etc). Exercises are designed to sharpen the student's ability to see selectively and to transform image to paper through both line and tonal renditions in freehand sketch form. Exercises will also familiarize the student with basic drafting skills necessary for architectural communication and provide an introduction to computer-aided design through applications of the intensive Rhino and Illustrator tutorials given in the Digital Navigation course. The design part of the course presents a rhythm of basic three-dimensional design studies and simple architectural studio investigations. These are intended to build fundamental skills and acquaint the student with the architectural issues of form/space, conceptualization, transformation of scale, simple functional and constructional problems and a sensitivity to context. Course enrollment is by permit only. Please contact Sarah Lam (ARCH Dept.) at sarahlam@design.upenn.edu.
Course usually offered summer term only
Activity: Studio
2 Course Units

ARCH 501 Design Studio I
An introductory architectural design studio through which students develop critical, analytical and speculative design abilities in architecture. Students develop representational techniques for the analysis of social and cultural constructs, and formulate propositions for situating built form in the arena of the urban and suburban environment. The studio initiates innovation through a sequence of projects, spatial models and rule sets that introduce each student to rule-based design processes--in which a reversal of expectations leads to the creation of novel spaces and structures. It introduces computation, geometric techniques, and digital fabrication. Projects explore the formation of space in relation to the body, and the developments of small scale public programs.
Course usually offered in fall term
Corequisite: ARCH 521
Activity: Studio
2 Course Units

ARCH 502 Design Studio II
This studio explores urban architecture as an embodiment of cultural values. Siting, enclosure of space and tectonic definition are stressed in order to challenge students to project relevant and inventive architectural situations.
Course usually offered in spring term
Corequisite: ARCH 522
Activity: Studio
2 Course Units

ARCH 511 History and Theory I
The first of three required courses in the history and theory of architecture, this is a lecture course with discussion groups that meet weekly with teaching assistants. The course explores fundamental ideas and models of architecture that have emerged over the past three hundred years.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ARCH 512 History and Theory II
This course traces the emergence of contemporary issues in the field by exploring the architecture of the twentieth century. Buildings, projects, and texts are situated within the historical constellations of ideas, values, and technologies that inform them through a series of close readings. Rather than presenting a parade of movements or individuals, the class introduces topics as overlaying strata, with each new issue adding greater complexity even as previous layers retain their significance. Of particular interest for the course is the relationship between architecture and the organizational regimes of modernity.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ARCH 521 Visual Studies I
The study of analysis and projection through drawing and computer visualization
Course usually offered in fall term
Corequisite: Arch 501
Activity: Laboratory
0.5 Course Units

ARCH 522 Visual Studies II
A continuation of the study of analysis and projection through drawing and computer visualization.
Course usually offered in spring term
Corequisite: ARCH 502
Activity: Laboratory
0.5 Course Units

ARCH 531 Construction I
Lecture course exploring the basic principles of architectural technology and building construction. The course is focused on building material, methods of on-site and off-site preparation, material assemblies, and the performance of materials. Topics discussed include load bearing masonry structures of small to medium size (typical row house construction), heavy and light wood frame construction, sustainable construction practices, emerging + engineered materials, and integrated building practices. The course also introduces students to Building Information Modeling (BIM) via the production of construction documents.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

ARCH 532 Construction II
A continuation of Construction I, focusing on light and heavy steel frame construction, concrete construction, light and heavyweight cladding systems and systems building.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
ARCH 535 Structures I
Theory applied toward structural form. A review of one-dimensional structural elements; a study of arches, slabs and plates, curved surface structures, lateral and dynamic loads; survey of current and future structural technology. The course comprises both lectures and a weekly laboratory in which various structural elements, systems, materials and technical principles are explored.
Course usually offered in fall term
Corequisite: Arch 536
Activity: Lecture
0.5 Course Units

ARCH 536 Structures II
A continuation of the equilibrium analysis of structures covered in Structures I. The study of static and hyperstatic systems and design of their elements. Flexural theory, elastic and plastic. Design for combined stresses; prestressing. The study of graphic statics and the design of trusses. The course comprises both lectures and a weekly laboratory in which various structural elements, systems, materials and technical principles are explored.
Course usually offered in spring term
Corequisite: Arch 536
Activity: Lecture
0.5 Course Units

ARCH 601 Design Studio III
In this studio, students engage architecture in its role as a cultural agent and examine the way buildings establish and organize dynamic relationships between site, program and material. The design of a complex building of approximately 50,000 SF provides the pedagogical focus for this research. Students extend skills in geometrical organization, site analysis and building massing/orientation to relate to program organization, circulation and egress, building systems and materials. The conceptual focus centered on the program of dwelling and how this program can be employed to develop and promote dynamic relationships and conditions through time, both within the building and between the building and the context. Through research and experimentation students integrate ecological processes into their design methodology to support design innovations in the building's structure, its construction assemblies, environmental systems, and materials. Students work towards a high level of design resolution and visual representation, including the articulation of the building structure and its material assembly/enclosure.
Course usually offered in fall term
Corequisite: ARCH 621
Activity: Studio
2 Course Units

ARCH 602 Design Studio IV
This studio enables students to develop and resolve the design of a building in terms of program, organization, construction and the integration of structures, enclosure and environmental systems as well as life safety issues. Students select from a range of individually-directed studios within this overall framework. Each instructor develops a different approach and project for their section of this studio. Studios incorporate the expertise of external consultants in advanced areas of technology, engineering and manufacturing.
Course usually offered in spring term
Activity: Studio
2 Course Units

ARCH 602 Design Studio V
In this studio, students engage architecture in its role as a cultural agent and examine the way buildings establish and organize dynamic relationships between site, program and material. The design of a complex building of approximately 50,000 SF provides the pedagogical focus for this research. Students extend skills in geometrical organization, site analysis and building massing/orientation to relate to program organization, circulation and egress, building systems and materials. The conceptual focus centered on the program of dwelling and how this program can be employed to develop and promote dynamic relationships and conditions through time, both within the building and between the building and the context. Through research and experimentation students integrate ecological processes into their design methodology to support design innovations in the building's structure, its construction assemblies, environmental systems, and materials. Students work towards a high level of design resolution and visual representation, including the articulation of the building structure and its material assembly/enclosure.
Course usually offered in fall term
Corequisite: ARCH 621
Activity: Studio
2 Course Units

ARCH 611 History and Theory III
This is the third and final required course in the history and theory of architecture. It is a lecture course that examines selected topics, figures, projects, and theories from the history of architecture and related design fields during the 20th century. The course also draws on related and parallel historical material from other disciplines and arts, placing architecture into a broader socio-cultural-political-technological context. Seminars with teaching assistants complement the lectures.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ARCH 621 Visual Studies III
The final of the Visual Studies half-credit courses. Drawings are explored as visual repositories of data from which information can be gleaned, geometries tested, designs refined and transmitted. Salient strengths of various digital media programs are identified and developed through assignments that address the specific intentions and challenges of the design studio project.
Course usually offered in fall term
Corequisite: Arch 601
Activity: Laboratory
0.5 Course Units

ARCH 631 Technology Case Studies I
A study of the active integration of various building systems in exemplary architectural projects. To deepen students’ understanding of the process of building, the course compares the process of design and construction in buildings of similar type. The course brings forward the nature of the relationship between architectural design and engineering systems, and highlights the crucial communication skills required by both the architect and the engineer.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

ARCH 634 Environmental Systems II Lab
Considers the environmental systems of larger, more complex buildings. Contemporary buildings are characterized by the use of systems such as ventilation, heating, cooling, dehumidification, lighting, communications, and controls that not only have their own demands, but interact dynamically with one another. Their relationship to the classic architectural questions about building size and shape are even more complex. With the introduction of sophisticated feedback and control systems, architects are faced with conditions that are virtually animate and coextensive at many scales with the natural and man-made environments in which they are placed.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
ARCH 636 Material Formations
Material Formations introduces robotic production and material dynamics as active agents in design rationalization and expression. The course investigates opportunities for designers to synthesize multiple performance criteria within architecture. Theory, Case-Studies and practical tutorials will focus on the incorporation of analytical, simulation, generative computation and robot fabrication concerns within design. While production is traditionally viewed as an explicit and final act of execution, the course explores the potential for all aspects of building production and use to participate within the creative design process, potentially producing performance and affect. Students will develop skills and experience in computer programming, physics-based simulation, and robot motion planning. A design research project will be undertaken through a number of discrete assignments that require the synthetization or structural performance along with material and robotic production constraints. The course will explore design as the outcome of materially formative processed of computation and production. Structure: the course will commence with weekly lectures and computer-based tutorials, and culminate in a series of intensive incremental learning, and prepare groups to work on a final assignment which involves the robotic fabrication of a small design prototype.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ARCH 698 Architectural Association (AA), London
An advanced Architectural Design Studio taught by Homa Farjadi in London at the Architectural Association's School of Architecture. Topics engage aspects of urban life and urban form in London, and vary from year to year. During the fifth term of the Master of Architecture program, up to fifteen students a year may enroll for the semester abroad program in London, England. This is coordinated by Prof. Homa Farjadi and is housed at the Architectural Association (AA), located on Bedford Square in the heart of Bloomsbury. Students enroll in a special design studio, ARCH 702, taught by Prof. Farjadi, and in two elective courses offered by the faculty at the AA.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ARCH 701 Design Studio V
A set of Advanced Architectural Design studios are offered from which students select through a lottery. Topics and sites vary by instructor. One-term course offered either term
Activity: Studio
2 Course Units

ARCH 703 Advanced Architectural Design Studio
An Advanced Architectural Design Studio specifically tailored to post-professional students. Through this studio, students engage in the challenges and opportunities presented by changes in society, technology, and urban experience. Through design projects, they explore alternative modes and markets for practice, along with new directions and new tools for design.
Course usually offered in fall term
Activity: Studio
2 Course Units

ARCH 704 Advanced Design:Research Studio
In the final semester of the program, students select from three options: 1) An elective design studio, selected from among the advanced architectural design studios offered by the Department of Architecture; 2) a research studio, the exploration of a topic or theme established by an individual faculty member or group of faculty members; or 3) an independent thesis, the exploration of a topic or theme under the supervision of a thesis advisor.
Course usually offered in spring term
Activity: Studio
2 Course Units

ARCH 706 Independent Thesis
In the final semester of the program, students select from three options; 1) An elective design studio; selected from among the advanced architectural design studios offered by the Department of Architecture; 2) a research studio, the exploration of a topic or theme established by an individual faculty member or group of faculty members; or 3) an independent thesis, the exploration of a topic or theme under the supervision of a thesis advisor.
Course usually offered in spring term
Activity: Independent Study
2 Course Units

ARCH 708 Environmental Design Studio
An advanced design studio for the MEBD program that synthesizes the concepts and techniques of environmental building design. Topics and materials for the studio are developed in Arch 752: MEBD Research Seminar, and summarized in a research report at the end of studio.
Course usually offered summer term only
Prerequisites: ARCH-751, ARCH-752, ARCH-753
Corequisite: ARCH-754
Activity: Studio
2 Course Units

ARCH 709 Environmental Building Design Research Studio
Architecture is a process of discovery, of deciding what to work on, before it ever becomes a matter of design (disegno, drawing). For environmental building design, the process of discovery is even more profound, involving issues of resource consumption, modes of living and working, and of ecological interconnection that have to be explored before questions of performance can even be addressed. This design studio uses research at multiple scales to identify the topic of the studio, then student teams develop design for buildings of maximum (ecological) power.
Course usually offered in fall term
Prerequisites: ARCH-751, ARCH-752, ARCH-753 and ARCH-708
Activity: Studio
2 Course Units
**ARCH 710 Contemporary Theory 1989-Present**

A chronological overview of the approaches and attitudes adopted by architects, theorists and inter-disciplinary writers from 1993- today that have shaped the current discourse of architecture. This course will introduce and contextualize key projects, and polemics over the last 25 years. Central themes in this course include the impact of digital technologies and methods of design, production and materiality. These are explored through texts, movements, projects and buildings that help form an overview that has shaped the contemporary condition that we live in. There have been a myriad of different approaches and through a select set of readings and lectures students will be exposed to crucial texts, projects and buildings making students versatile and knowledgeable in the important concepts that shape our current discourse. A focus will be the organization, configuration and articulation of buildings and the conceptual and cultural arguments they are associated. Formal, organizational and material characteristics of this period will be explored. This class will develop students’ knowledge and provide a platform from which they can continue the discussions surrounding architectural thought and practice. The students will learn to communicate their ideas verbally and in writing. Contemporary topics in architecture theory and projects are introduced in a weekly lecture format critical to the shaping of our discipline today. A weekly recitation session allows students to engage with the readings critically in the subject matter. A mid-term and final paper are required to pass this class. (Topics to be covered: Seminal projects and buildings in the last 25 years, situating the architects work within a culture of debate and discourse identifying the important readings surrounding each building/project.)

This course is a requirement of the MSD-AAD curriculum.

Course usually offered in spring term

Activity: Lecture

1 Course Unit

**ARCH 714 Museum as Site: Critique, Intervention and Production**

In this course, we will take the museum as a site for critique, invention, and production. As architecture, cultural institution, and site of performance, the museum offers many relevant opportunities. Students will visit, analyze, and discuss a number of local exhibitions and produce their own intervention in individual or group projects. Exhibition design, design of museum, the process of curating, producing artworks ranging from paintings to installation and performance, as well as attention to conservation, installation, museum education, and the logistics and economics of exhibitions will be discussed on site and in seminar. These topics and others will be open for students to engage as part of their own creative work produced for the class and an online exhibition.

Course usually offered in spring term

Activity: Seminar

1 Course Unit

**ARCH 720 Visual Literacy and its Culture**

The digital turn in the creative fields resulted in profound transformations of techniques, aesthetics and underlying concepts in the development of contemporary visual culture. The dissemination and consumption of information through images through all types of media platforms influence and re-define (for better or worse) all aspects of our culture and reality. It is vital to develop a deep knowledge of the current visual concepts and techniques in arts, photography, cinema, product design and architecture to claim a critical stance through which we can positively contribute to the evolution of contemporary culture. The discipline of architecture has been deeply influenced by the digital shift in modes of design and visualization which yielded a wide array of directions within the architectural discourse, especially with questions and problems regarding representation. One clear outcome of this transformational period is the diversity of new representational strategies to seek alternative modes of visualization. It is clear that no one representational medium can be defined as the locus of architectural thought and architecture, as a cultural practice, can no longer be defined through the output of a single medium. The reality of our discipline is that we work through collective mediums and conventions of drawings, models, images, simulations, texts, prototypes and buildings to visualize architectural concepts. These mediums all require degrees of expertise in techniques that are necessary for their execution: they all involve conceptual depth that define their disciplinary positions; they all require translations across each other to enable subjective work-flows; they all require aesthetic attitudes to influence the development of visual culture in architecture. This course will introduce the AAD majors to contemporary topics of visualization in arts, photography, cinema and architecture. They will explore multiple mediums of representation to help them gain the vital visual literacy to excel in the program. Students will be introduced to discursive background and contemporary concepts of line drawing, fabricated object and constructed image as they work through 3 distinct projects during the semester. Each exercise will be initiated by a topical lecture and be followed by weekly pin ups to advance student projects. (Topics to be covered: Discourse of Contemporary Line Drawing, Multi-part 3D Printing, Vacuform/CNC Milling, Digital/Analog Surface Articulation, Rendering, Abstraction and Realism, Montage/ Collage/Photorealism)

Course usually offered in spring term

Activity: Lecture

1 Course Unit
ARCH 721 Designing Smart Objects for Play and Learning
Today's children enjoy a wide array of play experiences, with stories, learning, characters and games that exist as physical stand-alone objects or toys enhanced with electronics or software. In this course, students will explore the domain of play and learning in order to develop original proposals for new product experiences that are at once tangible, immersive and dynamic. They will conduct research into education and psychology while also gaining hands-on exposure to new product manifestations in a variety of forms, both physical and digital. Students will be challenged to work in teams to explore concepts, share research and build prototypes of their experiences in the form of static objects that may have accompanying electronic devices or software. Final design proposals will consider future distribution models for product experiences such as 3D printing, virtual reality and software, hardware integration. Instruction will be part seminar and part workshop, providing research guidance and encouraging connections will subject matter experts throughout the Penn campus.
Course usually offered in fall term
Also Offered As: IPD 521
Activity: Seminar
1 Course Unit

ARCH 724 Technology in Design
The aim of this course is to understand the new medium of architecture within the format of a research seminar. The subject matter of new media is to be examined and placed in a disciplinary trajectory of building design and construction technology that adapts to material and digital discoveries. We will also build prototype with the new media, and establish a disciplinary knowledge for ourselves. The seminar is interested in testing the architecture-machine relationship, moving away from architecture that looks like machines into architecture that behaves like machines: An intelligence (based on the conceptual premise of a project and in the design of a system), as part of a process (related to the generative real of architecture) and as the object itself and its embedded intelligence.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 725 Design Thinking
Creating new product concepts was once a specialized pursuit exclusively performed by design professionals in isolation from the rest of an organization. Today's products are developed in a holistic process involving a collaboration among many disciplines. Design thinking - incorporating processes, approaches, and working methods from traditional designers' toolkits - has become a way of generating innovative ideas to challenging problems and refining those ideas. Rapid prototyping techniques, affordable and accessible prototyping platforms, and an iterative mindset have enabled people to more reliably translate those ideas into implementable solutions. In this course, students will be exposed to these techniques and learn how to engage in a human-centered design process.
Course usually offered in fall term
Also Offered As: IPD 572
Activity: Seminar
1 Course Unit

ARCH 726 Contemporary Furniture Design
This course provides a platform, in the form of furniture, to execute and deploy architectural & engineering principles. It will be conducted as a seminar and workshop, and will introduce students to a variety of design methodologies that are unique to product design. The course will engage in many of the considerations that are affiliated with CAD/CAM production, the appropriate and innovative use of materials, and human factors. Students conduct case studies and research into industrial design processes, and will adapt these processes into techniques for designing a chair. Throughout the semester, students will experience first hand structural and material behavior, and understand ergonomic constraints by testing their design at different scales. The process will include: the production of a final design, its detailing, prototype development, Color/Material/Finishes (CMF), design for Computer Aided Manufacturing (CAM), the possibility of mass customization, research of materials and fabrication methods, optimization studies, Computer Aided Design (CAD), model making, furniture case studies, and a site visit to a major furniture manufacturer.
Course usually offered in spring term
Also Offered As: IPD 526
Activity: Seminar
1 Course Unit

ARCH 727 Industrial Design
Industrial design (ID) is the professional service of creating and developing concepts and specifications that optimize the function, value and appearance of products and systems for the mutual benefit of both user and manufacturer. Industrial designers develop these concepts and specifications through collection, analysis and synthesis of user needs data guided by the special requirements of the client or manufacturer. They are trained to prepare clear and concise recommendations through drawings, models and verbal descriptions. The profession has evolved to take its appropriate place alongside Engineering and Marketing as one of the cornerstones of Integrated Product Design teams. The core of Industrial Design's knowledge base is a mixture of fine arts, commercial arts and applied sciences utilized with a set of priorities that are firstly on the needs of the end user and functionality, then the market and manufacturing criteria. This course will provide an overview and understanding of the theories, thought processes and methodologies employed in the daily practice of Industrial Design. This includes understanding of ethnographic research and methodologies, product problem solving, creative visual communication, human factors / ergonomics application and formal and surface development in product scale. This course will not enable one to become an industrial designer but will enable one to understand and appreciate what industrial design does, what it can contribute to society and why it is so much fun.
One-term course offered either term
Also Offered As: IPD 527
Activity: Lecture
1 Course Unit
ARCH 728 Design of Contemporary Products: Mass Customization
Personalization is quickly becoming the norm for mass production in a variety of consumer-centric industries. From retail to food, the idea of designing and making custom-made products tailored to fit one's lifestyle will be our exploration. Utilizing digital design innovations, we are able to incubate ideas, prototype, test and be entrepreneurial in design to create these individualized products. Cues from these industries will be used to shift both cultural and experiential product design from a regional discovery to a global focus. This course will embrace digital design and utilize its engagement with manufacturing solutions for a physical output. Through research and a series of design exercises, the approach will be built upon several strategies including adaptability, materiality, fabrication, modularity, and human-centric design. The final project will interpret the research and result in the creation of a design strategy for a mass customized product or system. This course will explore product design solutions through a combination of physical and digital design methods. Beginning with an examination of case studies, students will gain a sense of the breadth of product and interaction design practice as it applies to smart objects. Through a series of lectures and hands-on studio exercises, students will explore all aspects of smart object design including expressive behaviors (light, sound and movement), interaction systems, ergonomics, data networks and contexts of use. The course will culminate in a final project that considers all aspects of smart object design within the context of a larger theme.
Course usually offered in spring term
Also Offered As: IPD 528
Activity: Seminar
1 Course Unit

ARCH 730 Techniques, Morphology, and Detailing
The course will focus on design, morphology detailing, and the construction of a pavilion on a chosen site. The course will develop through hands-on workshops and will focus on acquiring knowledge through making, (Techné), understanding the morphological transformation of a given geometric packing, and building using readily available materials. The process consists of building and testing physical models that simulate the actual pavilion in order to ultimately realize the desired design. The second half of the semester will focus on using lightweight construction materials to fabricate the pavilion’s actual components, including structural elements, molded components, and joints, which are required for the pavilion’s final assembly. Additionally, students will learn to organize design and fabrication teams, control design and production schedules, and work with a set budget, which requires keeping track of construction costs and forecasting required procurements, including material quantities takeoff, ordering materials and scheduling deliveries.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ARCH 731 Experiments in Structures
This course studies the relationships between geometric space and those structural systems that amplify tension. Experiments using the hand (touch and force) in coordination with the eye (sight and geometry) will be done during the construction and observation of physical models. Verbal, mathematical and computer models are secondary to the reality of the physical model. However these models will be used to give dimension and document the experiments. Team reports will serve as interim and final examinations. In typology, masonry structures in compression (e.g., vault and dome) correlate with "Classical" space, and steel or reinforced concrete structures in flexure (e.g., frame, slab and column) with "Modernist" space. We seek the spatial correlates to tensile systems of both textiles (woven or braided fabrics where both warp and weft are tensile), and baskets (where the warp is tensile and the weft is compressive). In addition to the experiments, we will examine Le Ricolais’ structural models held by the Architectural Archives.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ARCH 732 Technology Designated Elective
Several sections are offered from which students make a selection. This year’s selections include: Deployable Structures, Performance and Design, Detailed Design Studies, Daylighting, Principles of Digi/Fab, Matter and Energy, Material and Structural Intelligence.
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: Please note: MSD-AAD students in their first semester are not permitted to enroll in any ARCH-732 courses.

ARCH 733 Building Product Design
As Craig Vogel notes in The Design of Things to Come, "we are in a new economic age that is in need of a new renaissance in product development, one that leverages multiple minds working in concert." With this mindset, this interdisciplinary workshop guides students through the product design process from design brief to concept generation and prototype development in one semester, working firsthand with Transwall, a leading manufacturer of demountable wall systems, to focus on a specific product need. The design opportunity looks for the next generation of pre-manufactured wall systems; getting away from field construction walls and looking at critical issues of mass-produced wall systems: flexibility, mobility, structural stability, acoustics, transparency/opacity and operability. During the workshop, students will explore the context that creates the unique need for a new product and have an opportunity to conceptualize their ideas through sketches, digital modeling and prototype development.
Taught by: Faculty
Course usually offered in fall term
Also Offered As: IPD 530
Prerequisite: ARCH 403/IPD 503 or ARCH major
Activity: Lecture
1 Course Unit
ARCH 734 Ecological Architecture - Contemporary Practices
Architecture is an inherently exploitive act - we take resources from the earthand produce waste and pollution when we construct and operate buildings. As global citizens, we have an ethical responsibility to minimize these negative impacts. As creative professionals, however, we have a unique ability to go farther than simply being "less bad." We are learning to design in ways that can help heal the damage and regenerate our environment. This course explores these evolving approaches to design - from neo-indigenous to eco-tech to LEED to biomimicry to living buildings. Taught by a practicing architect with many years of experience designing green buildings, the course also features guest lecturers from complementary fields - landscape architects, hydrologists, recycling contractors and materials specialists. Coursework includes in-class discussion, short essays and longer research projects.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 736 Technology Designated Elective
Several sections are offered from which students make a selection.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units

ARCH 737 Semi-Fictitious Realms
The pursuit of immersive digital experiences has long been a goal of the computing industry. Early wearable displays designed in the 1960s depicted simple three dimensional graphics in ways that had never been seen before. Through trial and error, digital pioneers reframed the relationship between user and machine, and over the last five decades, have made strides that advanced both the input and output mechanisms we are so comfortable with today. As a field, architecture has been reliant on these advancements to design and document buildings, but these tools still leave the architect removed from the physicality of the design, with their work depicted as 2D lines or 3D planes alone. This course will study the evolutionary advancements made that now allow us to fully inhabit digital worlds through Virtual Reality. Using the HTC Vive and Unreal Engine, students will generate immersive, photorealistic models of unbuilt architectural works and explore digital/physical interactivity. From the terraces of Paul Rudolph's Lower Manhattan Expressway to Boullée's Cenotaph for Newton, the goal of this course is to breathe new life into places and spaces that have, until this time, never been built or occupied. This course will explore the role of the architect and built environment on health. (Parallels between design and our ever-changing understanding of the biological, social, and environmental causes of sickness and disease will also be explored.) During this conversation, students will read articles and study recently constructed projects in order to examine the ways in which the architects approached these topics through built form. Following from this foundation, students will craft arguments for a new approach to the individual, the community, health, and architecture through a written response and architecturally designed scenario that argues for their perspective on how architecture can and should shape the health of those who inhabit it. Throughout the course, students will engage in weekly readings (and discussions) of critical texts exploring ideas around the role and impact of architecture on health. Various content experts will be included in the course to provide additional insights into key areas of theory and practice in order to lend additional perspectives and ground the conversation.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ARCH 738 The Modern House: Technology Then and Now
In the current age of new fabrication methodologies, methods are emerging for the conception and design of the contemporary house which have radical potential for enclosure, habitation and practices of daily life. This course begins by examining the canonical houses of the original avant-garde -Adolf Loos, Frank Lloyd Wright, Le Corbusier, Mies van der Rohe and Alvar Aalto -on the premise that their houses were working manifestos for rethinking space, form and indeed ideas of life itself-all of which were prompted by new concepts of construction. From this spectrum of issues, contemporary houses and contemporary methods and materials will be studied extensively to develop equally new ideas between matter and quotidian life. As the primary task of the course, students will work in teams to develop highly detailed constructional proposals for a portion of a speculative home.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 739 New Approaches to an Architecture of Health
Health care is taking on a new role in our society - with a refocusing from episodic care for those who are ill or symptomatic to providing life-long care geared towards maintaining wellness. These changes are evident across numerous areas of design, from wearable technologies that track and analyze, to large scale building initiatives that aim to create healthier environments and improve lives through strategic planning initiatives. A concrete, physical representation of this paradigm shift can be found within the hospital building itself and in the new manner in which hospitals are looking to serve their patients and care for their clinicians. Simultaneously both public and private spaces, hospitals are complex systems in which sickness, health, hospitality, technology, emergency, and community share space and compete for resource. In order to frame our present day understanding of the role of architecture (and design) in fostering health for individuals and within communities, this seminar will begin with an exploration of the historical and contemporary perspectives on the role of the architect and built environment on health. (Parallels between design and our ever-changing understanding of the biological, social, and environmental causes of sickness and disease will also be explored.) During this conversation, students will read articles and study recently constructed projects in order to examine the ways in which the architects approached these topics through built form. Following from this foundation, students will craft arguments for a new approach to the individual, the community, health, and architecture through a written response and architecturally designed scenario that argues for their perspective on how architecture can and should shape the health of those who inhabit it. Throughout the course, students will engage in weekly readings (and discussions) of critical texts exploring ideas around the role and impact of architecture on health. Various content experts will be included in the course to provide additional insights into key areas of theory and practice in order to lend additional perspectives and ground the conversation.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ARCH 741 Architecture Design Innovation
The mastery of techniques, whether in design, production or both, does not necessarily yield great architecture. As we all know, the most advanced techniques can still yield average designs. Architects are becoming increasingly adept at producing complexity & integrating digital design and fabrication techniques into their design process - yet there are few truly elegant projects. Only certain projects that are sophisticated at the level of technique achieve elegance. This seminar explores some of the instances in which designers are able to move beyond technique, by commanding them to such a degree as to achieve elegant aesthetics within the formal development of projects.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
ARCH 743 Form and Algorithm
The critical parameter will be to develop the potential beyond finite forms of explicit and parametric modeling towards non-linear algorithmic processes. We will seek novel patterns of organization, structure, and articulation as architectural expressions within the emergent properties of feedback loops and rule-based systems. This seminar will accommodate both introductory and advanced levels. No previous scripting experience is necessary. It will consist of a series of introductory sessions, obligatory intensive workshops, lectures followed by suggested readings, and will gradually focus on individual projects. Students will be encouraged to investigate the limits of algorithmic design both theoretically and in practice through a scripting environment. Course usually offered in fall term
Activity: Seminar
1 Course Unit

ARCH 744 Postdigital Craft
As we have entered a postdigital era, the dominance of a purely technological approach as a vehicle for design innovation has waned. Questions of substance and disciplinary autonomy have found their way back into the contemporary cultural discourse, enriching the way we examine and deploy advanced technologies towards novel expressions in architecture. This seminar will investigate, through the production of estranged objects, opportunities for design that are being generated at the intersection of machinic and human minds, and speculate on possible futures in which concepts of nature and technology have been inseparably intertwined.
Course usually offered in spring term
Also Offered As: IPD 544
Activity: Seminar
1 Course Unit

ARCH 746 Cinema and Architecture in Translation
Cinema and Architecture in Translation is a seminar that will survey key cinematic moments and techniques within the history of film and find new intersections between architecture and narratives. The focus will be on the relevance of mise-en-scene, the background and building figures of architecture and future speculations of the city, yet in relation to narrative dynamics. One of the challenges is to consider techniques that will affect both conceptualization and the production of spatial manifestations using potent visual platforms. Current pre and post-production techniques in film making methods are converging with architectural digital representation. This is an opportunity that provides fertile ground for architects to re-examine the ‘digital’ in a variety of scales in relation to impactful narratives and visualizations. These tools, specifically the technique of “matte-painting” will be explored in this course. There is a rich history in constructing images, speculative worlds and scenes for the film industry. We will explore the parallels between the tools and strategies of cinematic visualization as it relates to advanced architectural image making. Students will have the opportunity to analyze filmic scene making, learn advanced representation and techniques in matte painting and zbrush. Above all this course will engage students in the conceptual as well as practical complementarities of architecture and cinema, while watching some of the best films ever made and the most provocative and insightful books to help process them. An important aspect of this course will be to explore the differences between “real” architecture and the cinematic architecture. The expansive Space and Time in which cinematic architecture is located, creates an incubator where true innovated speculation can occur. This is an advanced representation course that produces 2D images and narrative texts. Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 750 Parafictional Objects
This representation/design seminar explores the aesthetics of estrangement in realism through various mediums. The reality of the discipline is that architecture is a post-medium effort. Drawings, Renderings, Models, Prototypes, Computations, Simulations, Texts, and Buildings are all put forward by architects as a speculative proposal for the reality of the future. Students will explore the reconfiguration of a "found object" in multiple mediums and represent parafictional scenarios in various techniques of realism. At a time when rendering engines enable the production of hyper-realistic images within the discipline without any critical representational agenda, it has become ever more imperative to rigorously speculate on realism.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 751 Ecology, Technology, and Design
This course will examine the ecological nature of design at a range of scales, from the most intimate aspects of product design to the largest infrastructures, from the use of water in bathroom to the flow of traffic on the highway. It is a first principle of ecological design that everything is connected, and that activities at one scale can have quite different effects at other scales, so the immediate goal of the course will be to identify useful and characteristic modes of analyzing the systematic, ecological nature of design work, from the concept of the ecological footprint to market share. The course will also draw on the history and philosophy of technology to understand the particular intensity of contemporary society, which is now characterized by the powerful concept of the complex, self-regulating system. The system has become both the dominant mode of explanation and the first principle of design and organization.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ARCH 752 MEBD Research Seminar
Directed student research of selected topics in environmental building design. These topics will be further explored in ARCH 708: MEBD Studio and will provide the basis for the research documents developed with each student's design project. Course work will include lectures, discussions, weekly readings, and in-class exercises. Each student will be required to make a presentation and submit a research report.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ARCH 753 Building Performance Simulation
The course provides students with an understanding of building design simulation methods, hands-on experience in using computer simulation models, and exploration of the technologies, underlying principles, and potential applications of simulation tools in architecture. Classroom lectures are given each week, with a series of analysis projects to provide students with hands-on experience using computer models. This course is required and reserved for MEBD students.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
ARCH 754 Performance Design Workshop
The workshop applies simulation and diagramming techniques to a series of discrete design projects at different scales. The emphasis is on refinement and optimization of performance based building design. Performance analysis techniques can provide enormous amounts of information to support the design process, acting as feedback mechanisms for improved performance, but careful interpretation and implementation are required to achieve better buildings. Energy, lighting, and air flow are the three main domains covered in the workshop. Students will learn how to utilize domain tools at an advanced level, and utilize them as applications to examine the environmental performance of existing buildings. Using the results of analytical techniques, the students will develop high-performance design strategies in all three domains.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 762 Design and Development
This course provides an introduction to the relationship between architectural design and real estate development. Following a discussion of fundamentals, examples focus on commercial building types, and illustrate how architectural design can contribute to real estate development. Topics include housing design commercial buildings, adaptive reuse, downtown development, mixed-use projects, and planned communities. The course consists of lectures, reading assignments, short essays, a group project, and a mid-term test. Invited lecturers include architects and real estate developers. Readings consist of a Bulkpack available from Wharton Reprographics. There is one course text: Witold Rybczynski, "Last Harvest."
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ARCH 765 Project Management
This course is an introduction to techniques and tools of managing the design and construction of large, and small, construction projects. Topics include project delivery systems, management tools, cost-control and budgeting systems, professional roles. Case studies serve to illustrate applications. Cost and schedule control systems are described. Case studies illustrate the application of techniques in the field.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 771 Professional Practice II
A continuation of ARCH 671. Further study of the organizational structures of architectural practices today, especially those beyond the architect's office. The course is designed as a series of lectures, workshops and discussions that allows students and future practitioners the opportunity to consider and develop the analytical skills required to create buildings in the world of practice.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

ARCH 782 Architecture Study Abroad Program
A four to six week program of study in various locations.
Activity: Studio
1 Course Unit

ARCH 791 ARCH Summer Institute: Digiblast
This is a non-credit course for entering Master of Architecture students. The course will cover digital modeling and workflow and will prepare students for techniques used in PennDesign's 500 and 600 level design studios. Course fee: $750.00. Note: course fees apply only to students who are NOT enrolled in ARCH-500. Course enrollment is by permit only. Please contact Sarah Lam (ARCH Dept.) at sarahlam@design.upenn.edu.
Course usually offered summer term only
Activity: Studio
0 Course Units

ARCH 792 ARCH Summer Institute: Advanced Architectural Design Digital Workshop
This is a non-credit course for entering Master of Science in Design: Advanced Architectural Design students. The Digital Methods workshop provides a comprehensive introduction to four elements critical to the workflow of the graduate studios at PennDesign: 3D modeling, scripting, visualization and fabrication. Short daily lectures situating digital technologies in contemporary design practice are followed by hands-on tutorials in Maya and Rhinoceros. The first half of the workshop provides an operative knowledge of the many geometry types, modeling techniques, scripting languages and simulation tools available for studio work. Visualization techniques are also introduced, and students will learn to efficiently produce presentation-quality renderings, animations and technical line drawings from digital models. Students also learn protocols for transferring data between various design software packages and how to create data compatible with PennDesign's digital fabrication equipment. Course fee: $750.00 Course enrollment is by permit only. Please contact Sarah Lam (ARCH Dept.) at sarahlam@design.upenn.edu.
Course usually offered summer term only
Activity: Studio
0 Course Units

ARCH 793 ARCH Summer Institute: History of Architecture
This is a non-credit course for entering Master of Architecture students. The course will cover western architecture from ancient Egypt to the modern age and will satisfy the history pre-requisite condition for matriculation in the fall. Course fee: $750.00. Course enrollment is by permit only. Please contact Sarah Lam (ARCH Dept.) at sarahlam@design.upenn.edu.
Course usually offered summer term only
Activity: Lecture
0 Course Units

ARCH 794 ARCH Summer Institute: Physics for Architects
This is a non-credit course for entering Master of Architecture students. The course will cover the following: mechanics, heat, light, sound and electricity. The course will satisfy the physics pre-requisite condition for matriculation in the fall. Course fee: $750.00. Course enrollment is by permit only. Please contact Sarah Lam (ARCH Dept.) at sarahlam@design.upenn.edu.
Course usually offered summer term only
Activity: Lecture
0 Course Units
ARCH 811 Theories of Architecture
The purpose of this course is to provide to students who are embarking on careers in teaching and scholarship in architecture a re-introduction to some of the principal issues and writings of the architectural theory, as they developed historically from antiquity to the present. In addition to introducing recurring themes and primary texts, this course aims to help students develop the practices that are typical of scholarship, the forms and habits of scholarly inquiry. It is a required course for all incoming Ph.D. and M.S. students.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ARCH 812 Field Research
First year Ph.D. and M.S. students will use this course to register for a research elective in their field of study. Courses to be taken will be selected from a list of electives offered by members of the Graduate Group of Architecture, typically the seminars offered by those faculty at the Masters level. At the outset of the course Ph.D. and M.S. students will discuss and decide with the professor the readings, research, and writings that will be appropriate for the course, given the student's field of study.
Course usually offered in spring term
Activity: Independent Study
1 Course Unit

ARCH 813 Qualifying Research
This is an independent study course for first year Ph.D. and M.S. students, supervised by a member of the Graduate Group in Architecture. A course of readings and advisor sessions throughout the semester will result in an independent study paper, which will also be used as the student's qualifying paper for the Qualifying Examination. This research paper will be prepared as if for scholarly publication.
Course usually offered in spring term
Activity: Independent Study
1 Course Unit

ARCH 814 The Concept of an Avant-Garde
No historian of architecture has written as intensely about the contradictions of architecture in late-modern society or reflected as deeply on the resulting problems and tasks of architectural historiography as Manfredo Tafuri (1935-1994). For many, the Italian historian's dismissal of "hopes in design" under conditions of advanced capitalism produced a disciplinary impasse. This in turn led to call to obliter Tafuri - to move beyond his pessimistic and lacerating stance. The seminar will undertake a close reading of one of Tafuri's most complexly conceived and richly elaborated books, The Sphere and the Labyrinth: Avant-Gardes and Architecture form Piranesi to the 1970s. Initially published in Italian in 1980 and translated into English in 1987, the book represents the first effort to define and historicize the concept of an avant-garde specifically in architecture. Its content centers on the radical formal and urban experiments of the first three decades of the twentieth century. Yet Tafuri surprisingly begins his account with the eighteenth-century inventions of Piranesi, and he concludes with an examination of the "neo-avant-garde" of his own day. In addition to traversing The Sphere and the Labyrinth chapter by chapter - starting with the extraordinary methodological introduction, "The Historical 'Project'"-we shall also read a number of primary and secondary sources on the historical contexts under discussion and consider a number of important intertexts that shed light on Tafuri's position. The objectives of the course are at once historical and historiographic: we shall be concerned both with actual events and with how they have been written into history. Finally, we shall reassess the role of an avant-garde in architecture and compare Tafuri's conception to that advanced in other disciplines. Is the concept of an avant-garde still viable today? Or should it be consigned to the dustbin of twentieth-century ideas? Assignment for first class: read the introduction to The Sphere and the Labyrinth, pp. 1-21, "The Historical "Project." A copy of the book is on reserve at the library. Note: the book is out of print. For future classes please make every effort to purchase a used copy or obtain one via interlibrary loan. Copies of individual chapters will also be made available on our class website.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 815 Research Report
The candidate for the M.S. in Architecture degree shall prepare a research report in his or her subject of study. The topic of this report must be approved by an advisor. This report will be developed in the independent study courses, undertaken after the eight units of course work has been completed, normally in the summer semester. The purpose of these courses is to give the student an opportunity to synthesize their previous coursework at Penn. Course enrollment is by permit only. Please contact Sarah Lam (ARCH Dept.) at sarahlam@design.upenn.edu.
Course usually offered in fall term
Activity: Independent Study
2 Course Units
ARCH 816 Advanced Topics in Architecture Culture from World War II through 2001
This seminar will be taught as an advanced section of ARCH 512. It is primarily for students who are in their first year of the PhD program in Architecture but it is open to other upper-level students with instructor permission. In addition to the weekly discussion-format seminar on Tuesday afternoons (1.5 hours), students are also expected to attend the lectures associated with ARCH 512 on Tuesday mornings (10:30-12). Assigned readings will go beyond those on the 512 syllabus to include more complex and sophisticated source material. The subject of both ARCH 512 and 812 is the evolution of the culture of architecture from World War II to the turn of the twenty-first century. Starting with the period of wartime planning and postwar reconstruction in the 1940s, we will move decade by decade up to the present century, considering the transformations of modernist culture under the impact of social, political, technological, and urban changes. We will address the challenges posed to architecture from inside as well as outside the discipline and from around the world, attending to material and ideological developments and to relations between individual protagonists and larger historical and institutional forces. Among the wide range of issues at stake are the impact of research and technology coming out of the world war; the intensifying critique of interwar functionalism and debates over monumentalhumanism, regionalism, history, aesthetics; the effects of suburbanization, expanded mobility, changing demographics, and environmental factors; the phenomena of consumer culture and mass media; the impact of the Cold War and decolonization; the emergence of a “global village” and its intensifying cultural exchanges; the rise of a new architectural avant-garde in the 1960s and the advent of postmodernism; plus more recent ramifications. At the level of theory and methodology, the seminar will be especially concerned with issues of periodization and documentation. We will discuss and debate the question of how “architecture culture” is produced and reproduced at particular moments in history. Seminar discussions will be focused around specific case studies, some to be determined by the instructor, the rest based on in-depth individual research products to be carried out by the members of the class. Each student will work on his or her case-study project over the course of the semester, leading to an in-class presentation and a term paper of 25 pages.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ARCH 851 Dissertation Bibliography
This course is essentially an independent study, undertaken by doctoral students in preparation for the Candidacy Examination. This course should be taken in conjunction with ARCH 852 after all other courses have been completed. Normally a member of the student’s Dissertation Committee supervises this course.
Two terms. student may enter either term.
Activity: Independent Study
1 Course Unit

ARCH 852 Dissertation Proposal
This course is essentially an independent study, undertaken by doctoral students in order to write the Proposal for the Dissertation. The Proposal is prepared before and defended during the Candidacy Examination. This course should be taken in conjunction with ARCH 851 after all other courses have been completed. Normally a member of the student’s Dissertation Committee supervises this course.
Two terms. student may enter either term.
Activity: Independent Study
1 Course Unit

ARCH 995 Dissertation
Two terms. student may enter either term.
Activity: Dissertation
1 Course Unit

ARCH 999 Independent Study
This course enables students to undertake self-directed study on a topic in Architecture, under the supervision of a faculty member. Students are required to make a proposal for the study to the Department Chair, outlining the subject and method of investigation, and confirming the course supervisor at least two weeks prior to the beginning of the semester.
One-term course offered either term
Activity: Independent Study
1 Course Unit
ART & ARCHAEOLOGY OF MEDITERRANEAN WORLD (AAMW)

AAMW 401 Introduction to Greek Archaeology
An introduction to the art and archaeology of ancient Greece from the Archaic through Hellenistic periods. Topics to be considered include the formation of the Greek polis, the rising and falling fortunes of Athens and the other Greek city-states in the Classical period, and the world of Alexander the Great. Emphasis is placed on the consideration of the archaeological evidence, e.g., sculpture, painting, pottery, architecture, and other material culture. This course is part of a sequence of introductory courses (with Ages of Homer and Introduction to Roman Archaeology) on the archaeology of the Greco-Roman world. There are no prerequisites, and these courses need not be taken in a particular order. Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 425 Late Antique Arts
What is 'Late Antiquity'? In 312 when Roman emperor Constantine inaugurated a Christian empire, 'Roman' culture was centuries old. The period ca. 200-650 saw profound transformations that launched Medieval, Byzantine and Islamic traditions. In the epoch of economic and political upheaval destruction was frequent but partial: Rome long survived, Constantine's 'new Rome,' Constantinople flourished, and around the Empire both proto-global visual culture and local forms prospered. Roman cultural models authorized both innovation and passion for tradition, in forms and styles: we critique art-historical models for Late Antiquity 'decline', analyze habits of material reuse and curation, and look at new Christian and Jewish roles for Roman things as well as polytheist visual survival. Foreign allies and enemies, and new peoples invading an already polyethnic Empire, interacted with Greco-Roman Late Antiquity; we visit arts of Sasanian and Islamic empires east and south, and ‘barbarian’ domains in Africa, Europe, Britain. Media discussed, for sacred, courtly, domestic, funerary, political and civic spaces and structures include not just 'monumental' painting, mosaic, sculpture, but also objects of silver, ceramic, ivory, figural textile, glass; painted books, jewelry; mass-media artifacts like coins and pilgrimage tokens. We also study Late Antique texts on art, objects, space and viewership. Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 427 Roman Sculpture
Survey of the Republican origins and Imperial development of Roman sculpture - free-standing, relief, and architectural - from ca. 150 BC to 350 AD. We concentrate on sculpture in the capital city and on court and state arts, emphasizing commemorative public sculpture and Roman habits of decorative display; genres examined include relief, portraits, sarcophagi, luxury and minor arts (gems, metalwork, coinage). We evaluate the choice and evolution of styles with reference to the functions of sculptural representation in Roman culture and society. Taught by: Kuttner, Rose
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 428 Hellenistic Art and Spectacle
Hellenistic usually names art in the age of Mediterranean culture from the 4th century BCE and the rise of Alexander the Great’s Macedon, and the Greco-Macedonian conquest of the Persian Empire, to Cleopatra of Egypt’s defeat by Rome at the end of the Republic. Our course looks also at the age of Augustus and his successors, 1st century CE. While Greek and Macedonian practice in city-states and kingdoms is our launching point, this course also looks at international culture and cultural interaction among peoples from North Africa and Etrusco-Roman Italy, Egypt, (Etrusco) Anatolia, the Mideast and Central Asia. We probe art, artifacts, and visual display from a range of settings, from sanctuary to house, palace and parade, and in all media, from marble monuments to pottery and jewelry. Our archaeology of Hellenistic visual culture also looks at the rich body of Hellenistic and Roman texts of art history, art criticism, and the description of objects and image, to better understand the Hellenistic maker, patron, and viewer. No prerequisites. It is desirable for undergraduates to have experience of research. Of interest to students in AAMW, ARTH, ANCH, CLST, VLST, NELC, RELS and ANTH.
Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 435 Medieval Islamic Art & Architecture
An introduction to the major architectural monuments and trends, as well as to the best-known objects of the medieval (seventh-to fourteenth-century) Islamic world. Attention is paid to such themes as the continuity of late antique themes, architecture as symbol of community and power, the importance of textiles and primacy of writing. Suitable for students of literature, history, anthropology as well as art history. Taught by: Holod
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 509 Curatorial Seminar
Curatorial seminars expose students to the complexity of studying and working with objects in the context of public display. With the guidance of faculty and museum professionals, students learn what it means to curate an exhibition, create catalogues and gallery text, and/or develop programming for exhibitions of art and visual/material culture. Spring 2015: Practiced in almost all ancient cultures, magic offered ways of managing or understanding the present, controlling supernatural agencies, and seeing the future. The objects and images associated with magical practices are rich and varied and are well represented in the University of Pennsylvania Museum. The aim of the seminar is to prepare an exhibit on magic and divination, working with the archaeological collections of the UPM, specifically the Ancient Near Eastern, Egyptian, and Mediterranean sections. It will include objects such as amulets, curse tablets, incantation bowls, and magical papyri, as well as images representing magical practices. Participating students will select and research objects and prepare wall texts for the exhibit. Course not offered every year
Activity: Seminar
1 Course Unit
AAMW 512 Petrography of Cultural Materials
Introduction to thin-section petrography of stone and ceramic archaeological materials. Using polarized light microscopy, the first half of this course will cover the basics of mineralogy and the petrography of igneous, metamorphic and sedimentary rocks. The second half will focus on the petrographic description of ceramic materials, mainly pottery, with emphasis on the interpretation of provenance and technology. As part of this course, students will characterize and analyze archaeological samples from various collections. Prior knowledge of geology is not required.
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 519 Ancient Greek Colonies
This seminar examines the archaeology of Greek colonization from the Late Bronze Age to ca. 600 B.C. These colonies were highly diverse in their motivations, physical settings, and political and social structures, as well as their relationships with mother cities and the new worlds they inhabited. Emphasis is placed on the colonial experience as a cross-cultural and negotiated process. In addition to archaeological and epigraphic evidence, literary and historical traditions are examined. Colonies from the southern Balkan peninsula, Black Sea, Ionia, northern Africa, and Magna Graecia will be the focus of reading, reports, and discussion.
Taught by: Tartaron
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 520 Topics in Aegean Bronze Age
Topic varies. Fall 2016: Minoan and Cycladic Wall Paintings are considered a hallmark of the Aegean Bronze Age Civilization. Often, these paintings are discussed in terms of their iconography but in isolation of their archaeological contexts. In this class, we will examine both with the goal of determining what types of paintings are used in houses, palaces, defensive structures, and buildings of undetermined function, as well as examining their pictorial programs and iconographic interpretations. With the recent study of Minoan-style wall paintings in Egypt and the Ancient Near East, the question of the spread of Minoan and Cycladic techniques and motifs must also be considered, along with the archaeological contexts at these non-Aegean sites. We will have class discussions of assigned readings.
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 522 Topics in Ancient Iranian Art
Topic varies. Spring 2018: This seminar will focus on the environmental, archaeological and textual record for settlement in the Persian/Arabian Gulf region from the Neolithic to the pre-Islamic Late Antiquite. Emphasis will be on the settlement history and material culture. Special attention will be paid to the close interaction of the local communities on the Arabian side of the Gulf with those on the Iranian/Indus valley side. The patterns of sea faring trade and interaction from Mesopotamia, Iran, Indus Valley and beyond will be considered. It is possible that this class will take a site trip to the UAE during the spring break, if the logistics can be arranged. Instructors: Professors Holly Pittman (Penn), Peter Magee (Bryn Mawr College).
Taught by: Pittman
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 525 Topics in Greek and Roman Art
Topic varies. Fall 2018: "Roman Provincial Art" is a very active scholarly category: we test how it might be productive, sampling visual culture outside the empire's Italian heartland from the Late Republic into Late Antiquity. Rome's arts were always in dialogue with those of neighboring cultures; imperialist expansion into the Mediterranean world and beyond meant that cultural relations across many boundaries—social, ethnic, territorial—potentially became cultural politics. Of related interest are relationships between visual and material culture within the Roman world's formal boundaries, in proto-global and imperial contexts, and those of peoples along and beyond those frontiers. (In Late Antiquity some of them took up rule within the old imperial boundaries, and came to cultural terms with their new lands.) "Style" is a fraught issue: what does attributed crudeness in regional practice add up to, and what were the aims of apparently trans-Mediterranean forms of display? Do "arts" engage identity formation, enforced or discrepant viewing?
Taught by: Kuttner
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 526 Material & Methods in Mediterranean Archaeology
This course is intended to familiarize new graduate students with the collections of the University of Pennsylvania Museum of Archaeology and Anthropology and the wide range of scholarly interests and approaches used by faculty at Penn and neighboring institutions, as well as to provide an introduction to archaeological methods and theory in a Mediterranean context. Each week, invited lecturers will address the class on different aspects of archaeological methodology in their own research, emphasizing specific themes that will be highlighted in readings and subsequent discussion. The course is divided into five sections: Introduction to the Mediterranean Section; Collections; Method and Theory in Mediterranean Archaeology; Museum Work; and Ethics. The course is designed for new AAMW graduate students, though other graduate students or advanced undergraduate students may participate with the permission of the instructor.
Taught by: Tartaron
Course usually offered in fall term
Activity: Seminar
1 Course Unit

AAMW 529 Topics in Roman Architecture
Topic varies. Spring 2018: This seminar offers a critical assessment of digital Roman architecture studies. What has been accomplished and learned over the last generation since the Digital Turn, and where is the field of Roman architecture being taken? Points of focus include several landmark case studies, such as digital reconstructions of the city of ancient Rome, and threatened cultural heritage sites in Syria. The course will involve readings of significant texts, in class discussions and presentations lead by the seminar’s participants, and testing and critiquing of a limited set of digital tools.
Taught by: Stinson
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 530 Topics in Byzantine Art
Topic varies.
Taught by Drpic
Course not offered every year
Activity: Seminar
1 Course Unit
AAMW 531 Later Islamic Art and Architecture
Istanbul, Samarkand, Isfahan, Cairo and Delhi as major centers of art production in the fourteenth to seventeenth centuries. Attention is given to urban and architectural achievement as well as to the key monuments of painting and metalwork. The visual environment of the “gunpowder empires” is discussed.
Taught by: Holod
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 533 Topography and Monuments of Ancient Rome
An intensive exploration of Rome’s urban topography during the Republican and Imperial periods (6th c. B.C. through 4th c. A.D.) Using archaeological and textual sources, including the Etruscan and Roman collections of the Penn Museum, the goal will be to reconstruct the built environment and decoration of Rome over the course of a millennium. Of interest to students of classics, archaeology, art history, and architecture. Some familiarity with Rome will be a plus, but is not required.
Taught by: Rose
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 534 Problems in Greek and Roman History: Archaic and Classical
This seminar is designed to introduce students to the major issues and problems in the early history of Ancient Greece, from approximately 776 BC until the reign of Alexander the Great nearly four hundred and fifty years later. A number of these issues have been the subject of academic investigation for decades: the historicity of Homeric society, the origins of democracy, the reforms of Kleisthenes, the population of Athens, for example. The investigation of many of these problems, however, has received fresh impetus from newer approaches: demographic studies of the Aegean islands, the dating of 5th century inscriptions, the study of Solon’s poetry have all yielded new insights and transformed our understanding of Greek culture and history. In this seminar we will explore many of these questions from a variety of perspectives, with attention to recent topics as gender, ethnicity and subaltern studies. The result is a view of Greece that is both more familiar and yet equally more alien.
Taught by: McInerney
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 536 Archaeology of Anatolia
This class is devoted to the archaeology and history of Anatolia (ancient Turkey) from the beginning of the Bronze Age (3000 BC) to the end of the Byzantine period (1453 AD). Emphasis will be placed on the great empires in Anatolia (Hittite, Phrygian, Lydian, Urartian, Persian, Roman, and Byzantine), and on the great cities (Troy, Sardis, Ephesus, Constantinople). The course is intended to complement the major exhibit on Gordion, the Phrygians, and Anatolian archaeology that will open at the Penn Museum in February of 2016 and run for 10 months.
Taught by: Brian Rose
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 537 Topics in Art of Iran
Topic varies. Spring 2018: The pro-seminar will examine aspects of continuity and rupture in the visual culture(s) of the Iranian world. This is an opportunity for students whose preparations may be centered on other contiguous periods or regions to consider the manner in which Middle Asia and its rich visual cultures contributed to the forging of Late Antique and medieval/Islamic visual expressions of kingship, territory and religion. The seminar will consider a range of materials from archaeological sites, rock reliefs and wall paintings to textiles, silver vessels, coins and ceramics, with special attention to materials excavated or otherwise held by the Penn Museum.
Taught by: Holod, Kuttner
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 539 Archaeobotany Seminar
In this course we will approach the relationship between plants and people from archaeological and anthropological perspectives in order to investigate diverse plant consumption, use, and management strategies. Topics will include: plants as foods and intoxicating beverages; medicines, poisons, and psychoactive plants; plants as building supplies and textiles; wild plant collection, and the origins of plant domestication. Students will learn both field procedures and laboratory methods of archaeobotany through a series of hands-on activities and lab-based experiments. The final research project will involve an original in-depth analysis and interpretation of archaeobotanical specimens. By the end of the course, students will feel comfortable reading and evaluating archaeobotanical literature and will have a solid understanding of how archaeobotanists interpret human activities of the past.
Taught by: Chantel White
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 540 Topics in Medieval Art
Topic varies. Spring 2018: The craft of ivory carving around the Mediterranean is contingent upon the availability of imported elephant tusks, from either South East Asia or, more frequently, from the African continent. The shifting winds of trade routes offer an interpretive paradigm with which to analyze ivory objects from a variety of different cultural groups: the lack or abundance of ivory and the resulting desire for or surfeit of the material shapes its meaning and use around the Mediterranean basin. The study of ivory objects as they migrate around the Mediterranean allows us to investigate the rich intercultural interactions between Eastern and Western Christians, and both of these with the Islamic world. This course focuses on an object oriented knowledge of ivory artefacts, with a strong emphasis on the collections at the Penn Museum, the Philadelphia Museum of Art, and other area collections.
Taught by: Guerin
One-term course offered either term
Activity: Seminar
1 Course Unit
AAMW 542 Ancient Seafaring
This course explores ships, seafaring, and seafarers of the ancient Greek World from the Bronze Age (Minoans and Mycenaeans) to the Age of Alexander (Hellenistic period). Sources include shipwrecks and related artifacts, artistic representations, and ancient documents and literature. The emphasis is not so much on the technical aspects of shipbuilding and navigation as on the ways that seafaring shaped Greek history and connected the Greeks to a wider world through trade, warfare, colonization, and adventure.
Taught by: Tartaron
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 546 Museum Internship
The Museum Internship in the spring consists of a research project with Penn Museum collections based on a proposal designed and approved during the fall AAMW Proseminar (AAMW 526). It is offered to, and is a requirement for, first-year AAMW graduate students only.
Course usually offered in spring term
Prerequisite: AAMW-526 Material & Methods in Mediterranean Archaeology
Activity: Independent Study
1 Course Unit

AAMW 552 Archaeometallurgy Seminar
This course is designed to provide an in-depth analysis of archaeological metals. Topics to be discussed include: exploitation of ore and its transformation to metal in ancient times, distribution of metal as a raw materials, provenance studies, development and organization of early metallurgy, and interdisciplinary investigations of metals and related artifacts like slag and crucibles. Students will become familiar with the full spectrum of analytical procedures, ranging from microscopy for materials characterization to mass spectrometry for geochemical fingerprinting, and will work on individual research projects analyzing archaeological objects following the analytical methodology of archaeometallurgy.
Taught by: Moritz Jansen
Activity: Seminar
1 Course Unit

AAMW 556 Becoming a Professional Archaeologist
This course (cross-listed as ANTH556) is designed to prepare graduate students for a career in academic archaeology. Topics to be covered include project research design (including logistical planning), acquiring funding (proposal writing), managing grants (including budget planning and reconciliation), publishing, and preparing for entering the job market (writing cover letters and CVs). Students are also encouraged to suggest further topics of interest as the semester goes on. The final project will be a close examination of a variety of case studies in the literature that critique methods during future research endeavors, both in the field and in the archaeological lab.
Taught by: Cobb
Prerequisite: Prior archaeological classwork and/or experience preferred
Activity: Lecture
1 Course Unit
Notes: Please note that this is a lecture course with an undergraduate and graduate section.

AAMW 557 Seminar in Archaeological Theory and Method: Archaeology of Landscapes
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 562 Introduction to Digital Archaeology
Digital methods allow archaeologists to approach research questions about the human past with increasing accuracies on larger datasets and at multiple scales. This class introduces students to the three main steps of digital archaeology: data management, analysis, and sharing. Data management involves the design, creation, and curation of digital objects that capture the archaeological process and evidence. Students will gain deep familiarity in working with the main types of digital archaeological data: structured data (relational databases), 3D models/spatial data, and raster images. The class will provide abundant hands-on experience with the latest equipment and software for working with many different kinds of data. We will learn about data analysis techniques through a close examination of a variety of case studies in the literature that demonstrate how other archaeologists have applied digital methods to their archaeological questions. Finally, we will discuss the importance of sharing data through open access data publication and we will apply our skills with structured data to existing online archaeological datasets.
The goal of this class is to prepare students to make methodological decisions during future research endeavors, both in the field and in the archaeological lab.

AAMW 561 Greek Epigraphy
An introduction to the principles and practices of Greek Epigraphy. Study of selected Greek inscriptions.
Taught by: McInerney
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 622 Art of Ancient Iran
This course offers a survey of ancient Iranian art and culture from the painted pottery cultures of the Neolithic era to the monuments of the Persian Empire. Particular emphasis is placed on the Early Bronze Age.
Taught by: Pittman
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 624 Art of Mesopotamia
A survey of the art of Mesopotamia from 4000 B.C. through the conquest of Alexander the Great.
Taught by: Pittman
Course not offered every year
Activity: Lecture
1 Course Unit
AAMW 625 Greek Art and Artifact
This course surveys Greek art and artifacts from Sicily to the Black Sea from the 10th century BCE to the 2nd century BCE, including the age of Alexander and the Hellenistic Kingdoms. Public sculpture and painting on and around grand buildings and gardens, domestic luxury arts of jewelry, cups and vases, mosaic floors, and cult artefacts are discussed. Also considered are the ways in which heroic epic, religious and political themes are used to engage viewer's emotions and served both domestic and the public aims. We discuss how art and space was considered, along with ideas of invention and progress, the role of monuments, makers and patrons in Greek society.
Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 626 Hellenistic and Roman Art and Artifacts
This course surveys the political, religious and domestic arts, patronage and display in Rome's Mediterranean, from the 2nd c. BCE to Constantine's 4th-c. Christianized empire. Our subjects are images and decorated objects in their cultural, political and socio-economic contexts (painting, mosaic, sculpture, luxury and mass-produced arts in many media). We start with the Hellenistic cosmopolitan culture of the Greek kingdoms and their neighbors, and late Etruscan and Republican Italy; next we map Imperial Roman art as developed around the capital city Rome, as well as in the provinces of the vast empire.
Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 631 Byzantine Art and Architecture
This course offers a wide-ranging introduction to the art, architecture, and material culture of Byzantium a Christian, predominantly Greek-speaking civilization that flourished in the Eastern Mediterranean for over a thousand years. Positioned between the Muslim East and the Latin West, Antiquity and the Early Modern era, Byzantium nurtured a vibrant and highly sophisticated artistic culture. With emphasis placed upon paradigmatic objects and monuments, we will examine an array of artistic media, from mosaic and panel painting to metalwork, ivory carving, book illumination, and embroidery. We will consider the making, consumption, and reception of Byzantine art in a variety of contexts political, devotional, ritual, and domestic. Topics include the idea of empire and its visual articulation; court culture, the veneration of images and relics; patronage, piety, and self-representation; authorship and artistic agency; materiality and the sensory experience of art; the reception of the pagan Greco-Roman past; and the changing nature of Byzantium's interactions with neighboring cultures.
Taught by: Drpic
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 632 Byzantine Art and Architecture
This course surveys the political, religious and domestic arts, patronage and display in Rome's Mediterranean, from the 2nd c. BCE to Constantine's 4th-c. Christianized empire. Our subjects are images and decorated objects in their cultural, political and socio-economic contexts (painting, mosaic, sculpture, luxury and mass-produced arts in many media). We start with the Hellenistic cosmopolitan culture of the Greek kingdoms and their neighbors, and late Etruscan and Republican Italy; next we map Imperial Roman art as developed around the capital city Rome, as well as in the provinces of the vast empire.
Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 633 Eastern Medieval Architecture
This lecture course examines major architectural developments in the eastern Mediterranean between the 4th and 14th centuries CE. The focus is on the Byzantine Empire, with its capital at Constantinople. Lectures also devoted to related developments in the Caucasus (Armenia and Georgia), early Russia, the Balkans (Bulgaria and Serbia), Sicily and under the Normans, the Crusader states. Parallel developments in early Islamic architecture are used for comparative purposes. The course examines evidence for religious and secular buildings, as well as urbanism and settlement patterns.
Taught by: Ousterhout
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 635 Introduction to Visual Culture of the Islamic World
A one-semester survey of Islamic art and architecture which examines visual culture as it functions within the larger sphere of Islamic culture in general. Particular attention will be given to relationships between visual culture and literature, using specific case studies, sites or objects which may be related to various branches of Islamic literature, including historical, didactic, philosophical writings, poetry and religious texts. All primary sources are available in English translation.
Taught by: Holod
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 640 Medieval Art
An introductory survey, this course investigates painting, sculpture, and the "minor arts" of the Middle Ages. Students will become familiar with selected major monuments of the Late Antique, Byzantine, Carolingian, Romanesque, and Gothic periods, as well as primary textual sources. Analysis of works emphasizes the cultural context, the thematic content, and the function of objects. Discussions focus especially on several key themes: the aesthetic status of art and the theological role of images; the revival of classical models and visual modes; social rituals such as pilgrimage and crusading; the cult of the Virgin and the status of women in art; and, more generally, the ideology of visual culture across the political and urban landscapes.
Course not offered every year
Activity: Lecture
1 Course Unit

AAMW 698 Prospectus Workshop
Designed to prepare graduates in any aspect of study in the ancient world to prepare for the dissertation prospectus. Course will be centered around individual presentations and group critique of prospectus' in process, as well the fundamentals of large-project research design and presentation.
Taught by: Bowes
Activity: Seminar
1 Course Unit
Notes: Graduate students in Classical Studies, Ancient History, and AAMW
AAMW 701 Proseminar In Methods in the History of Art
The meanings we ascribe to art works of any culture or time period are a direct result of our own preoccupations and methods. This colloquium will give both a broad overview of contemporary debates in the history of art—including such issues as technologies of vision, feminism, gender and sexuality studies, globalism, the pictorial turn or material/vision culture—and locate these methods within art history's own intellectual history, as well as the history of aesthetics. The course will consist of wide-ranging weekly readings and discussion, and also clarify such key terms as iconography, formalism, connoisseurship, and the Frankfurt and Vienna Schools.
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 702 Greek Sanctuaries
The formation and development of key religious sites, including Olympia, Delphi, Cyrene, Selinus, Cos and Lindos.
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 705 Ethnoarchaeology: Greece
Ethnoarchaeology involves distinctive theoretical and methodological approaches to the study of living societies for the explicit purpose of shedding light on archaeological questions. In this seminar, we will review the intellectual history of ethnoarchaeology in North America and Europe, and explore case studies from Greece, the wider Mediterranean, and beyond. Among the topics will be analogy, cross-cultural comparison, experimental archaeology, oral history research, and archaeologically oriented ethnographic fieldwork. Students will create a proposal for ethnoarchaeological fieldwork in their area of interest in NSF or Wenner-Gren format, to be critiqued by the instructor and their peers.
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 706 Archeology of the Hellenistic Period in Italy, Greece, and Asia Minor
A survey of the archaeology of the Hellenistic period (331-31 BCE) across the Mediterranean, with a focus on Rome, Magna Graecia, Greece, and western Asia Minor. The course will stress the interactions among cities and kingdoms during the Roman Republic and Greek Hellenistic periods, especially the second century B.C. Students will work with relevant objects in the Penn Museum's Mediterranean Section.
Taught by: Rose
Course not offered every year
Activity: Seminar
1 Course Unit

AAMW 715 Archaeology of Troy
An introduction to the archaeology of Troy, in northwestern Turkey. The course will focus on the results of excavations at the site in 1988, although the earlier excavations of Schliemann, Dorpfeld, and Blegen will also be considered. The course will cover a broad chronological span—from the early Bronze age through the late Roman period, and will include Greek, Roman, and Medieval attitudes toward Troy and the Trojan legend.
Taught by: Rose
Course not offered every year
Activity: Seminar
1 Course Unit
AAMW 732 Topics in Byzantine Art and Architecture  
Topic varies. Spring 2018: The recent "return" to the object across the humanities and social sciences has brought to the fore concerns with the nature of material things, their operation in the world, and their entanglement with humans. This seminar will introduce you to some of the key theoretical writings on the object and material culture and will ask you to interrogate their relevance for the discipline of art history. Our focus will be on the Middle Ages, but depending on the specific interests of the seminar's participants, we may venture into other historical periods and cultural domains. Topics to be addressed include the social life of things; agency; materiality; the relic; the gift; the miniature; and the question of the human/nonhuman divide. Taught by: Drpic  
Course not offered every year  
Activity: Seminar  
1 Course Unit

AAMW 737 Islamic Architecture  
This seminar will address the problems of studying architecture in the Islamic world. Considered will be issues of architectural design, regional and trans-regional constructional traditions, structural know-how and innovation, patronage and use. The examples discussed will be mainly religious and social service complexes. Attention will be paid to the manner of transmission of architectural design knowledge and constructional skill. Taught by: Holod  
Activity: Seminar  
1 Course Unit

AAMW 738 Topics in Islamic Archaeology  
Topic varies. Spring 2017: This seminar will trace the development of the field from one that was centered largely on the recovery of major monuments to one in which issues of daily life, demography, chronology and the study of settlement patterns have come to play a major role. The seminar will review work in the major zones of the Islamic world: Central Asia, Iran, Iraq, Anatolia, Syria, Palestine, Egypt, North Africa I (Libya-Tunisia), North Africa II (Algeria-Morocco), Spain. Of special interest this semester will be the study of landscape archaeology and settlement patterns. The seminar will discuss changes in patterns of settlement, trade and material culture 650 - 1300 CE in different areas of the Islamic world, concentrating on sites in Iran, Syria and North Africa. Taught by: Holod  
Course not offered every year  
Activity: Seminar  
1 Course Unit

AAMW 740 Topics in Medieval Art  
Topic varies. Spring 2015: Among the functional genres shaping religious imagery in the Middle Ages and Renaissance, the altarpiece is arguably the most important, and many of the most famous panel paintings that hang today in museums originated as components of altarpieces. The altarpiece in the Latin church bridged the divide between clergy and laypeople, between cult and devotion, between public acclaim and private interests. Such altarpieces developed into extraordinarily dynamic vehicles for staging the religious image, akin to mural painting (in its potential for narrative elaboration), and manuscript illumination (in its potential for interchanging and juxtaposing imagery). As an umbrella for diverse research projects in both medieval and Renaissance art, this seminar affords an overview of the origins, development and articulation of the altarpiece as a functional and pictorial genre in European art, on both sides of the Alps. It also seeks to provide students with the materials and practical training--technical, scholarly, interpretative--required to study altarpieces as visual, narrative, and material totalities. Taught by: Holod  
Course not offered every year  
Activity: Seminar  
1 Course Unit

AAMW 751 Participation in Archaeological Excavations  
Opportunities for qualified students to join in current expeditions. Credit allowed will depend on the length of time spent in the field. Course usually offered summer term only  
Activity: Independent Study  
1 Course Unit

AAMW 800 Pedagogy  
Activity: Independent Study  
1 Course Unit

AAMW 999 Independent Study  
One-term course offered either term  
Activity: Independent Study  
1 Course Unit  
Notes: May be repeated for credit
ART HISTORY (ARTH)

ARTH 008 Contemporary Museum Practice
This course introduces students to key issues in art museum practice. Students will meet with active and innovative members of the contemporary art world, at the Institute of Contemporary Art, Philadelphia, and off-campus.
Taught by: Shaw
Course not offered every year
Activity: Seminar
0.5 Course Units

ARTH 100 Freshman Seminar
Topic varies. Fall 2018: As life in the nineteenth century sped up, so did the century’s art. Painting in “fifteen minutes,” as the critic Jules Laforgue described Impressionism in 1883, characterized a novel kind of picture built of hectic, freewheeling signs. Impressionism thus chronicled the profound cultural shifts of its era; its blurs and unfinished appearance made movement and a particularly modern sense of time and vision its chief subjects. This seminar seeks to understand these developments by establishing an account of Impressionism that fits our current global, multimedia and multidisciplinary forms of humanistic thought. To this end, we will read those recent scholars who place Impressionism within new contexts that include the history of science and technology (visual perception, psychology, evolution, chemistry), political history and theory (republicanism, revolution, empire, nationalism), and consumer culture (fashion, capitalism), among others. This course will of course also survey the movement’s major contexts and proponents-Manet, Monet, Degas, Morisot, Cezanne, Gauguin, Van Gogh, Rodin-from its origins in the 1860s to its demise in the 1890s, as well as its subsequent adaptations throughout the world until World War I.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For Freshmen Only

ARTH 101 Prehistory to Renaissance: Introduction to Western Art from its Beginning to 1400
This is a double introduction: to looking at the visual arts; and, to the ancient and medieval cities and empires of three continents - ancient Egypt, the Middle East and Iran, the Minoan and Mycenaean Bronze Age, the Greek and Roman Mediterranean, and the early Islamic, early Byzantine and western Medieval world. Using images, contemporary texts, and art in our city, we examine the changing forms of art, architecture and landscape architecture, and the roles of visual culture for political, social and religious activity.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ARTH 102 Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present
This course is an introduction to the visual arts including painting, sculpture, print culture, and new media such as photography, film, performance and installation art in Europe and the United States from 1400 to the present. It offers a broad historical overview of the key movements and artists of the period, as well as an investigation into the crucial themes and contexts that mark visual art production after the middle ages. Such themes include the secularization of art; the (gendered) role of the artist in society; the sites of art production and consumption such as the artist’s studio, the royal courts and the art exhibition; the materials of art; the import of technology and science to art’s making, content and distribution; the rise of art criticism; and the socio-political contexts of patronage and audience; among others.
For BA Students: Arts and Letters Sector
Taught by: Dombrowski, Kim, Shaw
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Fulfills Cross-Cultural Analysis Requirement; Fulfills Sector III, Arts and Letters Requirement

ARTH 103 Art and Civilization in East Asia
Introduction to major artistic traditions of China and Japan and to the methodological practices of art history. Attention given to key cultural concepts and ways of looking, in such topics as: concepts of the afterlife and its representation; Buddhist arts and iconography; painting styles and subjects; and more broadly at the transmission of styles and cultural practices across East Asia. Serves as an introduction to upper level lecture courses in East Asian art history cultures. If size of class permits, certain sessions will be held in the Penn Museum or the Philadelphia Museum of Art.
For BA Students: Arts and Letters Sector
Taught by: Davis, Steinhardt
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 104 Introduction to Art in South Asia
This course is a survey of sculpture, painting and architecture in the Indian sub-continent from 2300 B.C., touching on the present. It attempts to explore the role of tradition in the broader history of art in India, but not to see India as ‘traditional’ or unchanging. The Indian sub-continent is the source for multi-cultural civilizations that have lasted and evolved for several thousand years. Its art is as rich and complex as that of Europe and diverse. This course introduces the full range of artistic production in India in relation to the multiple strands that have made the cultural fabric of the sub-continent so rich and long lasting.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit
ARTh 106 Architect and History
Human experience is shaped by the built environment. This course introduces students to the interrelated fields of architecture, art history, and engineering and explores great architectural monuments from the ancient to the modern period, from India across the Mediterranean and Europe to the US. The focus will be on understanding these works in their structure and function, both as products of individual ingenuity and reflections of Zeitgeist. Questioning these monuments from a present-day perspective across the cultures will be an important ingredient, as will be podium discussions, guest lectures, excursions, and all kinds of visualizations, from digital walk-throughs to practical design exercises. Regularly taught in fall term, this course fulfills Sector IV, Humanities and Social Science, and it satisfies History of Art 100-level course requirements.

For BA Students: Humanities and Social Science S
Taught by: Zarmakoupi
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ARTh 212 Cities and Temples in Ancient India
The wooden architecture of ancient India's cities is represented in relief carvings from Buddhist religious monuments of the early centuries A.D. and replicated in remarkable excavated cave cathedrals. This course will trace that architectural tradition, its transformation into a symbolic vocabulary for a new structure, the Hindu temple, and the development of the temple in India from ca. 500-1500 A.D.

Taught by: Meister
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 213 Arts of Japan
This course introduces the major artistic traditions of Japan, from the Neolithic period to the present, and teaches the fundamental methods of the discipline of art history. Special attention will be given to the places of Shinto, the impact of Buddhism; and their related architectures and sculptures; the principles of narrative illustration; the changing roles of aristocratic, monastic, shogunal and merchant patronage; the formation of the concept of the artist over time; and the transformation of tradition in the modern age.

Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 214 Arts of China
The goals of this course are to introduce the major artistic traditions of China, from the Neolithic period to the present and to teach the fundamental methods of the discipline of art history. Our approaches will be chronological, considering how the arts developed in and through history, and thematic, discussing how art and architecture were used for philosophical, religious and material ends. Topics of study will include: Shang bronzes: Han concepts of the afterlife; the impact of Buddhism; patronage and painting; the landscape tradition; the concept of the literatus: architecture and garden design; the "modern" and 20th-century artistic practices; among others.

Taught by: Steinhardt, Davis
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 217 Chinese Painting
Study of Chinese painting and practice from the earliest pictorial representation through the late twentieth century. Painting style forms the basis of analysis, and themes such as landscape and narrative are considered with regard to larger social and cultural issues. The class pays particular attention to the construction of the concepts of the "artist" and "art criticism" and their impact on the field into the present. Visits to look at paintings at the University of Pennsylvania Museum, PMA and/or local collections.

Taught by: Steinhardt
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Also fulfills General Requirement in History Tradition for Class of 2009 and prior

ARTh 222 Art of Ancient Iran
This course offers a survey of ancient Iranian art and culture from the painted pottery cultures of the Neolithic era to the monuments of the Persian Empire. Particular emphasis is placed on the Early Bronze Age.

Taught by: Pittman
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 224 Art of Mesopotamia
A survey of the art of Mesopotamia from 4000 B.C. through the conquest of Alexander the Great.

Taught by: Pittman
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 225 Greek Art and Artifact
This course surveys Greek art and artifacts from Sicily to the Black Sea from the 10th century BCE to the 2nd century BCE, including the age of Alexander and the Hellenistic Kingdoms. Public sculpture and painting on and around grand buildings and gardens, domestic luxury arts of jewelry, cups and vases, mosaic floors, and cult artefacts are discussed. Also considered are the ways in which heroic epic, religious and political themes are used to engaged viewer's emotions and served both domestic and the public aims. We discuss how art and space was considered, along with ideas of invention and progress, the role of monuments, makers and patrons in Greek society.

Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 226 Hellenistic and Roman Art and Artifacts
This course surveys the political, religious and domestic arts, patronage and display in Rome's Mediterranean, from the 2nd c. BCE to Constantine's 4th-c. Christianized empire. Our subjects are images and decorated objects in their cultural, political and socio-economic contexts (painting, mosaic, sculpture, luxury and mass-produced arts in many media). We start with the Hellenistic cosmopolitan culture of the Greek kingdoms and their neighbors, and late Etruscan and Republican Italy; next we map Imperial Roman art as developed around the capital city Rome, as well as in the provinces of the vast empire.

Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

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ARTh 232 Byzantine Art and Architecture
This course offers a wide-ranging introduction to the art, architecture, and material culture of Byzantium-a Christian, predominantly Greek-speaking civilization that flourished in the Eastern Mediterranean for over a thousand years. Positioned between the Muslim East and the Latin West, Antiquity and the Early Modern era, Byzantium nurtured a vibrant and highly sophisticated artistic culture. With emphasis placed upon paradigmatic objects and monuments, we will examine an array of artistic media, from mosaic and panel painting to metalwork, ivory carving, book illumination, and embroidery. We will consider the making, consumption, and reception of Byzantine art in a variety of contexts political, devotional, ritual, and domestic. Topics include the idea of empire and its visual articulation; court culture; the veneration of images and relics; patronage, piety, and self-representation; authorship and artistic agency; materiality and the sensory experience of art; the reception of the pagan Greco-Roman past; and the changing nature of Byzantium’s interactions with neighboring cultures.
Taught by: Drpic
One-term course offered either term
Activity: Lecture
1 Course Unit

ARTh 233 Eastern Medieval Architecture
This lecture course examines major architectural developments in the eastern Mediterranean between the 4th and 14th centuries CE. The focus is on the Byzantine Empire, with its capital at Constantinople. Lectures also devoted to related developments in the Caucasus (Armenia and Georgia), early Russia, the Balkans (Bulgaria and Serbia), Sicily and under the Normans, the Crusader states. Parallel developments in early Islamic architecture are used for comparative purposes. The course examines evidence for religious and secular buildings, as well as urbanism and settlement patterns.
Taught by: Ousterhout
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 235 Introduction to Visual Culture of the Islamic World
A one-semester survey of Islamic art and architecture which examines visual culture as it functions within the larger sphere of Islamic culture in general. Particular attention will be given to relationships between visual culture and literature, using specific case studies, sites or objects which may be related to various branches of Islamic literature, including historical, didactic, philosophical writings, poetry and religious texts. All primary sources are available in English translation.
For BA Students: Humanities and Social Science S
Taught by: Holod
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 240 Medieval Art
An introductory survey, this course investigates architecture, painting, sculpture, and the "minor arts" of the Middle Ages. Students become familiar with selected major monuments of the Romanesque and Gothic periods, primarily in Western Europe as well as relevant sites around the Mediterranean. Analysis of works emphasizes the cultural context, the thematic content, and the function of objects and monuments. Discussions focus especially on several key themes: the role of luxury in the medieval west; the theological role of images; the revival of classical models and visual modes; social rituals such as pilgrimage and crusading; the cult of the Virgin and the status of women in art; and, more generally, the ideology of visual culture across the political and urban landscapes.
Taught by: Guerin
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 245 Gothic Architecture: Gold and Stone
Key monuments of the Middle Ages, the Gothic cathedrals of Western Europe present a synthesis of the theological, economic, and social developments of the twelfth through fourteenth centuries. A harmonious marriage between technology and aesthetics, of political power and imagination, these immense and ingenious structures are as famous for their sculptural programs as they are for the liturgies that animated their spaces. Students will also be introduced to local uses of Gothic in Philadelphia architecture to better understand the lived experiences of these built manifestations of transcendence.
Taught by: Guerin
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 250 Michelangelo and the Art of the Italian Renaissance
An introduction to the work of the Renaissance artist Michelangelo (1475-1564) and his sculptures, paintings, architecture, poetry, and artistic theory in relation to his patrons, predecessors, and contemporaries, above all Leonardo and Raphael. Topics include artistic creativity and license, religious devotion, the revival of antiquity, observation of nature, art as problem-solving, the public reception and function of artworks, debates about style, artistic rivalry, and traveling artists. Rather than taking the form of a survey, this course selects works as paradigmatic case studies, and will analyze contemporary attitudes toward art of this period through study of primary sources.
Taught by: Kim
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 254 Global Renaissance and Baroque
An introduction to transcultural encounters within and beyond early modern Europe, 1450-1600. Topics include: the theory and historiography of global art; artistic relations between Venice, the Byzantine and Ottoman Empires, and islands in the Eastern Mediterranean; Portugal’s overseas mercantile network in Africa and Asia; and the Baroque in Latin America, with emphasis upon Brazil. Our discussions focus on these paradigmatic case studies so as to question the language and terms we use to characterize confrontations between native and foreign, the self and the other.
Taught by: Kim
Course not offered every year
Activity: Lecture
1 Course Unit
ARTH 258 Early Modern Japanese Art and the City of Edo
Study of the major art forms and architecture of Tokugawa (or Edo) period (1603-1868). In this course, we will consider how the arts of this era occur within an increasingly urban and modern culture, particularly with regard to the city of Edo. Issues of the articulation of authority in the built environment, the reinvention of classical styles, and patronage will be raised. May include some visits to PMA, Penn Museum, or other local collections.
Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 261 Northern Renaissance Art
Survey of the principal developments in Northern Europe during the "early modern" period, i.e. the transition from medieval to modern art-making during the fifteenth and sixteenth centuries. Principal attention to painting and graphics with additional consideration of developments in sculpture, particularly in the regions of the Netherlands and German-speaking Europe. Attention focused on the works of the following artists: Van Eyck, Bosch, Durer, Holbein, Bruegel, and on topics such as the rise of pictorial genres, urban art markets, Reformation art and art for the dynastic courts of emerging nation-states.
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 262 Netherlandish Art
Dutch and Flemish painting in the 15th and 16th centuries with special emphasis on the contributions of Robert Campin, Jan van Eyck and Roger van der Weyden, Bosch, and Bruegel. Also included are topics on the development of prints as well as the dialogue with Italian art.
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 267 Latin American Art
The numerous traditions of Latin American art have been formed from the historical confluence of Indigenous, European, African, and Asian cultural traditions, each one impacting the others. This course serves as an introduction to these hybrid New World art forms and movements by both providing a large chronological sweep (1492-present) and focusing on several specific countries, including Brazil, Mexico, Cuba, Peru, and Argentina.
Taught by: Shaw, Kim
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 270 The Modern City
A study of the European and American city in the eighteenth, nineteenth, and twentieth centuries. Emphasis is placed on the history of architecture and urban design; political, sociological, and economic factors also receive attention. The class considers the development of London, St. Petersburg, Washington, Boston, Paris, Vienna and Philadelphia.
Taught by: Brownlee, D.
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 271 Modern Architecture, 1700-1900
The history of western architecture, ca. 1700-1900, when architecture was transformed to serve a world that had been reshaped by political and industrial revolutions. Topics to be considered include the Rococo, the English Garden, Palladianism, Romanticism, neo-classicism, the picturesque, the Greek and Gothic Revivals, and the search for a new style.
Taught by: Brownlee, D.
One-term course offered either term
Activity: Lecture
1 Course Unit

ARTH 274 Facing America
This course explores the visual history of race in the United States as both self-fashioning and cultural mythology by examining the ways that conceptions of Native American, Latino, and Asian identity, alongside ideas of Blackness and Whiteness, have combined to create the various cultural ideologies of class, gender, and sexuality that remain evident in historical visual and material culture. We also investigate the ways that these creations have subsequently helped to launch new visual entertainments, including museum spectacles, blackface minstrelsy, and early film, from the colonial period through the 1940s.
Taught by: Shaw
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Satisfies Cultural Diversity in the U.S. requirement.

ARTH 276 Impressionism
Impressionism opened the pictorial field to light, perception, science, modernity, bourgeoisie leisure and famously the material qualities of paint itself. This course will survey the movement’s major contexts and proponents—Manet, Monet, Morisot, Cezanne, Gauguin, Van Gogh, Rodin—from its origins in the 1860’s to its demise in the 1890’s, as well as its subsequent adaptations throughout the world until World War I. Particular attention is paid to the artists’ critical reception and the historical conditions which allowed one nation, France, to claim the emergence of early Modernism so firmly for itself. The course also analyzes the effects of the rapidly changing social and cultural fabric of Paris, and its affects on artistic developments. We also look outside of France’s borders to Germany and Britain.
Taught by: Dombrowski
One-term course offered either term
Activity: Lecture
1 Course Unit
ARTH 277 The Rise of Modernity: Arts of the 19th Century
The nineteenth century is often considered as fast-paced, politically volatile and new-media obsessed as our own age. This course explores the nineteenth century’s claim to have produced the first truly modern culture, focusing on the visual arts and metropolitan spaces of Europe and North America in their intellectual and social contexts. Stretching from the American and French Revolutions to the eve of World War I, topics to be covered include: the rise of capitalist and industrialist culture, art and revolutionary upheaval, global travel and empire, the origins of modernist art and architecture, and new media such as stereoscopes, iron and glass construction, and photography. Major artistic personalities of the age, from Jacques-Louis David and Gustave Courbet to Claude Monet and Vincent Van Gogh, and from Friedrich Schinkel and, Baron Haussmann to Frank Furness and Frank Lloyd Wright, are discussed. Each lecture will be followed by a brief period of discussion, and regular field trips take students to examine art and architecture first hand, in the museums and on the streets of Philadelphia.
Taught by: Brownlee, Dombrowski
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 278 American Art
This course surveys the most important and interesting art produced in the United States (or by American artists living abroad) up through the 1950s. This period encompasses the history of both early and modern art in the U.S., from its first appearances to its rise to prominence and institutionalization. While tracking this history, the course examines art’s relation to historical processes of modernization (industrialization, the development of transportation and communications, the spread of corporate organization in business, urbanization, technological development, the rise of mass media and mass markets, etc.) and to the economic polarization, social fragmentation, political conflict, and the cultural changes these developments entailed. In these circumstances, art is drawn simultaneously toward truth and fraud, realism and artifice, science and spirituality, commodification and ephemerality, nationalism and cosmopolitanism, individualism and collectivity, the past and the future, professionalism and popularity, celebrating modern life and criticizing it.
Taught by: Leja, Shaw
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Satisfies Cultural Diversity in the U.S. requirement.

ARTH 281 Modern Architecture, 1900-Present
The architecture of Europe and America from the late nineteenth century until the present is the central subject of this course, but some time is also devoted to Latin American and Asian architecture and to the important issues of modern city planning. Topics discussed include the Arts and Crafts movement, Art Nouveau, Expressionism, Art Deco, the International Style, and Post-modernism. The debate over the role of technology in modern life and art, the search for a universal language of architectural communication, and the insistent demand that architecture serve human society are themes that are traced throughout the course. Among the important figures to be considered are Frank Lloyd Wright, Walter Gropius, Le Corbusier, Louis Kahn, Robert Venturi, and Denise Scott Brown. The course includes weekly discussion sessions and several excursions to view architecture in Philadelphia.
Taught by: Brownlee
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Fulfills Cross-Cultural Analysis Requirement

ARTH 286 Modern Art: Picasso to Pollock
Early twentieth-century art in Europe is marked by a number of exciting transformations. This period witnessed the rise of abstraction in painting and sculpture, as well as the inventions of collage, photomontage, constructed sculpture, the ready made and found object, and performance art. Encounters with the arts of Africa, Oceania and other traditions unfamiliar in the West spurred innovations in media, technique, and subject matter. Artists began to respond to the challenge of photography, to organize themselves into movements, and in some cases, to challenge the norms of art through “anti-art.” A new gallery system replaced traditional forms of exhibiting and selling art, and artists took on new roles as publicists, manifesto writers, and exhibition organizers. This course examines these developments, with attention to formal innovations as well as cultural and political contexts.
One-term course offered either term
Activity: Lecture
1 Course Unit

ARTH 290 Post War Japanese Cinema
Mizoguchi Kenji, Ozu Yasujiro, and Kurosawa Akira are recognized today as three of the most important and influential directors in Japanese cinema. In their films of the late 1940s and 1950s, these directors focused upon issues surrounding the human condition and the perception of truth, history, beauty, death, and other issues of the postwar period. This course places their films in period context, and pays particular attention to the connections to other visual media, and to how “art” and “history” are being defined in the cinematic context. How other directors also took up these issues, and referred to the “big three” is also be discussed.
Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit
ARTh 292 Topics in Digital/New Media
Topic varies. Spring 2015: Documents are written texts, evidence, inscriptions, and much more. Documentary films have been used to tell stories, share experiences, spread propaganda, resist exploitation, invoke memories, and much more. How can we think of information and meaning in relation to the shared histories of document and documentary? Database management systems based on digital technologies have technically transformed ways of classifying, storing, and aggregating data, but have they really changed our experiences of mediating with our past, present, and future? Issues of agency, memory, representation, performativity, interactivity, and posthumanism are entangled in discussions of databases and archives and our engagement with them. In this course we will relate and juxtapose readings connecting documents, documentaries, and archives. We will read media and cultural theorists such as Lisa Gitelman, Akira Lippit, and Wendy Chun alongside novelists like Franz Kafka and Ismail Kadare. Assignments include one assigned/selected report from field visits to libraries and museums, one reading presentation and blogging assignment, and a final paper or practice-based art project.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 293 Topics in Cultural Studies
This topic course explores aspects of Film Cultural Studies intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Beckman, Corrigan
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 294 Art Now
One of the most striking features of today's art world is the conspicuous place occupied in it by the photographic image. Large-scale color photographs and time-based installations in projections are everywhere. Looking back, we can see that much of the art making of the past 60 years has also been defined by this medium, regardless of the form it takes. Photographic images have inspired countless paintings, appeared in combines and installations, morphed into sculptures, drawings and performances, and served both as the object and the vehicle of institutional critique. They are also an increasingly important exhibition site: where most of us go to see earthworks, happenings and body-art. This course is a three-part exploration of our photographic present.
Taught by: Silverman
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ARTh 295 Cinema and Media
This course will provide an introduction to some of the most important film theory debates, and allow us to explore how writers and filmmakers from different countries and historical periods have attempted to make sense of the changing phenomenon known as "cinema," to think cinematically. Topics under consideration may include: spectatorship, authorship, the apparatus, sound, editing, realism, race, gender and sexuality, stardom, the culture industry, the nation and decolonization, what counts as film theory and what counts as cinema, and the challenges of considering film theory in a global context, including the challenge of working across languages. There will be a weekly film screening for this course. No knowledge of film theory is presumed.
Course requirements: attendance at lecture and participation in lecture and section discussions; canvas postings; 1 in-class mid-term; 1 final project.
Taught by: Redrobe
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 296 Contemporary Art
Many people experience the art of our time as bewildering, shocking, too ordinary (my kid could do that), too intellectual (elitist), or simply not as art. Yet what makes this art engaging is that it raises the question of what art is or can be, employs a range of new materials and technologies, and addresses previously excluded audiences. It invades non-art spaces, blurs the boundaries between text and image, document and performance, asks questions about institutional frames (the museum, gallery, and art journal), and generates new forms of criticism. Much of the "canon" of what counts as important is still in flux, especially for the last twenty years. And the stage is no longer centered only on the United States and Europe, but is becoming increasingly global. The course will introduce students to the major movements and artists of the post-war period, with emphasis on social and historical context, critical debates, new media, and the changing role of the spectator/participant.
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 300 Undergraduate Methods Seminar
Topic varies. This course, required for history of art majors, acquaints students with a wide variety of historical and contemporary approaches to studying art, architecture, material culture, and visual culture.
Activity: Seminar
1 Course Unit

ARTh 303 Introduction to Museums
This course introduces students to the history, theory and modern practice of museums. Using the resources of the Penn Museum, the course discusses curatorial practice, education, exhibition design and conservation, while exploring the theoretical and ethical issues confronted by museums. Particularly relevant for those interested in archaeology, anthropology, art history, cultural heritage and public education.
One-term course offered either term
Activity: Seminar
1 Course Unit
ARTH 305 Spiegel-Wilks Seminar
Fall 2018: Susan Sontag once remarked that "We no longer study the art of dying...but all eyes, at rest, contain that knowledge. The body knows. And the camera shows, inexorably" This Spiegel-Wilks Curatorial Seminar explores the invention of photography and the proliferation of techniques and processes of representing the body in the 1800s. Offered in collaboration with the Barnes Foundation, and co-taught with Executive Director and President Thom Collins, the course will pay particular attention to the relation between photography, science and medicine, and new modes of representing life and death. In addition to being introduced to the history of photography, students will learn about the curatorial process and contribute to a forthcoming exhibition at the Barnes Foundation, where the course will meet weekly. Students will have the opportunity to interact with curators and scholars at the museum, and also engage Penn Medicine faculty who are pioneering new ways of imaging the body. Our discussions will build upon seminal texts by Roland Barthes, Geoffrey Batchen, Jonathan Crary, Kaja Silverman, Susan Sontag, and others. As part of the course, students will also conduct research and contribute curatorial writing for the exhibition.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 311 Topics in Indian Art
Topic varies.
Taught by: Meister
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 313 Topics in East Asian Art
Topic varies.
Taught by: Davis
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 315 Topics in Japanese Art
Spring 2018: This course will focus on Japanese woodblock prints, printed books, and paintings from the seventeenth through the mid-nineteenth century in the genre of ukiyo-e. Among questions we will consider are: How did Ukiyo-e or the pictures of the floating world emerge as a genre and what was at stake for its makers and consumers? What are new approaches that we can use for the field? Topics will include themes shown in prints (celebrity actors and courtesans, the landscape and others), specific artists and their works. We will study original works held in the Kislak Collection and the Philadelphia Museum of Art, as well as other local collections as available, and we will work with emerging digital humanities tools for individual and group projects.
Taught by: Davis
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 318 Topics in African Art
Topic varies. Spring 2017: The dynamic, multi-media character of African art makes it particularly compelling as part of new art historical methodologies. Digital media—photographs, music, video, global mapping systems and 3-D printing—is reshaping understandings of African art history. This seminar critically explores how African art history has been taking shape through digital means, particularly online among professional arts institutions and as employed by contemporary African and African diasporic artists. As we consider how the digital world is shaping African art history we will encounter important issues in regards to ethics, cultural studies, performance theory, race, gender and global definitions of modernity. We will cover a very broad geography and time scale in this course in order to consider different movements of African art through the lens of the digital humanities. Students should bring a laptop to class as we work with WordPress to create web-based galleries, timelines and related critical writing.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 323 Origins of Art / Origins of Writing
Each of the earliest systems of writing had intimate and enduring ties to pictorial traditions. This seminar addresses the fundamental relationship between texts and visual imagery in the Mesopotamian, Egyptian, Chinese, and Maya traditions. The class will take a comparative approach to examine the parallel development of scripts and images, extending from their earliest beginnings to their on-going lives as mature systems. As the individual scripts became more capable of representing speech, the subject matter, composition, and function of images changed, and one goal of this class is to identify these processes. Emphasis will be put on seeing text and image as collaborative and interactive constructions, in which parts of a single message can be encoded and presented in different ways. The class will make extensive use of the collections and the curatorial expertise of the Penn Museum.
Taught by: Pittman
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 325 Topics in Greco-Roman Art
Topic varies. Fall 2017: The dwelling place – house, apartment, villa, palace - was central to Roman understanding of self and society. The domus was a major site of artifice - architecture, landscape architecture, fine objects, statuary and paintings. The very structure was often decorated with wall-paintings, stuccowork, or mosaics, like those which survive from sites like Pompeii and Antioch. Even modest establishments might aim to impress with a mythological painting or two: opening house to visitors was fundamental to social structures, business and politics. This course looks at Roman dwellings in city and country, and explores their arts in cultural and socio-political contexts. Besides evidence of archaeology, we can use the wealth of Roman texts about the arts of living. Since the Renaissance, graphic media have responded to interest in Roman house sites and their art; we consider how new tools of virtual reconstruction affect understanding of the Roman domus and villa, and the roles museums (like our own), exhibitions and curated sites still play in that understanding.
Taught by: Kuttner
Course not offered every year
Activity: Seminar
1 Course Unit
ARTh 332 Topics in Byzantine Art
Topic varies. Fall 2017: This undergraduate seminar explores the Byzantine icon and its legacy. Spanning nearly two millennia, from the emergence of Christian sacred portraiture to the reception of icon painting by the early twentieth-century Russian avant-garde, the seminar will introduce you to the history, historiography, and theories of the icon. While our focus will be on Byzantium and the wider world of Orthodox Christianity, especially in the Slavic Balkans and Eastern Europe, the seminar will also engage with fundamental questions concerning the nature, status, and agency of images across cultures. Topics to be addressed include iconoclasm and the problem of idolatry, the social and ritual lives of icons; authorship, originality, and replication; viewer response and the cultural construction of vision; the frontier between art and the sacred image; and the afterlife of the icon in modernity.
Taught by: Ousterhout, Drpic
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 340 Topics in Medieval Art
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 343 Topics in Medieval Renaissance Art
Fall 2018: This course is designed to introduce students of both the digital humanities and manuscript studies to the concepts and realities of working with medieval manuscripts in the twenty-first century. Through the course, students and faculty will examine materials from the collections of the Kislak Center for Special Collections, Rare Books, and Manuscripts, as well as digitized versions of those materials and others. Students in the course will consider four issues relating to using medieval manuscripts in a digital world. The first issue is theoretical, considering the relationship between medieval manuscripts and their digital counterparts, and questioning the notion of digital surrogacy. What does digital surrogacy mean and how might it affect our consideration of the physical objects represented through the surrogate? The second issue is the practical one of imbuing best practices when creating digital assets out of medieval manuscripts. If we are to digitize manuscripts, how can we ensure that those digital versions are the best they can be? And again: what does that mean? The third issue concerns the present landscape for digital medieval manuscripts (and medieval studies more generally), including current publication technologies and the place of Open Data. The fourth issue is that of building resources with and for digitized medieval manuscripts. What tools are available to enable us to create something new?
Taught by: Herman, Noel, Porter
Activity: Seminar
1 Course Unit

ARTh 351 Topics in Early Modern Art Theory
Topic varies. Spring 2016: What does it mean to write about art? What are the historical origins of this undertaking? How does language mediate the intellectual, somatic, and cultural rapport between the viewing self and the physical object? As an initial response to these questions we will examine the writings of the Tuscan artist and critic Giorgio Vasari (1511-1574), the biographer of such renowned artists as Leonardo, Raphael, Donatello, and Michelangelo. In addition to considering works of art described in Vasari’s accounts, we will pay close attention to his language and its relationship with other types of writing: saints lives, chronicles, legends, guidebooks, anecdotes, jokes, gossip, and sermons. Issues to be explored include: the process of craft and handwork, notions of genius and inspiration, and the relationship between the visual arts and natural environment.
Taught by: Kim
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 362 Topics in Northern Baroque
Topic varies. Spring 2016: Undergraduate seminar focusing on all aspects of the life and works of Rembrandt van Rijn (1606-1669). Students will produce a research paper on any aspect of the artist’s life and times, and course sessions will explore self-portraits, artistic development, specific painting types (figure studies, landscapes, portraits), case study individual works (the Paris Bathsheba and the Philadelphia Museum Head of Christ), mythologies, religious works, and the etchings of Rembrandt. Weekly discussions–one short analysis paper in addition to the term research paper.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 375 Topics in 19th Century Art
Topic varies. Spring 2016: This seminar will place Edouard Manet’s influential paintings within the context of modern Paris, the French Empire and the city’s increasingly global reputation in the late 19th century. We will study the most prominent Parisian sites associated with the rise of modernity as well as the global reach of the "myth" of modern Paris throughout the world, in Japan, the U.S., Latin America, the Middle East, among other destinations. The Eiffel Tower, shopping arcades, department stores (like the Bon Marche), boulevards, sewers, catacombs and world’s fair grounds (including their artistic and popular representations) will be analyzed, as well as their global reception. We will study paintings by Manet, Monet and others, in order to get a better understanding of why the city of Paris is often named the birthplace of modernist art. Students are expected to have at least some background in art history, visual studies and French.
Taught by: Dombrowski
Activity: Seminar
1 Course Unit

ARTh 381 Topics in 20th Century Architecture
Topic varies.
Taught by: Brownlee, D.
Course not offered every year
Activity: Seminar
1 Course Unit
ARTh 384 Cuban Visual Culture
This course will focus on the urban history and cultural politics of contemporary Cuba with an emphasis on contemporary art and contemporary developments in the city of Havana. Students will learn about the Spanish influence on early colonial art, the development of formal academic art training and the changes to art instruction and the form and content of art created since the Revolution. The on-campus dates are May 21-June 1 and June 18-27. Taught by: Shaw, Schmenner. Course not offered every year. Activity: Seminar. 1 Course Unit.

ARTh 386 Topics in 20th Century Art
Topic Varies. Spring 2018: In 1913, Marcel Duchamp posed a nebulous question central to much of the art of the twentieth century. As a young painter in Paris, he wrote in a private note: "Is it possible to make works that are not of art?" What are the possibilities of making in a modern world that has alienated labor from its products and commodified the work of art? What is the artist's role amidst forces of rapid industrialization, mechanization, and automation? Duchamp would continuously explore these questions in a career that stretched into the 1960s, pushing painting, sculpture, and film in new directions through the use of objects not traditionally associated with art-a porcelain urinal, a collection of settled dust, a tuft of human hair. This course examines issues of materiality and media in Duchamp's art and in modernism more broadly. Meetings will include visits to the Duchamp collection at the Philadelphia Museum of Art. Readings will draw from art history, literature, and social and political theory. Course not offered every year. Activity: Seminar. 1 Course Unit.

ARTh 388 Topics in Modern and Contemporary Art
Topic varies. Spring 2019: The end of the last century saw a shift in the way contemporary artistic practice was conceived. This class will consider the work and writings of key artists and thinkers of the last 50 years who have tackled issues of race, class, consumption, marginality, nationality, and modernism. Taught by: Shaw. Course not offered every year. Activity: Seminar. 1 Course Unit.

ARTh 389 Topics in Film Studies
This topic course explores aspects of Cinema Studies intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings. Course not offered every year. Activity: Seminar. 1 Course Unit.

ARTh 390 Topics in Film History
Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings. Course not offered every year. Activity: Seminar. 1 Course Unit.

ARTh 393 Topics in Film Studies
Topic varies. Spring 2017: This course will examine key moments in the history of civil rights through a cinematic lens. Over the course of the semester, we will explore how filmmakers have depicted the lives, aspirations, and strategies of those who have struggled for equal rights; how different struggles have intersected with each other; what aesthetic strategies have been adopted to represent freedom and the denial of it; and how effective cinematic efforts to contribute to increased freedom have been as well as what criteria we use to evaluate success or failure in the first place. Each week, we will watch a film and read a series of texts that will be drawn from a variety of arenas, including histories of civil rights; civil rights pamphlets and speeches; filmmaker interviews; film and media theory; memoirs; and theories of race, gender, and sexuality. Course requirements: mutual respect; completion of all readings and screenings; participation in class discussion; weekly online responses; a final project that can be a research paper, film, art project, or community-based initiative. Taught by: Redrobe. Course not offered every year. Activity: Seminar. 1 Course Unit.

ARTh 398 Senior Thesis
Two terms. student must enter first term. Prerequisites: Permission of instructor required. Activity: Independent Study. 1 Course Unit. Notes: See department for appropriate section numbers.

ARTh 399 Independent Study
One-term course offered either term. Activity: Independent Study. 1 Course Unit. Notes: See department for appropriate section numbers.

ARTh 425 Late Antique Arts
What is ‘Late Antiquity’? In 312 when Roman emperor Constantine inaugurated a Christian empire, ‘Roman’ culture was centuries old. The period ca. 200-650 saw profound transformations that launched Medieval, Byzantine and Islamic traditions. In the epoch of economic and political upheaval destruction was frequent but partial: Rome long survived, Constantine’s ‘new Rome’, Constantinople flourished, and around the Empire both proto-global visual culture and local forms prospered. Roman cultural models authorized both innovation and passion for tradition, in forms and styles: we critique art-historical models for Late Antiquity ‘decline’, analyze habits of material reuse and curation, and look at new Christian and Jewish roles for Roman things as well as polytheist visual survival. Foreign allies and enemies, and new peoples invading an already polyethic Empire, interacted with Greco-Roman Late Antiquity: we visit arts of Sasanian and Islamic empires east and south, and ‘barbarian’ domains in Africa, Europe, Britain. Media discussed, for sacred, courtly, domestic, funerary, political and civic spaces and structures include not just ‘monumental’ painting, mosaic, sculpture, but also objects of silver, ceramic, ivory, figural textile, glass; painted books, jewelry; mass-media artifacts like coins and pilgrimage tokens. We also study Late Antique texts on art, objects, space and viewership. Taught by: Kuttner. Course not offered every year. Activity: Lecture. 1 Course Unit.
ARTh 426 Late Antique Roman Art
Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 427 Roman Sculpture
Survey of the Republican origins and Imperial development of Roman sculpture - free-standing, relief, and architectural - from ca. 150 BC to 350 AD. We concentrate on sculpture in the capital city and on court and state arts, emphasizing commemorative public sculpture and Roman habits of decorative display; genres examined include relief, portraits, sarcophagi, luxury and minor arts(gems, metalwork, coinage). We evaluate the choice and evolution of styles with reference to the functions of sculptural representation in Roman culture and society.
Taught by: Kuttner, Rose
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 428 Hellenistic Art and Spectacle
Hellenistic usually names art in the age of Mediterranean culture from the 4th century BCE and the rise of Alexander the Great's Macedon, and the Greco-Macedonian conquest of the Persian Empire, to Cleopatra of Egypt's defeat by Rome at the end of the Republic. Our course looks also at the age of Augustus and his successors, 1st century CE. While Greek and Macedonian practice in city-states and kingdoms is our launching point, this course also looks at international culture and cultural interaction among peoples from North Africa and Etrusco-Roman Italy, Egypt, Anatolia, the Mideast and Central Asia. We probe art, artifacts, and visual display from a range of settings, from sanctuary to house, palace and parade, and in all media, from marble monuments to pottery and jewelry. Our archaeology of Hellenistic visual culture also looks at the rich body of Hellenistic and Roman texts of art history, art criticism, and the description of objects and image, to better understand the Hellenistic maker, patron, and viewer. No prerequisites.
Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 435 Medieval Islamic Art & Architecture
An introduction to the major architectural monuments and trends, as well as to the best-known objects of the medieval (seventh-to fourteenth-century) Islamic world. Attention is paid to such themes as the continuity of late antique themes, architecture as symbol of community and power, the importance of textiles and primacy of writing. Suitable for students of literature, history, anthropology as well as art history.
Taught by: Holod
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 436 Later Islamic Art and Architecture
Istanbul, Samarkand, Isfahan, Cairo and Delhi as major centers of art production in the fourteenth to seventeenth centuries. Attention is given to urban and architectural achievement as well as to the key monuments of painting and metalwork. The visual environment of the "gunpowder empires" is discussed.
Taught by: Holod
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 439 Ukiyo-e: Japanese Prints and Paintings
Taught by: Davis
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 440 Ukiyo-e: Japanese Art
Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 501 Curatorial Seminar
Curatorial seminars expose students to the complexity of studying and working with objects in the context of public display. With the guidance of faculty and museum professionals, students learn what it means to curate an exhibition, create catalogues and gallery text, and/or develop programming for exhibitions of art and visual/material culture. Fall 2018: In 1964, "Soy Cuba," a collaboration between Cuban and Soviet filmmakers was released. Now considered a masterpiece of avant garde art, the film uses the backdrop of the island's agrarian landscape, urban slums, Spanish colonial architecture, and modern highrises to dramatize the dire social and economic conditions that led up to the Cuban Revolution of the 1950s. Using the film as an anchor, we will study the artistic depiction of Cuba since the 1750s, while organizing an exhibition of contemporary Cuban landscape painting for the Arthur Ross Gallery. Permission of instructor required.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 505 Masters in Liberal Arts Proseminar
Topic varies. Fall 2017: This course examines the way that issues of universal, global, and national identity have been negotiated and challenged in art and visual culture. It also aims to give students an introduction to the various theories and methodological practices that have been used to critique and explain these images and objects since the end of WWII.
Course not offered every year
Activity: Lecture
1 Course Unit

ARTh 511 Topics in Indian Art
Topic varies. Fall 2016: Important as texts have been to South Asia's history, perceptions of the physical world dominate experience within South Asian cultures. Seeing and being seen, vocalizing and hearing, contribute to the construction of meaning. This pro-seminar will approach South Asia's perceptual world as expressed and tested by art, and methods to frame art as a source of knowledge.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTh 513 Ukiyo-e: Japanese Prints and Paintings
Topic varies.
Taught by: Davis
Course not offered every year
Activity: Seminar
1 Course Unit
ARTH 517 History of the Book in East Asia
Spring 2018: From handscrolls to manga, books play a vital role in East Asian societies. In this course we will introduce the spread of book cultures across East Asia and reconsider the role and impact of material texts on societies in China, Korea, and Japan. Among the questions we’ll engage are: What is a book, an author, or an edition? How do readers affect books? How do publishers decide when to use illustrations, woodblock printing, or movable type? How has the history of books differed in China, Japan, and Korea from the history of the book in the West? We will consider various media (bamboo, paper, silk, and the digital), formats (scrolls, folded books, bound books, small to oversize), and the tensions between handwritten manuscript and printed pages. Hands-on sessions may include paper-making, bookbinding, and printing. This is an Objects-Based Learning course, using materials from the Kislak Center for Special Collections, Rare Books and Manuscripts, and the Penn Museum, with visits to the Philadelphia Museum of Art and the Free Library of Philadelphia. Requires no knowledge of any Asian language.
Taught by: Davis, Chance
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 520 Topics in Aegean Bronze Age
Topic varies. Fall 2016: Minoan and Cycladic Wall Paintings are considered a hallmark of the Aegean Bronze Age Civilization. Often, these paintings are discussed in terms of their iconography but in isolation of their archaeological contexts. In this class, we will examine both with the goal of determining what types of paintings are used in houses, palaces, defensive structures, and buildings of undetermined function, as well as examining their pictorial programs and iconographic interpretations. With the recent study of Minoan-style wall paintings in Egypt and the Ancient Near East, the question of the spread of Minoan and Cycladic techniques and motifs must also be considered, along with the archaeological contexts at these non-Aegean sites. We will have class discussions of assigned readings.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 521 Topics in Aegean Bronze Age
Topic varies. Fall 2017: Minoan and Cycladic Wall Paintings are considered a hallmark of the Aegean Bronze Age Civilization. Often, these paintings are discussed in terms of their iconography but in isolation of their archaeological contexts. In this class, we will examine both with the goal of determining what types of paintings are used in houses, palaces, defensive structures, and buildings of undetermined function, as well as examining their pictorial programs and iconographic interpretations. With the recent study of Minoan-style wall paintings in Egypt and the Ancient Near East, the question of the spread of Minoan and Cycladic techniques and motifs must also be considered, along with the archaeological contexts at these non-Aegean sites. We will have class discussions of assigned readings.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 522 Topics in Ancient Iranian Art
Topic varies. Spring 2018: This seminar will focus on the environmental, archaeological and textual record for settlement in the Persian/Arabian Gulf region from the Neolithic to the pre-Islamic Late Antique. Emphasis will be on the settlement history and material culture. Special attention will be paid to the close interaction of the local communities on the Arabian side of the Gulf with those on the Iranian/Indus valley side. The patterns of sea faring trade and interaction from Mesopotamia, Iran, Indus Valley and beyond will be considered. It is possible that this class will take a site trip to the UAE during the spring break, if the logistics can be arranged. Instructors: Professors Holly Pittman (Penn), Peter Magee (Bryn Mawr College).
Taught by: Pittman
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 515 Topics in Japanese Art
Topic varies. Fall 2018: This course will consider Japanese woodblock prints, illustrated books, and paintings from the seventeenth through the twentieth century. Topics include: the formation of "Ukiyo-e" or "the pictures of the floating world" as a genre; the development of the publishing system and its audience; specific artists and their works; the reception of Japanese prints in Europe and America; the modern reinvention of the woodblock print; and others. We will also make extensive use of the collections held in the Kislak Center, the Philadelphia Museum of Art, and in other local collections. Assignments may include: close study of a single work; web page development; research paper; regular participation in discussions.
Taught by: Davis
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 514 Topics in East Asian Art
Topic varies. Spring 2017: In this seminar, led by Hiromi Kinoshita, The Hannah L. and J. Welles Henderson Associate Curator of Chinese Art, Philadelphia Museum of Art, students will learn about the considerations of a gallery reinstallation relating to the presentation of the Chinese collections at the Philadelphia Museum of Art. With more than 7,000 objects spanning from the Neolithic to the present, the reinstallation aims to display highlights and strengths of the collection that include early ceramics, porcelains, sculpture, furniture and architectural interiors with paintings and textiles. Students will study original objects of different media from the collection and learn about curatorial practices that include examination and analysis, connoisseurship, exhibition layout and label writing. Previous knowledge of Chinese art history and culture would be advantageous.
Taught by: Davis, Steinhardt
One-term course offered either term
Activity: Seminar
1 Course Unit
**ARTH 525 Topics in Greek and Roman Art**  
Topics Varies. Fall 2018: "Roman Provincial Art" is a very active scholarly category. We test how it might be productive, sampling visual culture outside the empire's Italian heartland from the Late Republic into Late Antiquity. Rome's arts were always in dialogue with those of neighboring cultures; imperialist expansion into the Mediterranean world and beyond meant that cultural relations across many boundaries—social, ethnic, territorial—potentially became cultural politics. Of related interest are relationships between visual and material culture within the Roman world's formal boundaries, in proto-global and imperial contexts, and those of peoples along and beyond those frontiers. (In Late Antiquity some of them took up rule within the old imperial boundaries, and came to cultural terms with their new lands.) "Style" is a fraught issue: what does attributed crudeness in regional practice add up to, and what were the aims of apparently trans-Mediterranean forms of display? Do "arts" engage identity formation, enforced or discrepant viewing?  
Taught by: Kuttner  
Course not offered every year  
Activity: Seminar  
1 Course Unit

**ARTH 529 Topics in Roman Architecture**  
Topic varies. Spring 2018: This seminar offers a critical assessment of digital Roman architecture studies. What has been accomplished and learned over the last generation since the Digital Turn, and where is the field of Roman architecture being taken? Points of focus include several landmark case studies, such as digital reconstructions of the city of ancient Rome, and threatened cultural heritage sites in Syria. The course will involve readings of significant texts, in class discussions and presentations lead by the seminar's participants, and testing and critiquing of a limited set of digital tools.  
Taught by: Stinson  
Course not offered every year  
Activity: Seminar  
1 Course Unit

**ARTH 532 Topics in Byzantine Art**  
Topic varies.  
Taught by: Drpic  
Course not offered every year  
Activity: Seminar  
1 Course Unit

**ARTH 537 Topics in the Art of Iran**  
Topic varies. Spring 2018: The pro-seminar will examine aspects of continuity and rupture in the visual culture(s) of the Iranian world. This is an opportunity for students whose preparations may be centered on other contiguous periods or regions to consider the manner in which Middle Asia and its rich visual cultures contributed to the forging of Late Antiquity and medieval/Islamic visual expressions of kingship, territory and religion. The seminar will consider a range of materials from archaeological sites, rock reliefs and wall paintings to textiles, silver vessels, coins and ceramics, with special attention to materials excavated or otherwise held by the Penn Museum.  
Taught by: Holod, Kuttner  
Course not offered every year  
Activity: Seminar  
1 Course Unit

**ARTH 540 Topics in Medieval Art**  
Topic varies. Spring 2018: The craft of ivory carving around the Mediterranean is contingent upon the availability of imported elephant tusks, from either South East Asia or, more frequently, from the African continent. The shifting winds of trade routes offer an interpretive paradigm with which to analyze ivory objects from a variety of different cultural groups: the lack or abundance of ivory and the resulting desire for or surfeit of the material shapes its meaning and use around the Mediterranean basin. The study of ivory objects as they migrate around the Mediterranean allows us to investigate the rich intercultural interactions between Eastern and Western Christians, and both of these with the Islamic world. This course focuses on an object oriented knowledge of ivory artefacts, with a strong emphasis on the collections at the Penn Museum, the Philadelphia Museum of Art, and other area collections.  
Taught by: Guerin  
Course not offered every year  
Activity: Seminar  
1 Course Unit

**ARTH 550 Topics in Southern Renaissance Art**  
Topic Varies. Spring 2019: What made Renaissance Venice remarkable? Why was this city-state a driving force in early modern art and architecture? Why is the Venice of the Renaissance different from other centers such as Florence and Rome? How might we understand the importance of Titian, Palladio and Bellini to their peers and for future generations? Many of these questions are connected to the myth of Venice and the calculated construction of a history of the city and its idiosyncratic place in the political and social landscape as a hinge between west and east. In this seminar we will examine how artists and patrons used art and architecture to transform the capital city of an early modern empire into a powerful vehicle for the transmission of Venetianit? or Venetian-ness.  
Taught by: Kim, Staff  
Course not offered every year  
Activity: Seminar  
1 Course Unit

**ARTH 551 Topics in Northern Renaissance Art**  
Topic varies. Spring 2017: This seminar will focus on the history and interpretation of Dutch and Flemish painting, particularly the seeming "realism" of landscape, still-life, and genre scenes as well as some of the major figures of the period for their distinctive contributions (including Rubens and Rembrandt, but not dominated by them): Jan Brueghel, Frans Hals, Jan Steen, Jacob van Ruisdael, David Teniers, Jan Vermeer, and others. Who were the consumers of such works? How did the burgeoning market for inexpensive art in the form of paintings on canvas and prints affect production and types of art? How can we understand these works in their original urban, middle-class setting?  
Course not offered every year  
Prerequisite: ARTH 102  
Activity: Seminar  
1 Course Unit

**ARTH 563 Topics in German Art**  
Topic varies  
Course not offered every year  
Activity: Seminar  
1 Course Unit
ARTH 565 Topics in Northern Baroque Art
Topic varies. Fall 2015: Built around an exhibition at the Philadelphia Museum of Art, focused on the "Prometheus" by Peter Paul Rubens, this seminar will investigate the range of painted and sculpted works on Greco-Roman myths in European art and will also investigate the career of Peter Paul Rubens, particularly concerning myths.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 570 Eastern State Penitentiary Anchor Institution Seminar
Eastern State Penitentiary is one of the most famous and influential buildings in the world. Built in the early nineteenth century as an embodiment of the ideals of prison reformers, it is now preserved as a historic site whose award-winning programming explores contemporary issues of mass incarceration and criminal justice, subjects that many Americans believe to be the civil rights issues of our times. Taught in partnership with the staff of Eastern State, this seminar will explore the management of this "anchor institution." Topics to be considered include strategic planning, interpretation of the site, the design of programs and exhibitions (including site-specific art installations and theatrical events), architectural planning and conservation, and engagement with diverse constituencies and neighborhoods. The class will explore notable failures and missteps along with programmatic successes, and will explore ethical choices made when balancing social justice programming and the origination’s Halloween-themed fundraising activities.
Taught by: Brownlee
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 571 Modern Architectural Theory
A survey of architectural theory from the mid-eighteenth century to the present. The discussion of original writings will be emphasized.
Taught by: Brownlee
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 579 Topics in American Art
Topic varies. Fall 2017: In this seminar, led by Kathleen A. Foster, the Robert L. McNeil, Jr., Senior Curator of American Art, students will be immersed in the planning process for the reinstallation of the American galleries at the PMA. Topics will include the history of the American collection and an analysis of its strengths, a critique of its current installation (designed in 1975-1976), and introduction to planning for a new layout and narrative of the early American galleries, set to open in 2020. Students will learn methods of object examination, research, and cataloguing using paintings of their choice from the collection from the 18th to the 20th centuries, with special attention to recent gifts from the bequest of Daniel W. Dietrich. Different types of interpretation, from the gallery label and the digital interactive to the traditional scholarly catalogue entry or the newer on-line publication format will be studied, along with theories and methods of display appropriate to these strategies, using the students’ chosen objects.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 581 Topics in 20th Century Architecture
Topic varies.
Taught by: Brownlee
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 582 Modern and Contemporary Design
This seminar will provide a brief overview of the history of modern and contemporary design, from the beginning of the Industrial Revolution to today, and engage students in the hands-on analysis of objects through the collections of the Philadelphia Museum of Art, the consideration of the presentation of objects in museums, and the discussion of several important contemporary topics in the study of material culture.
Taught by: Brownlee
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 585 Topics in 19th Century Art
Topic Varies. Spring 2015: Birthplace of the nation, industrial metropolis-Philadelphia is the definitive American "place." This seminar will explore the visual history of the city as a symbolic site described and defined by painters, printmakers and photographers as well as politicians and capitalists and most importantly, its residents. How and why were certain sites selected and exploited within an evolving civic iconography? How did Philadelphia’s visual culture influence approaches to placemaking? And how did artists navigate the increasingly complex political and social as well as aesthetic conflicts between myth and reality?
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 586 Topics in 20th Century Art
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 587 Topics in 20th Century American Art
Topic varies.
Taught by: Shaw
Course not offered every year
Activity: Seminar
1 Course Unit
ARTH 593 Topics in Cinema and Media
Spring 2016: Taking its title from a recent special issue in the journal Framework, this seminar will engage the where of film and media theory. At a moment when this discourse, often presumed to have roots in Anglo and Western European traditions, is purportedly undergoing a global turn, we will consider how some of film and media theory's key terms and preoccupations including realism, documentary, genre, identity, sound, spectatorship, nation, auteur, and screens are being inflected by expanded geographic, linguistic, aesthetic and cultural frames. We will grapple with some of the logistical challenges, motivations, resistances, and questions that scholars encounter as they attempt to shift film and media theory's borders; compare contemporary efforts to broaden the discourse's geographic horizon with earlier efforts to do the same; and consider what happens to the viewer's sense of space and place in different media environments. Course requirements: full participation in readings, screenings, discussion, and class presentations; 20-25 page research paper + annotated bibliography. Permission of instructor required for advanced undergraduates.

Taught by: Redrobe
Course not offered every year
Prerequisites: Permission of Instructor for Undergraduates.
Activity: Seminar
1 Course Unit

ARTH 596 Topics in Contemporary Art
Topic varies. Spring 2018: An experimental class for artists and scholars. Organized around a series of case studies of artists, collectives, infrastructures, and curatorial projects, the course includes: in-class discussion and viewing; workshops with class visitors; site visits; participation in small reading groups. In the first half of the class, students will complete some short assignments. In addition, students will complete a final project that is intentionally open in terms of form. The project, which can be collective or individual in nature, will enable an in-depth material investigation of one of the threads of the class.?

Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 612 Cities and Temples in Ancient India
The wooden architecture of ancient India's cities is represented in relief carvings from Buddhist religious monuments of the early centuries A.D. and replicated in remarkable excavated cave cathedrals. This course will trace that architectural tradition, its transformation into a symbolic vocabulary for a new structure, the Hindu temple, and the development of the temple in India from ca. 500-1500 A.D.

Taught by: Meister
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 613 Arts of Japan
This course introduces the major artistic traditions of Japan, from the Neolithic period to the present and teaches the fundamental methods of the discipline of art history. Special attention will be given to the places of Shinto, the impact of Buddhism, and their related architectures and sculptures; the principles of narrative illustration; the changing roles of aristocratic, monastic, shogunal and merchant patronage; the formation of the concept of the artist over time; and the transformation of tradition in the modern age.

Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 614 Arts of China
The goals of this course are to introduce the major artistic traditions of China, from the Neolithic period to the present and to teach the fundamental methods of the discipline of art history. Our approaches will be chronological, considering how the arts developed in and through history, and thematic, discussing how art and architecture were used for philosophical, religious and material ends. Topics of study will include: Shang bronzes: Han concepts of the afterlife; the impact of Buddhism; patronage and painting; the landscape tradition; the concept of the literatus; architecture and garden design; the "modern" and 20th-century artistic practices; among others.

Taught by: Steinhardt, Davis
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 617 Chinese Painting
Study of Chinese painting and practice from the earliest pictorial representation through the late twentieth century. Painting style forms the basis of analysis, and themes such as landscape and narrative are considered with regard to larger social and cultural issues. The class pays particular attention to the construction of the concepts of the "artist" and "art criticism" and their impact on the field into the present. Visits to look at paintings at the University of Pennsylvania Museum, PMA and/or local collections.

Taught by: Steinhardt
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 622 Art of Ancient Iran
This course offers a survey of ancient Iranian art and culture from the painted pottery cultures of the Neolithic era to the monuments of the Persian Empire. Particular emphasis is placed on the Early Bronze Age.

Taught by: Pittman
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 624 Art of Mesopotamia
A survey of the art of Mesopotamia from 4000 B.C. through the conquest of Alexander the Great.

Taught by: Pittman
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 625 Greek Art and Artifact
This course surveys Greek art and artifacts from Sicily to the Black Sea from the 10th century BCE to the 2nd century BCE, including the age of Alexander and the Hellenistic Kingdoms. Public sculpture and painting on and around grand buildings and gardens, domestic luxury arts of jewelry, cups and vases, mosaic floors, and cult artefacts are discussed. Also considered are the ways in which heroic epic, religious and political themes are used to engaged viewer's emotions and served both domestic and the public aims. We discuss how art and space was considered, along with ideas of invention and progress, the role of monuments, makers and patrons in Greek society.

Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit
ARTH 626 Hellenistic and Roman Art and Artifacts
This course surveys the political, religious and domestic arts, patronage and display in Rome’s Mediterranean, from the 2nd c. BCE to Constantine’s 4th-c. Christianized empire. Our subjects are images and decorated objects in their cultural, political and economic contexts (painting, mosaic, sculpture, luxury and mass-produced arts in many media). We start with the Hellenistic cosmopolitan culture of the Greek kingdoms and their neighbors, and late Etruscan and Republican Italy; next we map Imperial Roman art as developed around the capital city Rome, as well as in the provinces of the vast empire.
Taught by: Kuttner
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 632 Byzantine Art and Architecture
This course offers a wide-ranging introduction to the art, architecture, and material culture of Byzantium—a Christian, predominantly Greek-speaking civilization that flourished in the Eastern Mediterranean for over a thousand years. Positioned between the Muslim East and the Latin West, Antiquity and the Early Modern era, Byzantium nurtured a vibrant and highly sophisticated artistic culture. With emphasis placed upon paradigmatic objects and monuments, we will examine an array of artistic media, from mosaic and panel painting to metalwork, ivory carving, book illumination, and embroidery. We will consider the making, consumption, and reception of Byzantine art in a variety of contexts political, devotional, ritual, and domestic. Topics include the idea of empire and its visual articulation; court culture; the veneration of images and relics; patronage, piety, and self-representation; authorship and artistic agency; materiality and the sensory experience of art; the reception of the pagan Greco-Roman past; and the changing nature of Byzantium’s interactions with neighboring cultures.
Taught by: Drpic
One-term course offered either term
Activity: Lecture
1 Course Unit

ARTH 633 Eastern Medieval Architecture
This lecture course examines major architectural developments in the eastern Mediterranean between the 4th and 14th centuries CE. The focus is on the Byzantine Empire, with its capital at Constantinople. Lectures also devoted to related developments in the Caucasus (Armenia and Georgia), early Russia, the Balkans (Bulgaria and Serbia), Sicily and under the Normans, the Crusader states. Parallel developments in early Islamic architecture are used for comparative purposes. The course examines evidence for religious and secular buildings, as well as urbanism and settlement patterns.
Taught by: Ousterhout
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 635 Introduction to Visual Culture of the Islamic World
A one-semester survey of Islamic art and architecture which examines visual culture as it functions within the larger sphere of Islamic culture in general. Particular attention will be given to relationships between visual culture and literature, using specific case studies, sites or objects which may be related to various branches of Islamic literature, including historical, didactic, philosophical writings, poetry and religious texts. All primary sources are available in English translation.
Taught by: Holod
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 640 Medieval Art
An introductory survey, this course investigates painting, sculpture, and the “minor arts” of the Middle Ages. Students become familiar with selected major monuments of the Late Antique, Byzantine, Carolingian, Romanesque, and Gothic periods, as well as primary textual sources. Analysis of works emphasizes the cultural context, the thematic content, and the function of objects. Discussions focus especially on several key themes: the aesthetic status of art and the theological role of images; the revival of classical models and visual modes; social rituals such as pilgrimage and crusading; the cult of the Virgin and the status of women in art; and, more generally, the ideology of visual culture across the political and urban landscapes.
Taught by: Guerin
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 650 Michelangelo and the Art of the Italian Renaissance
An introduction to the work of the Renaissance artist Michelangelo (1475-1564)-his sculptures, paintings, architecture, poetry, and artistic theory-in relation to his patrons, predecessors, and contemporaries, above all Leonardo and Raphael. Topics include artistic creativity and license, religious devotion, the revival of antiquity, observation of nature, art as problem-solving, the public reception and function of artworks, debates about style, artistic rivalry, and traveling artists. Rather than taking the form of a survey, this course selects works as paradigmatic case studies, and will analyze contemporary attitudes toward art of this period through study of primary sources.
Taught by: Kim
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 654 Global Renaissance and Baroque
An introduction to transcultural encounters within and beyond early modern Europe, 1450-1600. Topics include: the theory and historiography of global art; artistic relations between Venice, the Byzantine and Ottoman Empires, and islands in the Eastern Mediterranean; Portugal’s overseas mercantile network in Africa and Asia; and the Baroque in Latin America, with emphasis upon Brazil. Our discussions focus on these paradigmatic case studies so as to question the language and terms we use to characterize confrontations between native and foreign, the self and the other.
Taught by: Kim
Course not offered every year
Activity: Lecture
1 Course Unit
**ARTH 658 Early Modern Japanese Art and the City of Edo**
Study of the major art forms and architecture of Tokugawa (or Edo) period (1603-1868). In this course, we will consider how the arts of this era occur within an increasingly urban and modern culture, particularly with regard to the city of Edo. Issues of the articulation of authority in the built environment, the reinvention of classical styles, and patronage will be raised. May include some visits to PMA, Penn Museum, or other local collections.
Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit

**ARTH 661 Northern Renaissance Art**
Survey of the principal developments in Northern Europe during the "early modern" period, i.e. the transition from medieval to modern art-making during the fifteenth and sixteenth centuries. Principal attention to painting and graphics with additional consideration of developments in sculpture, particularly in the regions of the Netherlands and German-speaking Europe. Attention focused on the works of the following artists: Van Eyck, Bosch, Durer, Holbein, Bruegel, and on topics such as the rise of pictorial genres, urban art markets, Reformation art and art for the dynastic courts of emerging nation-states.
Course not offered every year
Activity: Lecture
1 Course Unit

**ARTH 662 Netherlandish Art**
Dutch and Flemish painting in the 15th and 16th centuries with special emphasis on the contributions of Robert Campin, Jan van Eyck and Roger van der Weyden, Bosch, and Bruegel.
Course not offered every year
Activity: Lecture
1 Course Unit

**ARTH 667 Latin American Art**
The numerous traditions of Latin American art have been formed from the historical confluence of Indigenous, European, African, and Asian cultural traditions, each one impacting the others. This course serves as an introduction to these hybrid New World art forms and movements by both providing a large chronological sweep (1492-present) and focusing on several specific countries, including Brazil, Mexico, Cuba, Peru, and Argentina.
Taught by: Shaw, Kim
Course not offered every year
Activity: Lecture
1 Course Unit

**ARTH 670 The Modern City**
A study of the European and American city in the eighteenth, nineteenth, and twentieth centuries. Emphasis is placed on the history of architecture and urban design; political, sociological, and economic factors also receive attention. The class considers the development of London, St. Petersburg, Washington, Boston, Paris, Vienna and Philadelphia.
Taught by: Brownlee, D.
Course not offered every year
Activity: Lecture
1 Course Unit

**ARTH 671 Modern Architecture, 1700-1900**
The history of western architecture, ca. 1700-1900, when architecture was transformed to serve a world that had been reshaped by political and industrial revolutions. Topics to be considered include the Rococo, the English Garden, Palladianism, Romanticism, neo-classicism, the picturesque, the Greek and Gothic Revivals, and the search for a new style.
Taught by: Brownlee
One-term course offered either term
Activity: Lecture
1 Course Unit

**ARTH 674 Facing America**
This course explores the visual history of race in the United States as both self-fashioning and cultural mythology by examining the ways that conceptions of Native American, Latino, and Asian identity, alongside ideas of Blackness and Whiteness, have combined to create the various cultural ideologies of class, gender, and sexuality that remain evident in historical visual and material culture. We also investigate the ways that these creations have subsequently helped to launch new visual entertainments, including museum spectacles, blackface minstrelsy, and early film, from the colonial period through the 1940s.
Taught by: Shaw
Course not offered every year
Activity: Lecture
1 Course Unit

**ARTH 676 Impressionism**
Impressionism opened the pictorial field to light, perception, science, modernity, bourgeois leisure and famously the material qualities of paint itself. This course will survey the movement's major contexts and proponents—Manet, Monet, Morisot, Cezanne, Gauguin, Van Gogh, Rodin—from its origins in the 1860's to its demise in the 1890's, as well as its subsequent adaptions throughout the world until World War I. Particular attention is paid to the artists' critical reception and the historical conditions which allowed one nation, France, to claim the emergence of early Modernism so firmly for itself. The course also analyzes the effects of the rapidly changing social and cultural fabric of Paris, and its affects on artistic developments. We also look outside of France's borders to Germany and Britain.
Taught by: Dombrowski
One-term course offered either term
Activity: Lecture
1 Course Unit
ARTH 677 The Rise of Modernity: Arts of the 19th Century
The nineteenth century is often considered as fast-paced, politically volatile and new-media obsessed as our own age. This course explores the nineteenth century's claim to have produced the first truly modern culture, focusing on the visual arts and metropolitan spaces of Europe and North America in their intellectual and social contexts. Stretching from the American and French Revolutions to the eve of World War I, topics to be covered include: the rise of capitalist and industrialist culture, art and revolutionary upheaval, global travel and empire, the origins of modernist art and architecture, and new media such as stereoscopes, iron and glass construction, and photography. Major artistic personalities of the age, from Jacques-Louis David and Gustave Courbet to Claude Monet and Vincent Van Gogh, and from Friedrich Schinkel and, Baron Haussmann to Frank Furness and Frank Lloyd Wright, are discussed. Each lecture will be followed by a brief period of discussion, and regular field trips take students to examine art and architecture first hand, in the museums and on the streets of Philadelphia.
Taught by: Brownlee, Dombrowski
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 678 American Art
This course surveys the most important and interesting art produced in the United States (or by American artists living abroad) up through the 1950s. This period encompasses the history of both early and modern art in the U.S., from its first appearances to its rise to prominence and institutionalization. While tracking this history, the course examines art's relation to historical processes of modernization (industrialization, the development of transportation and communications, the spread of corporate organization in business, urbanization, technological development, the rise of mass media and mass markets, etc.) and to the economic polarization, social fragmentation, political conflict, and the culture changes these developments entailed. In these circumstances, art is drawn simultaneously toward truth and fraud, realism and artifice, science and spirituality, commodification and ephemerality, nationalism and cosmopolitanism, individualism and collectivity, the past and the future, professionalism and popularity, celebrating modern life and criticizing it.
Taught by: Leja, Shaw
One-term course offered either term
Activity: Lecture
1 Course Unit

ARTH 681 Modern Architecture, 1900-Present
The architecture of Europe and America from the late nineteenth century until the present is the central subject of this course, but some time is also devoted to Latin American and Asian architecture and to the important issues of modern city planning. Topics discussed include the Arts and Crafts movement, Art Nouveau, Expressionism, Art Deco, the International Style, and Post-modernism. The debate over the role of technology in modern life and art, the search for a universal language of architectural communication, and the insistent demand that architecture serve human society are themes that are traced throughout the course. Among the important figures to be considered are Frank Lloyd Wright, Walter Gropius, Le Corbusier, Louis Kahn, Robert Venturi, and Denise Scott Brown. The course includes weekly discussion sessions and several excursions to view architecture in Philadelphia.
Taught by: Brownlee
One-term course offered either term
Activity: Lecture
1 Course Unit

ARTH 686 Modern Art: Picasso to Pollock
Early twentieth-century art in Europe is marked by a number of exciting transformations. This period witnessed the rise of abstraction in painting and sculpture, as well as the inventions of collage, photomontage, constructed sculpture, the ready made and found object, and performance art. Encounters with the arts of Africa, Oceania and other traditions unfamiliar in the West spurred innovations in media, technique, and subject matter. Artists began to respond to the challenge of photography, to organize themselves into movements, and in some cases, to challenge the norms of art through "anti-art." A new gallery system replaced traditional forms of exhibiting and selling art, and artists took on new roles as publicists, manifesto writers, and exhibition organizers. This course examines these developments, with attention to formal innovations as well as cultural and political contexts. This course requires permission from the instructor.
One-term course offered either term
Activity: Lecture
1 Course Unit

ARTH 690 Post War Japanese Cinema
Mizoguchi Kenji, Ozu Yasujiro, and Kurosawa Akira are recognized today as three of the most important and influential directors in Japanese cinema. In their films of the late 1940s and 1950s, these directors focused upon issues surrounding the human condition and the perception of truth, history, beauty, death, and other issues of the postwar period. This course places their films in period context, and pays particular attention to the connections to other visual media, and to how "art" and "history" are being defined in the cinematic context. How other directors also took up these issues, and referred to the "big three" is also be discussed.
Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit

ARTH 694 Art Now
One of the most striking features of today’s art world is the conspicuous place occupied in it by the photographic image. Large-scale color photographs and time-based installations in projections are everywhere. Looking back, we can see that much of the art making of the past 60 years has also been defined by this medium, regardless of the form it takes. Photographic images have inspired countless paintings, appeared in combines and installations, morphed into sculptures, drawings and performances, and served both as the object and the vehicle of institutional critique. They are also an increasingly important exhibition site: where most of us go to see earthworks, happenings and body-art. This course is a three-part exploration of our photographic present.
Taught by: Silverman
Course usually offered in spring term
Activity: Lecture
1 Course Unit
**ARTH 695 Cinema and Media**
This course will provide an introduction to some of the most important film theory debates, and allow us to explore how writers and filmmakers from different countries and historical periods have attempted to make sense of the changing phenomenon known as "cinema," to think cinematically. Topics under consideration may include: spectatorship, authorship, the apparatus, sound, editing, realism, race, gender and sexuality, stardom, the culture industry, the nation and decolonization, what counts as film theory and what counts as cinema, and the challenges of considering film theory in a global context, including the challenge of working across languages. There will be no screenings for this course. No knowledge of film theory is presumed. Course requirements: attendance at lecture and participation in lecture and section discussions; canvas postings; 1 in-class midterm; 1 take-home final.

Taught by: Redrobe  
Course not offered every year  
Activity: Lecture  
1 Course Unit

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**ARTH 696 Contemporary Art**
Many people experience the art of our time as bewildering, shocking, too ordinary (my kid could do that), too intellectual (elitist), or simply not as art. Yet what makes this art engaging is that it raises the question of what art is or can be, employs a range of new materials and technologies, and addresses previously excluded audiences. It invades non-art spaces, blurs the boundaries between text and image, document and performance, asks questions about institutional frames (the museum, gallery, and art journal), and generates new forms of criticism. Much of the "canon" of what counts as important is still in flux, especially for the last twenty years. And the stage is no longer centered only on the United States and Europe, but is becoming increasingly global. The course will introduce students to the major movements and artists of the post-war period, with emphasis on social and historical context, critical debates, new media, and the changing role of the spectator/participant.

Course not offered every year  
Activity: Lecture  
1 Course Unit

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**ARTH 701 Proseminar in Methods in the History of Art**
The meanings we ascribe to art works of any culture or time period are a direct result of our own preoccupations and methods. This colloquium will give both a broad overview of contemporary debates in the history of art—including such issues as technologies of vision, feminism, gender and sexuality studies, globalism, the pictorial turn or material/vision culture—and locate these methods within art history's own intellectual history, as well as the history of aesthetics. The course will consist of wide-ranging weekly readings and discussion, and also clarify such key terms as iconography, formalism, connoisseurship, and the Frankfurt and Vienna Schools.

Course not offered every year  
Activity: Seminar  
1 Course Unit

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**ARTH 711 Topics in Indian Art**
Topic varies. Fall 2017: We will examine the practice and symbolism of South Asian Architecture with case studies of how to build and how to make buildings meaningful.

Course not offered every year  
Activity: Seminar  
1 Course Unit

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**ARTH 714 Topics in East Asian Art**
Curatorial Seminar Spring 2015: This course will be offered in association with the exhibition, Representing Place: Landscape and Imagination in Modern Japanese Prints, to be held at the Arthur Ross Gallery in spring 2015. The seminar proposes to expand our discussion of landscape as a larger theme in the visual arts, with examples drawn from Europe, America, East Asia, and other locations. We will further consider how some sites became known as famous places, and how that act is tied up to issues of local, regional and national identity and often implicated in the promotion of specific places. This course will feature the opportunity to study works in the PMA collection, travel to "famous sites" around Philadelphia, and participate in the final preparations and installation of the exhibition.

Taught by: Davis  
Course not offered every year  
Activity: Seminar  
1 Course Unit

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**ARTH 720 Topics in Aegean Art**
Topic varies. Fall 2018: The choices made by groups of people with regard to the treatment of their dead can be reflective of a society’s beliefs and social structure. In this course, we will examine the burial traditions of the people of the Prehistoric Aegean from the Neolithic through the end of the Bronze Age, circa 7,000-1,100 BCE. We will focus on burial architecture, grave goods, burial rituals, mortuary variability, and the symbolic meaning of death and burial in Prehistoric Greece. Particular attention will be paid to recent discoveries on Crete, the Mainland, and the Cycladic islands. Students will write two papers, and these papers will be presented to the class. The first paper will be circa 15 pages long with footnotes, bibliography, and images (presented via powerpoint) and the second will be a 20-25 page paper with footnotes, bibliography, and images presented via powerpoint.

Taught by: Shank  
Course not offered every year  
Activity: Seminar  
1 Course Unit

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**ARTH 722 Topics in the Art of Ancient Iran**
Topic varies.

Taught by: Pittman  
Course not offered every year  
Activity: Seminar  
1 Course Unit

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**ARTH 723 Topics in the Art of the Ancient Near East**
Topic varies. Spring 2015: This team taught class will extend from the lead up to the Neo Sumerian Empire through the Empire and its collapse and reorganization of the political landscape of greater Mesopotamia. It will consider the imperial period internally and from the perspective of the northern and eastern neighbors. This class is an upper level graduate research seminar that will include art historical, anthropological and historical approaches. Class participation and a major research paper are required.

Taught by: Pittman  
Course not offered every year  
Activity: Seminar  
1 Course Unit

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**ARTH 725 Topics in Greek and Roman Art**
Topic varies.

Taught by: Kuttner  
Course not offered every year  
Activity: Seminar  
1 Course Unit
ARTH 732 Topics in Byzantine Art and Architecture
Topic varies. Spring 2018: The recent "return" to the object across the humanities and social sciences has brought to the fore concerns with the nature of material things, their operation in the world, and their entanglement with humans. This seminar will introduce you to some of the key theoretical writings on the object and material culture and will ask you to interrogate their relevance for the discipline of art history. Our focus will be on the Middle Ages, but depending on the specific interests of the seminar's participants, we may venture into other historical periods and cultural domains. Topics to be addressed include the social life of things; agency; materiality; the relic; the gift; the miniature; and the question of the human/nonhuman divide.
Taught by: Drpic
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 735 Topics in Islamic Art
Topic varies.
Taught by: Holod
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 737 Islamic Architecture
This seminar will address the problems of studying architecture in the Islamic world. Considered will be issues of architectural design, regional and trans-regional constructional traditions, structural know-how and innovation, patronage and use. The examples discussed will be mainly religious and social service complexes. Attention will be paid to the manner of transmission of architectural design knowledge and constructional skill.
Taught by: Holod
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 738 Topics in Islamic Archaeology
Topic varies. Spring 2017: This seminar will trace the development of the field from one that was centered largely on the recovery of major monuments to one in which issues of daily life, demography, chronology and the study of settlement patterns have come to play a major role. The seminar will review work in the major zones of the Islamic world: Central Asia, Iran, Iraq, Anatolia, Syria, Palestine, Egypt, North Africa I (Libya-Tunisia), North Africa II (Algeria-Morocco), Spain. Of special interest this semester will be the study of landscape archaeology and settlement patterns. The seminar will discuss changes in patterns of settlement, trade and material culture 650-1300 CE in different areas of the Islamic world, concentrating on sites in Iran, Syria and North Africa.
Taught by: Holod
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 740 Topics in Medieval Art
Topic varies. Fall 2018: This seminar will examine the intersection between technique, medium and desire in the Middle Ages. The questions of what spurs or instigates technical change, what means an artist/artisan deploys to achieve the longed-for result, and what happens in the face of failure will organize our discussions. In order to interrogate these topics, we will read rather broadly across the history of art and the history of science, touching on periods adjacent to the Middle Ages. The course will incorporate selective hands-on learning experiences to enrich our inquiry.
Taught by: Guerin
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 750 Topics in Southern Renaissance Art
Topic varies. Fall 2018: This innovative course will explore the cross-fertilization between manuscript illumination and other media such as wall-painting, panel painting, architecture, sculpture, and stained glass across the early modern world, 1300-1600. We will consider such topics as: intermediality, artistic transfer, miniature vs. monumental, workshop practice, patronage, and the nascent art market. Students will have the rare opportunity to see and handle manuscripts held in area collections such as the Kislak Center and the Free Library of Philadelphia. This course is open to all students who are interested in artistic practice, the historical dimensions of media, and the social function of art. Our seminar will be coordinated with the Annual Schoenberg Symposium on Manuscript Studies (November 15-17, 2018), which will bring together an international group of experts in the field.
Taught by: Kim
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 752 Topics in Renaissance to Contemporary
Topic varies. Spring 2018: Does money have a period-specific and thus historically variable look? Can we speak of a visual system of money or an imagination of money? How do we address questions of status and class, poverty and wealth, in 21st-century art history, and how do we read Marx (among others) art historically these days? How do we analyze art that's responsive to market fluctuations or extreme financial expansions and recessions? The seminar will engage directly with depictions of money from the Renaissance to the 19th century: the design of bills, coins, insurance policies, bond or stock certificates; the material changes to the face of money under regime-change; and representations of transactions in pawn shops, casinos, stock exchanges, and other market places. But we will also take money less literally and think anew about the value of materials, artists pay, patron's funds, and more broadly the costs associated with the making and consumption of art.
Taught by: Dombrowski, Kim
One-term course offered either term
Activity: Seminar
1 Course Unit
ARTH 761 Topics in Northern Renaissance Art
Topic varies. Spring 2019: The notion of nature as fecund has spawned not only images of lushness but also analogies to the artist’s mind as a fertile place. Yet even in the early modern era, the taste for artistic objects in gold, silver, wax, and wood led to harvesting processes which met the awareness that nature’s resources could run low or even run out. As a collective effort to write the other side of the story of Renaissance abundance, this course will proceed by addressing the question of how the history of a finely crafted object (a goblet, an engraving, a painting on touchstone) might be told as a description of materials and their potential for expenditure. We will address this question by focusing on primary sources, theoretical texts, and a selection of objects, images, and early books from collections near at hand.
Taught by: Brisman
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 762 Topics in Baroque Art
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 765 Topics in Northern Baroque Art
Topic varies. This seminar will consider major themes in Northern art of the 16th and 17th centuries, essentially from Bruegel to Vermeer. The premise is that the Reformation altered certainties in knowledge and even in perception, especially in the wake of wars, newly discovered lands, changing science and collecting of Wonders. Among new imagery topics would include: melancholy, vanitas, witchcraft, travel images, and the status of the emblem as well as allegory. Students will select a topic for semester-long investigation and co-present a class with the instructor. No prerequisites; graduate students only.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 771 Topics in 19th Century Architecture
Topic varies. Fall 2017: This seminar will explore the exhilarating architectural environment of the period ca. 1750-1900, when a ferocious appetite for artistic invention was let loose in kitchen filled with new knowledge about the entire history of human architecture. Focusing on French, German, and English architecture, the seminar will examine major texts and study important monuments, all considered in their cultural and political contexts.?
Taught by: Brownlee
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 775 Topics in 19th Century European Art
Topic varies. Spring 2019: This graduate seminar considers the concepts of time active in the rise of modern painting in the 19th century, from historical time, leisure time and perceptual time to labor and mechanical time. Too rarely has the history of time and time-keeping, from the industrialization of time to the advent of universal time been used as a tool in the study of modernist painting (as opposed to saying the moving image) except perhaps in terms of chronology. To that end, we will think through, as aesthetic categories, the concept of the moment, the instant, the impression, the now, the shock, and also seraility and narrative sequence, and consider painting’s oft-cited competition with the camera’s evolving shutter speeds. More broadly, we will discuss the various times implied by new media and new artistic materials. Focusing on the century’s changing institutions of art (from the world’s fair to the independent exhibition), we will consider new demands placed on the time of viewing and active concentration. Finally, we will analyze art’s place within the century’s often rapid historic changes, such as revolutionary upheavals or shifting political regimes.
Taught by: Dombrowski
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 776 Topics in 20th Century Architecture
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 777 Topics in 20th Century American Art
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 781 Topics in 20th Century Architecture
Topic varies.
Taught by: Brownlee
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 783 Topics in Comparative Literature and Theory
This course has valuable content, addressing specific topics of broad, interdisciplinary concern in an innovative, multi-instructor format. The goal is to bring Penn students and faculty from a wide range of topics together around the study of theories, methods, periods and other common areas of interest in a shared intellectual space. Past topics have been "Modernism Across Borders," "Collective Violence, Trauma and Representation," and "Global Cultural Formations." The experimental seminar format devotes the first two hours of each three-hour class to discussion of readings selected in consultation with guest instructors from a range of Penn departments and programs, as well as nearby campuses. The third hour is devoted to a presentation and discussion of a work in progress, a project either of a member of the course, or of a guest. Guest instructors may appear for one or a few meetings. The course is coordinated by the convener(s) who are present for all the class meetings along with the guests. Students are encouraged to bring work in progress, either on the basis of past seminars or independent projects, to form the basis for their projects in the seminar.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 785 Topics in 20th Century Art
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 786 Topics in 20th Century Art
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 788 Topics in 20th Century American Art
Topic varies.
Taught by: Leja, Shaw
Course not offered every year
Activity: Seminar
1 Course Unit
ARTH 793 Topics in Cinema and Media
Topic varies
Taught by: Beckman
Course not offered every year
Activity: Seminar
1 Course Unit

ARTH 794 Topics in Contemporary Art
Topic varies. Fall 2018: Since it was not translated into English until the mid 1960s, Walter Benjamin's Work of Art essay was slow to arrive in the English-speaking world, and when it did, it seemed part of the same zeitgeist as Guy Debord's The Society of the Spectacle, Roland Barthes' The Rhetoric of the Image, and Louis Althusser's Ideology and Ideological State Apparatuses. This zeitgeist was deeply suspicious of popular images, and this suspicion was soon fortified from a feminist direction by Laura Mulvey's Visual pleasure and Narrative Cinema, and a postcolonial one by Frantz Fanon's Black Skin, White Masks. Benjamin's essay extended it to the kinds of images we generally find in museums, i.e., to what I will be calling pictures. This made the museum the primary target of institutional critique, and gave rise to what Hal Foster called the anti-aesthetic. It was against this backdrop that the so-called Pictures Generation emerged. This category was helpful at first, since it allowed us to look at things that would otherwise have been forbidden. It was based, however, on a misapprehension: the misapprehension that a picture means the same thing for Jeff Wall as it does for Cindy Sherman.
Taught by: Silverman
Course not offered every year
Activity: Seminar
1 Course Unit
ASIAN AMERICAN STUDIES (ASAM)

ASAM 001 Asian Americans in Contemporary Society
This class will introduce you to sociological research of Asian Americans and engage in the "model minority" stereotype. We begin by a brief introduction to U.S. immigration history and sociological theories about assimilation and racial stratification. The class will also cover research on racial and ethnic identity, educational stratification, mass media images, interracial marriage, multiracials, transracial adoption, and the viability of an Asian American panethnic identity. We will also examine the similarities and differences of Asian Americans relative to other minority groups.
For BA Students: Society Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

ASAM 002 Asian American Literature
An overview of Asian American literature from its beginnings at the turn of the twentieth century to the present. This course covers a wide range of Asian American novels, plays, and poems, situating them in the contexts of Asian American history and minority communities and considering the variety of formal strategies these different texts take.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

ASAM 003 Introduction to Asian American History
This course provides an introduction to the history of Asian/Pacific Americans, focusing on the wide diversity of migrant experiences, as well as the continuing legacies of Orientalism on American-born APA's. Issues of race, class, gender, and sexuality will also be examined.
For BA Students: History and Tradition Sector
Taught by: Azuma
One-term course offered either term
Activity: Lecture
1 Course Unit

ASAM 006 Race and Ethnic Relations
This course will focus on race and ethnicity in the United States. We begin with a brief history of racial categorization and immigration to the U.S. The course continues by examining a number of topics including racial and ethnic identity, interracial and interethnic friendships and marriage, racial attitudes, mass media images, residential segregation, educational stratification, and labor market outcomes. The course will include discussions of African Americans, Whites, Hispanics, Asian Americans, and multiracials.
One-term course offered either term
Activity: Lecture
1 Course Unit

ASAM 101 Asian American Activism
Please see our website for more current information:
asam.sas.upenn.edu
One-term course offered either term
Activity: Seminar
1 Course Unit

ASAM 100 Multicultural Psychology
Please see our website for more current information:
asam.sas.upenn.edu
Activity: Lecture
1 Course Unit

ASAM 160 South Asians in the United States
This course investigates the everyday practices and customs of South Asians in America. Every immigrant group has its own history, customs, beliefs and values, making each unique while simultaneously a part of the "melting pot" or salad bowl" of American society. Yet how do people define themselves and their ethnicities living in a diasporic context? By taking into account the burgeoning South Asian American population as our model, this course will explore the basic themes surrounding the lives that immigrants are living in America, and more specifically the identity which the second generation, born and/or raised in American, is developing. South Asians in the U.S. will be divided thematically covering the topics of ethnicity, marriage, gender, religion, and pop culture. Reading and assignments will discuss a variety of issues and viewpoints that are a part of the fabric of South Asia, but will focus on the interpretation of such expressive culture in the United States.
Taught by: Khan
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ASAM 170 Psych of Asian Americans
Using a cultural perspective, this course is intended to provide knowledge of Asian American personality, identity, and its relationship to mental well being; analyze psycho-social research pertinent to Asian Americans; and develop critical thinking skills on Asian American issues through experiential learning/discussions.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ASAM 180 Asian American Food
You are what you eat. Asian American Food explores the history, politics, and ethnic identity of food through a cultural lens. Growing food, eating, and sharing meals serve as intimate expressions of self and community. By examining the production and consumption of food, the course investigates the ways that Asian Americans navigate traditions, gender norms, religious dietary laws, food habits, and employment as they create lives in the United States. The course overviews the history of Asian American foodways, but has a particular focus on Philadelphia’s Asian American communities.
Taught by: Khan, F
Activity: Seminar
1 Course Unit

ASAM 190 Intro Asian Am Studies: Introduction To Asian American Studies
Activity: Lecture
1 Course Unit

ASAM 200 Multicultural Psychology
Please see our website for more current information:
asam.sas.upenn.edu
Activity: Lecture
1 Course Unit

ASAM 201 Topics in Asian American Sociology
Topics vary. Please see our website for more current information:
asam.sas.upenn.edu
One-term course offered either term
Activity: Lecture
1 Course Unit
ASAM 202 Topics in Asian American Literature
Topics vary. Please see our website for more current information:
asam.sas.upenn.edu
One-term course offered either term
Activity: Seminar
1 Course Unit

ASAM 203 Topics in Asian American History
Topics vary. Please see our website for more current information:
asam.sas.upenn.edu
One-term course offered either term
Activity: Seminar
1 Course Unit

ASAM 205 Asian American Communities
Who is Asian American and how and where do we recognize Asian
America? This interdisciplinary course explores the multiple factors that
define Asian American identity and community. In order to provide a
sketch of the multifaceted experience of this growing minority group, we
will discuss a wide variety of texts from scholarly, artistic, and popular
(film, cinematic) sources that mark key moments in the cultural history
of Asia America. The course will address major themes of community
life including migration history, Asian American as model minority, race,
class, and transnational scope of Asian America. In combination with the
readings, this class will foster and promote independent research based
on site visits to various Asian American communities in Philadelphia and
will host community leaders as guest lecturers.
Taught by: Khan
One-term course offered either term
Activity: Seminar
1 Course Unit

ASAM 210 Asian Am Religions: Asian American Religions
Activity: Seminar
1 Course Unit

ASAM 294 Facing America
This course explores the visual history of race in the United States as
both self-fashioning and cultural mythology by examining the ways that
conceptions of Native American, Latino, and Asian identity, alongside
ideas of Blackness and Whiteness, have combined to create the various
cultural ideologies of class, gender, and sexuality that remain evident in
historical visual and material culture. We will also investigate the ways
that these creations have subsequently helped to launch new visual
entertainments, including museum spectacles, blackface minstrelsy, and
early film, from the colonial period through the 1940s.
Taught by: Shaw
Activity: Lecture
1 Course Unit

ASAM 354 American Expansion in the Pacific
This class will focus on America’s expansion into the Pacific around the
turn of the century with the acquisition of Hawaii and the Phillipines.
It can deal with various issues, including the meaning of "frontier;" colonialism, development of capitalist economies in the region, diplomacy, racism, migration, an American brand of Orientalism in encountering the "natives" and "heathens;"and histories of the West and the Pacific Islands in general.
Taught by: Azuma
One-term course offered either term
Activity: Lecture
1 Course Unit

ASAM 590 Sociology of Education
This graduate seminar will introduce students to some of the key
theoretical and empirical work in the sociology of education. We will
examine how schools work to maintain or alleviate inequality, and
focus on differences in educational achievement and attainment by race,
ethnicity, immigrant status, class, and gender. We will review work on
the educational experiences of youth from early childhood to young
adulthood.
Taught by: Kao
Course not offered every year
Activity: Seminar
1 Course Unit
ASIAN LANGUAGES (ALAN)

ALAN 110 Elementary Vietnamese I & II
An introduction to the language of North and South Vietnam. Instruction includes reading, writing, speaking and listening.
For BA Students: Language Course
Taught by: Nguyen
One-term course offered either term
Prerequisites: For the second semester, completion of the first semester or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

ALAN 120 Beginning Filipino I & II
An introduction to the spoken and written Tagalog (Filipino) language. This will prepare and develop students' basic skills in speaking, listening, reading and writing Filipino at its beginning level.
For BA Students: Language Course
Taught by: Juliano
Two terms. student must enter first term.
Prerequisites: For the second semester, completion of the first semester of ALAN 120 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

ALAN 121 Beginning Filipino II
Activity: Lecture
1 Course Unit

ALAN 130 Beginning Thai I & II
An introduction to the spoken and written Thai language. Beginning Thai will explain the fundamentals of the modern Thai language in its literary and spoken forms. Students will develop the ability to read the Thai script and identify and analyze Thai grammatical forms. Students will also learn conversational Thai, and be introduced to the structure of spoken grammar and its pronunciation. This class will provide a foundation for reading Thai literature, both classical and modern, and for speaking Thai.
For BA Students: Language Course
Two terms. student must enter first term.
Prerequisites: For the second semester, completion of the first semester or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

ALAN 131 Beginning Thai II
Beginning Thai II will develop fundamentals of the modern Thai language in its literary and spoken forms. Students will continue learning to read Thai and analyze Thai grammatical forms. Students will also continue learning conversational Thai, and increase familiarity with the structures of spoken grammar and pronunciation. This course will provide a foundation for reading Thai literature, both classical and modern, and for speaking Thai. Rich and colorful culture of Tibet will be part of the curriculum.
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

ALAN 150 Elementary Indonesian I
Elementary Indonesian I course is designed for both beginners and those who may have some previous experience with the language. This course will focus on developing and using the four foundational language skills (speaking, listening, reading, and writing) in a communicative format. Students will develop not only their ability to use and understand contemporary Indonesian, but also their knowledge of Indonesian history and culture. By the end of the semester, students will be able to engage in simple conversations about familiar things such as family, friends and daily activities. They will know every day expressions, will be able to tell time, to negate sentences and to build questions. Students will develop reading strategies and learn about the practical life and the cultural practices in Indonesia and compare them with their own.
For BA Students: Language Course
One-term course offered either term
Activity: Lecture
1 Course Unit

ALAN 210 Intermediate Vietnamese I & II
A continuation of ALAN 110, the written and spoken language of Vietnam.
For BA Students: Language Course
Taught by: Nguyen
One-term course offered either term
Prerequisites: ALAN 110 or equivalent. For the second semester, completion of the first semester or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

ALAN 220 Intermediate Filipino I & II
A continuation of ALAN 120, the spoken and written Tagalog (Filipino) language. This course will develop the communicative competence of the students in handling limited communicative tasks, reading simple connected texts and writing short dialogues.
For BA Students: Last Language Course
Taught by: Juliano
Two terms. student must enter first term.
Prerequisites: For the second semester, completion of the first semester of ALAN 220 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

ALAN 230 Intermediate Thai I & II
A continuation of ALAN 130, the spoken and written Thai language. This course will focus on developing and using the four foundational language skills (speaking, listening, reading, and writing) in a communicative format. Students will develop not only their ability to use and understand contemporary Thai, but also their knowledge of Thai history and culture. By the end of the semester, students will be able to engage in simple conversations about familiar things such as family, friends and daily activities. They will know every day expressions, will be able to tell time, to negate sentences and to build questions. Students will develop reading strategies and learn about the practical life and the cultural practices in Indonesia and compare them with their own.
For BA Students: Language Course
One-term course offered either term
Activity: Lecture
1 Course Unit

ALAN 231 Intermediate Thai II
Activity: Lecture
1 Course Unit
ASTRONOMY (ASTR)

ASTR 001 A Survey of the Universe
A general survey, designed for the non-major, of the facts and theories of the astronomical universe, from solar system, to stars, to galaxies and cosmology. Topics include planets, satellites, small objects in the solar system, and extraterrestrial life; stars, their evolution, and their final state as white dwarfs, neutron stars, or black holes; galaxies, quasars, large structures, background radiation, and big bang cosmology. Elementary algebra and geometry will be used. This course is not recommended for physical-science majors or engineering students. Engineering students receive no credit for this course. Fulfills quantitative data analysis requirement.
For BA Students: Physical World Sector
Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit
Notes: Only one ASTR course below ASTR 211 may be taken for credit. Engineering students receive no credit for this course.

ASTR 006 The Solar System, Exoplanets, and Life
A survey course on planets and life covering our own Solar System and exoplanets orbiting other stars. Topics include the latest results and theories about: the origin and evolution of planetary systems around our Sun and other stars; the detection of exoplanets; the implications of planetary atmospheres for life; and the search for life on other planets in our Solar System. This course is designed for the non-major and elementary algebra and geometry will be used. Physical science majors and engineering students should prefer ASTR 211 to this course.
For BA Students: Natural Science and Math Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Also fulfills General Requirement in Physical World for Class of 2009 and prior. Only one ASTR course below ASTR 211 may be taken for credit. Fulfills quantitative data analysis requirement.

ASTR 007 The Big Bang and Beyond
An introductory course for students who do not intend to major in a physical science or engineering, covering theories of the Universe ranging from the ancient perspective to the contemporary hot big bang model, including some notions of Einstein's special and general theories of relativity. Topics will include the solar system, stars, black holes, galaxies, and the structure, origin and future of the Universe itself. Elementary algebra is used. Fulfills quantitative data analysis requirement.
For BA Students: Natural Science and Math Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Also fulfills General Requirement in Physical World for Class of 2009 and prior. Only one ASTR course below ASTR 211 may be taken for credit.

ASTR 211 Introduction to Astrophysics I
A basic course for majors in physical sciences and engineering; required for the astrophysics concentration. The course provides fundamental knowledge of Newtonian gravity and the properties of light and matter as they are relevant for understanding astrophysical objects. Application is made to the observed features of planetary motion, the atmospheres and stars and planets, and the structure and evolution of stars.
For BA Students: Physical World Sector
Course usually offered in fall term
Prerequisites: MATH 104, PHYS 150, or concurrently.
Activity: Lecture
1 Course Unit

ASTR 212 Introduction to Astrophysics II
A basic course for majors in physical sciences and engineering; require for the astrophysics concentration. The course covers fundamental knowledge of Einstein's gravity, the contents of the universe, and the structure and distribution of galaxies. Emphasis is on the key elements of modern cosmology, the mathematical model of the expanding universe, the cosmic microwave background, the early universe and the emergence of large-scale structure in the present universe.
For BA Students: Physical World Sector
Course usually offered in spring term
Prerequisites: MATH 114, PHYS 151, or concurrently.
Activity: Lecture
1 Course Unit

ASTR 250 Astronomical Techniques
A laboratory course in astronomical observations and data reduction. This course satisfies one of the requirements for the astrophysics concentration. Topics vary, but include spherical astronomy, timekeeping and coordinate systems, astro-statistics, telescopes, CCD's, signal processing, imaging, spectroscopy, radio astronomy and data reduction techniques using custom software. Attendance at observatory sessions outside of the scheduled class time is required, but times are uncertain due to weather conditions. The course requires small-group work in-class, and substantial out-of-class time. Notes: Course not offered every year. The observatories at DRL are used for experimental and observational practice.
Course offered spring; even-numbered years
Prerequisites: ASTR 001, or ASTR 007, or ASTR 211, or ASTR 212. If a student has only taken ASTR 001 or ASTR007, MATH 240-241 will also be required.
Activity: Lecture
1 Course Unit
Notes: The observatories at DRL are used for experimental and observational practice.

ASTR 392 Life and Death of Stars
This is an advanced undergraduate course on the life and death of stars. The course will cover the structure of stellar interiors, nuclear reactions and the formation of elements, stellar evolution, supernovae, and the physics of white dwarfs, neutron stars, and black holes. We will approach these topics from both theoretical and observational perspectives.
One-term course offered either term
Activity: Lecture
1 Course Unit
**ASTR 503 Astronomical Methods and Instrumentation**
Techniques of modern astronomical observations, including: detection of light from the radio through gamma rays; sources of noise in astronomical measurements; image analysis and reduction techniques; telescope optics and adaptive optics; spectroscopic measurements; radio interferometry and spectroscopy.
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit

**ASTR 533 Galaxies: Structure, Dynamics and Formation**
Galactic structure and dynamics. Observed scaling relations. Models and observations of galaxy formation and evolution. Enrollment restricted to graduate students.
Course offered fall; odd-numbered years
Activity: Lecture
1 Course Unit
BEHAVIORAL & DECISION SCIENCES (BDS)

BDS 501 Behavioral Economics & Psychology: Theory & Experiments
(This is a core course requirement in the MBDS program.) In reality, our understanding of different mechanisms and (economic) relationships is hampered by a lack of data - and, more often than not, either the observation itself or the data is not reliable. In recent decades, through the work of pioneers in the behavioral and experimental economics field, such as Daniel Kahneman and Vernon Smith, economic experiments have become a vital part of the scientific discourse, facilitating our understanding of the world we live in (much like in biology, chemistry, physics, etc.). In this course, we will explore economic behavior by developing a research idea, designing an experiment, then carrying out the experiment under controlled conditions. Essentially, you will learn how to think about ideas, generate ideas, and use economic experiments to test them.
Activity: Lecture
1 Course Unit

BDS 502 Social Norms and Informal Institutions
Social norms are the rules we live by, and we encounter them in any area of our life. Social norms often guarantee the smooth functioning of a group or organization. Sometimes, however, these norms are inefficient or do not benefit society at large. What can we do to change these harmful collective behaviors? Social psychology, philosophy, sociology, rational-choice, legal theory, and even economics, are investigating and theorizing pro-social behavior, justice motivation, and moral and social norms. In this course, we will examine the latest and best in this emerging multidisciplinary field. Students will be encouraged to apply its findings and methods to their area of interest.
Activity: Lecture
1 Course Unit

BDS 503 Public Policy and Applications
A core MBDS program course requirement, this course addresses methodological issues that apply to each of the policies currently provided by governmental and non-governmental institutions worldwide. We will discuss the conditions that must be satisfied to make policies effective and the behavioral incentives that policy actors face. The course relies on the main theoretical and empirical findings of modern policy analysis and upon an extensive set of case studies. Students are required to master the conceptual material and to confront and solve practical cases in public policy. policy.
Activity: Lecture
1 Course Unit

BDS 511 Negotiation Behavior
We negotiate every day - with merchants, service providers, employers, coworkers, friends, and family - determining what price we will pay, the amount of our salary and compensation, what movies to watch, where to go to dinner, who will clean the kitchen, and so forth. Although negotiations are a ubiquitous part of our everyday lives, many of us know little about the strategy and psychology of effective negotiations. Why do we sometimes get our way, while other times we walk away feeling frustrated by our inability to achieve the agreement we desire? Over the past few decades, research in social psychology and decision science has sought the answer to this question and created a rich body of knowledge on bargaining behavior, leading to a well-validated prescription on how to negotiate. In this course, you will learn both the how and the why of negotiation behavior. Through role-playing exercises, you will be able to evaluate your own negotiation behavior as well as those of your classmates and receive advice on how to optimize it to achieve your desired outcomes. Importantly, you will also read and discuss research articles that have led to to such practical advice. In this way, the goal of this course is to combine negotiation practice and theory so you can develop a comprehensive skillset of negotiation behavior.
Activity: Lecture
1 Course Unit

BDS 512 Power, Persuasion and Influence
For permits please see: https://www.sas.upenn.edu/lps/graduate/mbds/permit-request Power and influence are fundamental for taking action in personal relationships, professional contexts and in society in general. To be able to use them effectively, however, we need to understand the nature, sources, uses and development of power and influence in these various contexts. To accomplish this goal, this course will survey theories of power, persuasion and influence from multiple disciplines and discuss their application to everyday actions.
Activity: Lecture
1 Course Unit

BDS 516 Quantitative Modeling in the Decision and Social Sciences
(This course fulfills the MBDS program’s quantitative course requirement.) Increasingly, decision-makers and systems rely on intelligent technology to analyze data systematically to improve decision-making. Data science is opening new pathways to improve decision-making in private and public organizations. Through lectures and real-world examples, this course will present a practical understanding of the fundamental methods used by data scientists including data management techniques, quantitative modeling, and data visualization. The primary emphasis is on understanding the fundamental concepts and applications of data science in the context of behavioral and decision sciences. We will cover several algorithms though this is not an algorithms course. We will examine real-world examples and cases to place data science techniques in context, to develop data-analytic thinking, and to illustrate that proper application is as much an art as it is a science.
Activity: Lecture
1 Course Unit
BDS 517 Trust and Uncertainties
For permits please see: https://www.sas.upenn.edu/lps/graduate/mbds/permit-request
Why do we trust some people and not others? What signals give us reason to trust some brands or products more than others? Trust is a foundational feature of the decisions we regularly undertake and turns largely on the kinds of uncertainty that we encounter. This course will provide background on the different types of trust we elicit and the motivational conditions that bring these expectation about. In so doing we will see that the nature of trust requires a more nuanced assessment of what we mean by uncertainty and how we experience it.
Activity: Lecture
1 Course Unit

BDS 521 Judgments & Decisions
This course addresses the ideal standards of judging and deciding, and the ways in which people fall short of these standards, with emphasis on the latter. We will discuss heuristics and other intuitive strategies that people may use in day-to-day thinking, and the biases that result from this use. We will apply this approach to shed light on faulty analyses in medicine, law, and everyday thinking. Understanding the ideals of good thinking and causes of our failure to conform to these ideals may ultimately help improve the decisions we make in private and professional lives. A limited number of seats in this class are reserved for upper level LPS undergraduate students who may be allowed to register with special permission from the instructor.
Activity: Lecture
1 Course Unit

BDS 522 Statistical Reasoning for Behavioral Science
For permits please see: https://www.sas.upenn.edu/lps/graduate/mbds/permit-request. The complexity of human behavior exceeds that of most phenomena studied in the natural sciences. Any inference about human behavior and decision-making has to rely on statistical methods rather than on deterministic modeling. In this class, students will learn the methods of descriptive and inferential statistics used in behavioral science from the basics to those more commonly used. In this sense, this is a class on theoretical statistics, but we will go beyond theory to apply these methods to answer our own research questions. As such, this is also a class on applied statistics. We will rely heavily on statistical programming languages (namely, R) and version control systems (Git) to create statistical reports. Finally, we will work with new research in the field and learn to critically assess the statistical methods used therein. After completing this class, students will be competent in reading cutting-edge scientific literature, producing their own results using the more commonly used methods, and able to critically assess the limitations of their own and other people’s research.
Activity: Lecture
1 Course Unit
BENGALI (BENG)

BENG 403 Beginning Bengali Part I
This course introduces students to colloquial Bengali. It gives equal emphasis to each of the four skills, reading, writing, listening, and speaking. Language will be studied in the context of socio-cultural aspects of West Bengal and Bangladesh. Besides lessons from the text, a major portion of the syllabus will be based on topics drawn from films, cultural events, festivals, food, and religion.
For BA Students: Language Course
Taught by: Banerjee, H
Course usually offered in fall term
Activity: Lecture
1 Course Unit

BENG 404 Beginning Bengali Part II
This course introduces students to colloquial Bengali. It gives equal emphasis to each of the four skills, reading, writing, listening, and speaking. Language will be studied in the context of socio-cultural aspects of West Bengal and Bangladesh. Besides lessons from the text, a major portion of the syllabus will be based on topics drawn from films, cultural events, festivals, food, and religion.
For BA Students: Language Course
Taught by: Banerjee, H
Course usually offered in spring term
Prerequisites: Beginning Bengali Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

BENG 423 Intermediate Bengali Part I
This course develops the student’s prior knowledge of Bengali. An attempt is made to gear the syllabus to meet the specific needs of students. The focus of the course is to develop the oral and aural skills of the learner as well as improve writing skills and reading strategies. Emphasis is also laid on increasing the sociolinguistic and strategic competence of the learners so that they will be able to function in the target culture. Besides discussions on various aspects of Bengali life, students read some short literary texts in the original Bengali version.
For BA Students: Language Course
Taught by: Banerjee, H
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

BENG 424 Intermediate Bengali Part II
This course develops the student’s prior knowledge of Bengali. An attempt is made to gear the syllabus to meet the specific needs of students. The focus of the course is to develop the oral and aural skills of the learner as well as improve writing skills and reading strategies. Emphasis is also laid on increasing the sociolinguistic and strategic competence of the learners so that they will be able to function in the target culture. Besides discussions on various aspects of Bengali life, students read some short literary texts in the original Bengali version.
For BA Students: Language Course
Taught by: Banerjee, H
Course usually offered in spring term
Prerequisites: Intermediate Bengali Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

BENG 433 Advanced Bengali
The objective of this course is to develop the proficiency level of the students in all the four skills by using different genres of Bengali literature (West Bengal and Bangladesh) as its course content. Reading comprehension will be enhanced as students learn to understand authentic texts at the linguistic and cultural level while discussion (description, narration, supporting opinion) on issues related to these texts aim to hone the oral and written skills. Students will be allowed to work on individual texts & topics (with the instructors permission) for their final project. This is a one semester course. Spring: Bengali Popular Culture- This course aims to use as its content, different aspects of popular Bengali culture as they are represented in media (film, television, magazines, newspapers) and arts (fashion, local and regional art, music). Students will be expected to develop their linguistic skills (description, narration, supporting opinion) and socio-cultural awareness while interacting with these varied types of texts. Students will be allowed to work on individual texts & topics (with the instructors permission) for their final project. This is a one semester course.
For BA Students: Advanced Language Course
Taught by: Banerjee, H
Course not offered every year
Activity: Lecture
1 Course Unit

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BIOCHEMISTRY & MOLECULAR BIOPHYSICS (BMB)

BMB 508 Macromolecular Biophysics: Principles and Methods
This course introduces students to the physical and chemical properties of biological macromolecules, including proteins and nucleic acids. It surveys the biophysical techniques used to study the structure and thermodynamics of macromolecules. It is intended to be a first course for graduate students with an undergraduate background in either physics, chemistry or biology, and no necessary background in biochemistry. Taught by: Sharp Course usually offered in fall term Prerequisite: Senior undergraduate or graduate level biochemistry or biophysics Activity: Lecture 1 Course Unit

BMB 509 Structural and Mechanistic Biochemistry
The course will focus on the key biochemical task areas of living cells. The course progresses from primarily molecular level events, such as storage and translation of genetic information, creation, control and removal of proteins, to higher organization levels such as metabolic pathways, signaling pathways, regulation and homeostasis. Each section will cover structure details of the relevant molecules, appropriate binding/catalysis events, regulatory aspects, and how they fit into the relevant pathway(s) and cell function. Material will be covered with a combination of formal lectures and student presentations. Taught by: Van Duyne Course usually offered in spring term Prerequisites: BMB 508 and BIOM 600 or permission of course director Activity: Lecture 1 Course Unit

BMB 510 Data Analysis and Scientific Inference
An introductory course in the analysis of data and scientific inference for graduate students in Biochemistry, Molecular Biophysics, and related quantitative biomedical research areas. The course will stress fundamental principles of data analysis, best practice in presenting data, and how to draw sound scientific inferences from the data. The overall goal is to provide students the tools to carry out rigorous and reproducible scientific research. Course usually offered in spring term Activity: Lecture 1 Course Unit

BMB 518 Protein Conformation Diseases
Protein misfolding and aggregation has been associated with over 40 human diseases, ranging from Alzheimer’s disease, Parkinson’s disease, amyotrophic lateral sclerosis, prion diseases, alpha(1)-antitrypsin deficiency, inclusion body myopathy, and systemic amyloidoses. This course will include lectures, directed readings and student presentations to cover seminal and current papers on the cell biology of conformational diseases including topics such as protein folding and misfolding, protein degradation pathways, effects of protein aggregation on cell function, model systems to study protein aggregation and novel approaches to prevent protein aggregation. Taught by: Argon and Ischiropoulos Course offered fall; odd-numbered years Also Offered As: NGG 615 Prerequisite: BIOM 600 or equivalent Activity: Lecture 1 Course Unit

BMB 554 Macromolecular Crystallography: Methods and Applications
This is an introductory course on methods and applications of macromolecular structure determination using X-ray crystallography. The course will be broken up into three parts: 1) Principles of X-ray crystallography involving didactic lectures on the technique with weekly problem sets; 2) Workshops on macromolecular structure determination involving hands-on experience with the technology; 3) Student “journal club” presentations on current high impact publications involving X-ray crystal structure determination. Taught by: Marmorstein and Skordalakes Course usually offered in fall term Prerequisites: Undergraduate calculus and trigonometry Activity: Lecture 1 Course Unit

BMB 567 Bioinorganic Chemistry
This course covers selected topics in bioinorganic chemistry. Special emphasis is placed on dioxygen chemistry and electron transfer processes. Course topics include: 1) oxygen uptake and utilization; 2) oxygen transport; 3) oxygen and O atom incorporation into substrates; 4) metalloenzyme-catalyzed C-C bond formation; 5) the metallobiochemistry of DNA; 6) metal-sulfide proteins; 7) manganese containing metalloproteins; 8) photosystem II, light-driven electron transfer and the biological water-splitting reaction; 9) biological electron transfer; 10) electron transfer theory; 11) mechanisms of energy storage and release; and 12) long-distance electron transfer reactions. Taught by: Dmochowski One-term course offered either term Activity: Lecture 1 Course Unit

BMB 581 Techniques of Magnetic Resonance Imaging
Detailed introduction to the physics and engineering of magnetic resonance imaging as applied to medical diagnosis. Covered are magnetism, spatial encoding principles, Fourier analysis, spin relaxation, imaging pulse sequences and pulse design, contrast mechanisms, chemical shift, flow encoding, diffusion and perfusion and a discussion of the most relevant clinical applications. Taught by: Song and Wehrli Course offered spring; odd-numbered years Also Offered As: BE 581 Activity: Lecture 1 Course Unit
BMB 585 Wistar Institute Cancer Biology Course: Signaling Pathways in Cancer
This course is intended to provide foundational information about the molecular basis of cancer. When necessary the significance of this information for clinical aspects of cancer is also discussed. The main theme centers around cell cycle checkpoints with specific emphasis on the biochemistry and genetics of DNA damage signaling pathways, DNA damage checkpoints, mitotic checkpoints and their relevance to human cancer. The course is taught by the organizers and guest lecturers from universities and research institutions in the Northeast. Following every lecture, students present a research paper related to the topic of that lecture. The course is intended for first and second year graduate students but all graduate students are welcome to attend.
Taught by: Skordalakes and Murphy
Course usually offered in fall term
Also Offered As: GCB 585
Prerequisites: Undergraduates and Master's degree candidates require permission from the course directors
Activity: Lecture
1 Course Unit

BMB 598 Tutorial
The tutorial course is designed for in-depth study of a specific topic through one-on-one meetings and discussions between the student and a selected BMB faculty member. The intent of the course is to broaden the students knowledge, thus the tutorial may not be taken with the student's current rotation advisor or thesis advisor. Choice of faculty member and topic is by prior mutual agreement between the student and faculty member, subject to approval by the course director. Student and faculty member will typically meet for an hour or so 2 - 3 times per week. The course may take the form of literature study, or where appropriate, a mini-project (typically computer-based) A tutorial can be used by students to become more deeply acquainted with the literature related to their thesis project or to help prepare students for their Candidacy Exam. Upon completion of the tutorial, students must prepare a written description of the area studied (5-10 typewritten pages)
Taught by: Kim Sharp and staff
Course offered summer, fall and spring terms
Activity: Independent Study
1 Course Unit

BMB 601 Fundamentals of Magnetic Resonance
This course introduces basic theoretical and experimental concepts of magnetic resonance and its applications in biochemistry, biology and medicine. Topics covered include description of the phenomenon of magnetic resonance, and classical and quantum strategies to compute nuclear spin responses in liquids, solids and biological tissues, polarization transfer and multiple quantum effects and their applications in biomedicine. Nuclear spin relaxation in solid-state materials and in biological systems will be discussed. Concepts of magnetic resonance imaging, imaging strategies, image contrast, and diagnostic applications are discussed. The course includes several practicals dealing with the demonstration of NMR hardware and experiments to compute basic NMR parameters on high resolution and clinical MRI scanners. For further details of this course, visit www.mmrcc.upenn.edu
Taught by: Reddy
Course offered fall; odd-numbered years
Activity: Lecture
0.5 Course Units

BMB 602 Imaging Biomarkers
Introduction to principles of imaging based biomarkers for studying metabolic and functional integrity of biological tissues in vivo. Topics covered include a general overview of multimodal imaging biomarkers and a special emphasis on theoretical and practical aspects of MRI biomarkers based on magnetic resonance imaging, exchange, and metabolic spectroscopy as well as functional responses and their applications in diagnostic imaging of different diseases.
Taught by: Reddy (course director), Borthakur, Elliot, Hariharan
Course offered spring; odd-numbered years
Prerequisites: BMB 601 or permission of course director; students with prior NMR and MRI background will be given priority
Activity: Lecture
0.5 Course Units
Notes: Course meets for eight weeks (1/2 credit)

BMB 605 Drug Discovery and Development
This course will expose graduate-level students to the process of drug discovery and development. The course will be structured to cover topics from the identification of a disease-relevant target through to Phase III Clinical Trials. The course will be lecture based and there will also be student-led journal club presentations as part of the course. There will also be a writing project consisting of a 3 page proposal of how to advance one of the areas of Drug Discovery & Development covered in the course.
Taught by: Dr.Ben E.Black, UPenn and Dr.Craig A.Leach, GlaxoSmithKline
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: 2 X 1.5 hr sessions per week

BMB 618 Applications of High Resolution NMR Spectroscopy to Problems in Structural Biology
A lecture-based course designed to introduce graduate students to applications of modern high-resolution multinuclear and multidimensional NMR spectroscopy to problems in structural biology. The course will first introduce classical definitions and descriptions of nuclear magnetic resonance and a convenient formalism for the analysis of advanced NMR experiments. Concepts and applications of multidimensional homonuclear 1H NMR and multidimensional heteronuclear spectroscopy of proteins and nucleic acids will be described. Resonance assignment strategies including analysis of triple resonance spectroscopy will be covered. The origin, measurement and extraction of structural restraints and their use in structure determination will be surveyed and illustrated with recent examples.
Taught by: Wand
Course offered fall; odd-numbered years
Prerequisites: Undergraduate biochemistry and physical chemistry and BMB 601, or permission of instructor
Activity: Lecture
0.5 Course Units
Notes: Course meets for 8 weeks and is offered for 1/2 credit
BMB 622 Physical Principles of Mechano-Enzymes
This course will provide an introduction to the biochemical, structural, and mechanical properties of energy-transducing enzymes. We will emphasize the relationships of mechanical, thermal, and chemical forces in mechano-enzyme function.
Taught by: Domínguez, Goldman, Grishchuk and Ostap
Course offered spring; even-numbered years
Prerequisite: Biochemistry
Activity: Lecture
0.5 Course Units
Notes: Course meets for 8 weeks and is offered for 1/2 credit.

BMB 624 Molecular and Physical Basis of Ion Channels
The course is a journal club format, targeted to graduate and MD/PhD students interested in ion channels from graduate programs in Physiology, Pathology, Neuroscience, Pharmacology, Biochemistry & Molecular Biophysics. It meets for one hour, once a week on alternate weeks and is coupled to the Ion Channel Journal Club, which also meets for one hour on the same alternate weeks (9:30-10:30 a.m., Thursdays, B400 Richards Building). A faculty member meets with students to discuss and review the contents of each selected article early in the week in preparation for the subsequent Journal Club presentation. This elective course is meant to introduce students to the latest advances in ion channel research and includes topics extending from biophysics, structure, and physiology to cell biology and medical applications.
Taught by: Kallen
Course offered spring; odd-numbered years
Activity: Lecture
0.5 Course Units
Notes: Course meets all semester (half time) for 1/2 credit.

BMB 626 Mass Spectrometry and Proteomics
This course will provide a detailed introduction to proteomics and mass spectrometry. The role of mass spectrometry in both characterizing proteins for traditional protein structure-function studies and identification of proteins in proteome studies will be emphasized. Targeted and global proteomes, quantitative protein profiling and compositional proteomics, and applications of proteome studies will be discussed. Intended for first and second year graduate students and others with an interest in proteomics and mass spectrometry.
Taught by: Speicher and Garcia
Course offered spring; even-numbered years
Activity: Lecture
0.5 Course Units
Notes: Course meets for 8 weeks and is offered for 1/2 credit.

BMB 627 Computer Programming for Biochemists and Biophysicists
An introductory course on programming and algorithms for scientists with an emphasis on applications to biophysics. Students will learn to write, debug, and execute basic programs through lectures, in-class workshops, and programming projects outside of class.
Taught by: Sharp and Van Duyne
Prerequisites: Permission of instructor for nonBMB students.
Activity: Lecture
0.5 Course Units
Notes: Course meets for eight weeks and is offered for 1/2 credit.

BMB 632 Probing Structure and Function of Complex RNA-Protein Machines
RNA-Protein complexes or RNPs can range from simple assemblies to megadalton enzymatic machines. The latter include two of the most abundant and essential enzymatic complexes for converting genes to functional protein-the ribosome and the spliceosome. Understanding the molecular interactions that hold these RNPs together and how these complexes function has required the development of new techniques and pushed the boundaries of quantitative biochemistry. In this course we will take an in-depth look at general concepts common to many RNA binding proteins, the methods used to study protein-RNA and RNA-RNA interactions, and how the complex nature of large RNPs uniquely allow them to achieve their precise functions. The course will be a combination of both lectures and student-lead discussion of recent literature. Students will be evaluated based on their presentations of primary literature and their participation in class discussion.
Taught by: Lynch
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit

BMB 650 Current Biochemical Topics
Participation in the "Dr. George W. Raiziss Biochemical Rounds", a weekly seminar program sponsored by the Department of Biochemistry and Biophysics. Program deals with a wide range of modern biochemical and biophysical topics presented by established investigators selected from our faculty, and by leading scientists from other institutions.
Taught by: Black and Shorter
Course offered summer, fall and spring terms
Prerequisite: Permission needed from Department
Activity: Seminar
1 Course Unit

BMB 699 Laboratory Rotation
Supervised "mini-projects" for graduate students in Biochemistry and Molecular Biophysics. End of the semester requirements are 1) poster presentations; 2) written rotation summaries; or 3) talks. Course is offered fall, winter, spring, and summer semesters.
Taught by: Kohli
Course offered summer, fall and spring terms
Activity: Laboratory
1 Course Unit

BMB 705 Candidacy Exam Preparation Course
This course is designed for second year BMB students to prepare them for the Candidacy Examination, which must be completed in the spring semester of the second year.
Taught by: Marmorstein, Lynch and Nelson
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: Course meets for 8 weeks at the beginning of the spring semester, for 1/2 credit.

BMB 751 Chemical Biology
One-term course offered either term
Activity: Lecture
1 Course Unit

BMB 799 Independent Study (Yrs 1 - 2)
Activity: Independent Study
1 Course Unit
BMB 899 Pre-Dissertation Research
One-term course offered either term
Activity: Independent Study
1 Course Unit

BMB 990 Master’s Thesis Research
One-term course offered either term
Activity: Masters Thesis
1 Course Unit
Notes: See Department for section numbers

BMB 995 Dissertation Research
Activity: Dissertation
1 Course Unit
Notes: See Department for section numbers
BIOCHEMISTRY (BCHE)

BCHE 280 Physical Models of Biological Systems
Classic case studies of successful reductionistic models of complex phenomena, emphasizing the key steps of making estimates, using them to figure out which physical variables and phenomena will be most relevant to a given system, finding analogies to purely physical systems whose behavior is already known, and embodying those in a mathematical model, which is often implemented in computer code. Topics may include bacterial genetics, genetic switches and oscillators; systems that sense or utilize light; superresolution and other new microscopy methods; and vision and other modes of sensory transduction.
Course usually offered in fall term
Prerequisites: PHYS 101 (or higher), MATH 104-MATH 114 or MATH 104-MATH 115 or MATH 116. Recommended: previous or concurrent PHYS 102; basic background in chemistry and biology.
Activity: Lecture
1 Course Unit

BCHE 299 Undergraduate Research Projects
Independent Research.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: 10-20 h., 1-2 c.u., admission by permission of the biochemistry undergraduate chairman.

BCHE 300 Senior Research Projects
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: 10-20 h., 1-2 c.u., admission by permission of the biochemistry undergraduate chairman.

BCHE 404 Biochemistry Laboratory
Participation in research projects in the laboratories of individual faculty members. A list of possible research supervisors is available in the Biochemistry office (351 Chemistry). In addition to their laboratory projects, students will attend a weekly seminar in which their own and related work will be discussed.
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit
Notes: Year long course --initial registration must occur in Fall term, 0 c.u. for first term and 2 c.u. for second term, 15h. CHEM 451 or permission of instructor required.

BCHE 580 Biological Physics
One-term course offered either term
Prerequisites: Physics 150-151 or 170-171, Math 104-114 or Math 104-115. Recommended: concurrent Physics 230 or prior Physics 250, basic background in chemistry and biology.
Activity: Lecture
1 Course Unit
**BIOENGINEERING (BE)**

**BE 100 Introduction to Bioengineering**
Survey course introducing students to the breadth of bioengineering. Course consists of introductory lectures, guest speakers/panelists, and a series of small assignments that allow students to explore different facets of bioengineering and the Penn Bioengineering program. Course usually offered in fall term
Corequisites: MATH 104, PHYS 140 or 150.
Activity: Lecture
0.5 Course Units
Notes: Freshmen Only.

**BE 101 Introduction to Bioengineering II**
Introduction to Bioengineering II. Continuation of the freshman introductory bioengineering course. This course introduces students to the design process and emphasizes its role in engineering. Course usually offered in spring term
Prerequisite: BE 100
Activity: Lecture
0.5 Course Units
Notes: Freshmen Only

**BE 200 Introduction to Biomechanics**
This course investigates the application of statics and strength of materials to soft and hard biologic tissues. The course will cover simple force analyses of the musculoskeletal system and introduces the fundamentals of the mechanics of materials including axial loading, torsion and bending and their application to biomechanics. The lecture and recitation will be complemented with hands-on examples emphasizing connections between theoretical principles and practical applications. Course usually offered in fall term
Prerequisites: MATH 114, PHYS 140, or PHYS 150
Corequisite: MATH 240
Activity: Lecture
1 Course Unit

**BE 220 Biomaterials**
This course investigates the application of materials science and engineering to biomedical applications, with a focus on polymers, ceramics, and metals. The course will cover concepts related to basic material fabrication and synthesis, structure and property characterization, as well as applications of biomaterials. The lecture and recitation will be complemented with laboratory examples of material assessment and characterization. Course usually offered in spring term
Prerequisites: BE 200, CHEM 102
Activity: Lecture
1 Course Unit

**BE 225 Technology and Engineering in Medicine**
The course is appropriate for engineering and natural science majors including premeds. The prerequisites will not be waived. This course will provide an examination of technology with emphasis on engineering design and its impact on medicine and health. Planned topics change from year to year and include, for example, cochlear implants and visual sensory rehabilitative devices. The course includes homework and reading assignments. Every student presents a paper on a relevant biomedical technology and the underlying science and engineering design. One-term course offered either term
Prerequisites: MATH 114, PHYS 140 and 141 or PHYS 150 and 151 or PHYS 170 and 171; sophomore and higher only.
Activity: Seminar
1 Course Unit

**BE 301 Bioengineering Signals and Systems**
Properties of signals and systems; Examples of biological and biomedical signal and systems; Signal operations, continuous and discrete signals; Linear, time invariant systems; Time domain analysis; Systems characterized by linear constant-coefficient differential equations; Fourier analysis with applications to biomedical signals and systems; Introduction to filtering; Sampling and the sampling theorem. Examples vary from year to year, but usually include signals such as the ECG and blood pressure wave, principles of signal coding in the auditory system and cochlear implants, and simple applications in biomedical imaging. One-term course offered either term
Prerequisites: MATH 241, PHYS 141 OR 151, ENGR 105 can be taken as a prerequisite or corequisite.
Activity: Lecture
1 Course Unit

**BE 305 Engineering Principles of Human Physiology**
This course presents a quantitative, biophysical approach to physiology, focusing on the nervous, cardiovascular, and pulmonary systems. We will also emphasize computational modeling and analysis of physiological systems. Course usually offered in spring term
Prerequisites: MATH 240 and ENGR 105 (or equivalent).
Activity: Lecture
1 Course Unit
BE 306 Molecular Physiology and Cellular Engineering from Atoms to Disease
This course explores physical biology of the cell across several length and timescales, while simultaneously emphasizing molecular specificity and clinical implications such as disease outcome or biomedical applications. The course emphasizes how the basic tools and insights of engineering, physics, chemistry, and mathematics combined with “Big Data” can illuminate the study of molecular and cell biology to make predictive biomedical models and subject them to clinical validation. Drawing on key examples and seminal experiments from the current clinical literature, the course demonstrates how quantitative models can help refine our understanding of existing biological data and also be used to make useful clinical predictions. The course blends traditional models in cell biology with the quantitative approach typical in engineering, in order to introduce the student to both the possibilities and boundaries of the emerging field of physical systems biology. While teaching physical model building in cell biology through a practical, case-study approach, the course explores how quantitative modeling based on engineering principles can be used to build a more profound, intuitive understanding of cell biology. Lab modules will be embedded in the lectures and all labs will be in silico (or computational) in nature.
Course usually offered in fall term
Prerequisites: CHEM 102, MATH 241, PHYS 140,141, BIOL 121
Activity: Lecture
1 Course Unit

BE 309 Bioengineering Modeling, Analysis and Design Laboratory I
BE 309 is a one course-unit laboratory course with a focus on combining experimental and mathematical approaches to understand biological systems and solve bioengineering problems. The course content integrates concepts from mathematics, physics, signal analysis, control engineering, mass transport, and heat transfer with applications in physiology and pharmacology. Areas of emphasis are model development and validation, statistical analysis, experimental design, error analysis and uncertainty, and scientific writing.
Course usually offered in fall term
Prerequisites: ENGR 105, PHYS 141 or PHYS 151, MATH 240, BE 200, BE 220, ENM 375 or equivalent.
Activity: Lecture
1 Course Unit

BE 310 Bioengineering Modeling, Analysis and Design Laboratory II
BE 310 is a one course-unit laboratory course on the design of technology to measure and control biological systems. The course is divided into four modules: (i) microfluidics for point of care diagnostics, (ii) synthetic biology for predicting cellular behavior, (iii) electronics and signal analysis of bioelectrical signals, and (iv) bioanalytical spectroscopy for low-cost diagnostics. Each module will have two components: (i) a series of structured learning exercises to teach key concepts and methods of the topic that we are studying, and (ii) a design challenge, in which the understanding gained in the first component is used to design a solution to an open ended bioengineering challenge.
Course usually offered in spring term
Prerequisites: ENGR 105, PHYS 141,151, BE 220, BIOL 121,123, MATH 240, ENM 375 (or equivalent)
Corequisites: MATH 241, BE 301
Activity: Laboratory
1 Course Unit

BE 324 Chemical Basis of Bioengineering II
Advanced topics in physical chemistry including solution and colloid chemistry, electrochemistry, surface phenomena, and macromolecules applied to biological systems.
Course usually offered in fall term
Prerequisites: PHYS 140, 141 or 150, 151, MATH 240, CHEM 101, 102
Activity: Lecture
1 Course Unit

BE 330 Self Assembly of Soft Materials
Soft matter is found in diverse applications including sports (helmets & cloths); food (chocolate, egg); consumer products (e.g., lotions and shampoo); and devices (displays, electronics). Whereas solids and liquids are typically hard and crystalline or soft and fluid, respectively, soft matter can exhibit both solid and liquid like behavior. In this class, we investigate the thermodynamic and dynamic principles common to soft matter as well as soft (weak) forces, self-assembly and phase behavior. Classes of matter include colloidal particles, polymers, liquid crystalline molecules, amphiphilic molecules, biomacromolecules/membranes, and food. About four active learning activities will be included.
One-term course offered either term
Also Offered As: MSE 330
Prerequisites: CHEM 102 or equivalent; MSE 220 or BE 220 or introductory physical chemistry course.
Activity: Lecture
1 Course Unit

BE 350 Introduction to Biotransport Processes
Introduction to basic principles of fluid mechanics and of energy and mass transport with emphasis on applications to living systems and biomedical devices.
Course usually offered in spring term
Prerequisites: MATH 240, PHYS 140 or 150, BE 200
Activity: Lecture
1 Course Unit

BE 400 Preceptorship in Clinical Bioengineering
Introduction to the integration of biomedical engineering in clinical medicine through lectures and a preceptorship with clinical faculty. This course is for BE majors ONLY, with preference given to BSE students.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Junior and Senior BE majors only

BE 455 Continuum Biomechanics
Continuum mechanics with applications to biological systems. Fundamental engineering conservation laws are introduced and illustrated using biological and non-biological examples. Kinematics of deformation, stress, and conservation of mass, momentum, and energy. Constitutive equations for fluids, solids, and intermediate types of media are described and applied to selected biological examples. Class work is complemented by computational laboratory experiences.
Course usually offered in fall term
Prerequisite: MATH through 241; BE 200 or MEAM 210; BE 350 or MEAM 302
Activity: Lecture
1 Course Unit
BE 470 Medical Devices
Lab-based course where students learn the fundamentals of medical device design through hands-on projects using microcontrollers. Students first learn basic design building blocks regularly employed in microcontroller-based medical devices, and then carry out a small design project using those building blocks. Projects are informed by reverse-engineering of competing products, FDA regulations, and marketplace considerations.
Course usually offered in spring term
Prerequisites: Junior or Senior BE Majors only, ENGR 105, permission of the instructor
Activity: Laboratory
1 Course Unit
Notes: Students who have taken ESE 350 or a similar course may not enroll

BE 480 Introduction to Biomedical Imaging
Introduction to the mathematical, physical and engineering design principles underlying modern medical imaging systems including x-ray computed tomography, ultrasonic imaging, and magnetic resonance imaging. Mathematical tools including Fourier analysis and the sampling theorem. The Radon transform and related transforms. Filtered backprojection and other reconstruction algorithms. Bloch equations, free induction decay, spin echoes and gradient echoes. Applications include one-dimensional Fourier magnetic resonance imaging, three-dimensional magnetic resonance imaging and slice excitation.
Course usually offered in spring term
Prerequisite: BE 301 or ESE 325
Activity: Lecture
1 Course Unit

BE 483 Molecular Imaging
This course will provide a comprehensive survey of modern medical imaging modalities and the emerging field of molecular imaging. The basic principles of X-ray, ultrasound, nuclear imaging, and magnetic resonance imaging will be reviewed. The course will also cover concepts related to contrast media and targeted molecular imaging. Topics to be covered include the chemistry and mechanisms of various contrast agents, approaches to identifying molecular markers of disease, ligand screening strategies, and the basic principles of toxicology and pharmacology relevant to imaging agents.
Course usually offered in fall term
Also Offered As: BE 583, MMP 507
Prerequisites: MATH 241, BIOL 215 or BE 305
Activity: Lecture
1 Course Unit

BE 490 Independent Project in Bioengineering
An intensive independent study experience on an engineering or biological science problem related to bioengineering. Requires preparation of a proposal, literature evaluation, and preparation of a paper and presentation. Regular progress reports and meetings with faculty advisor are required.
One-term course offered either term
Prerequisites: Sophomore, Junior and Senior BE majors only
Activity: Independent Study
1 Course Unit

BE 492 Independent Project in Bioengineering
Second semester of an independent project.
One-term course offered either term
Prerequisites: Sophomore, Junior and Senior BE majors only.
Activity: Independent Study
1 Course Unit

BE 495 Senior Design Project
Group design projects in various areas of bioengineering. Project ideas are proposed by the students in the Spring semester of the Junior year and refined during the Fall semester. The course guides the students through choosing and understanding an impactful biomedical problem, defining characteristics of a successful design solution to eliminate or mitigate a problem or fulfill a need, identifying and prioritizing constraints, creatively developing potential design solutions, iteratively refining design options, defining and implementing an optimal solution, and evaluating how well the solution fulfills the need. Final oral and written reports are required. Also emphasized are teamwork, project management, time management, regulations/standards, and effective communication.
Course usually offered in fall term
Prerequisite: Seniors in BE or Department Permission
Activity: Lecture
1 Course Unit

BE 496 Senior Design Project
Second semester of a two semester design project.
Course usually offered in spring term
Prerequisite: Seniors in BE or Department Permission
Activity: Lecture
1 Course Unit

BE 497 Senior Thesis in Biomedical Science
An intensive independent project experience incorporating both technical and non-technical aspects of the student’s chosen career path. Chosen topic should incorporate elements from the student’s career path electives, and may involve advisors for both technical and non-technical elements. Topics may range from biomedical research to societal, technological and business aspects of Bioengineering. A proposal, regular progress reports and meetings with a faculty advisor, a written thesis, and a presentation are required.
Course usually offered in fall term
Prerequisites: Seniors in BAS or Department Permission.
Activity: Lecture
1 Course Unit

BE 498 Senior Thesis in Biomedical Science
Second semester of a year-long project.
Course usually offered in spring term
Prerequisite: Seniors in BAS or Department Permission
Activity: Lecture
1 Course Unit

BE 502 From Biomedical Science to the Marketplace
This course explores, through own work (this is, own discovery) the transition from fundamental knowledge to its ultimate application in a clinical device or drug. Emphasis is placed upon factors that influence this transition and upon the integrative requirements across many fields necessary to achieve commercial success. Special emphasis is placed upon entrepreneurial strategies, intellectual property, and the FDA process of proving safety and efficacy.
Course usually offered in fall term
Prerequisite: Graduate students or permission of the instructor
Activity: Lecture
1 Course Unit

BE 508 From Biomedical Science to the Marketplace
BE 504 Biological Data Science II: Data Mining Principles for Epigenomics
This course will teach upper level undergraduates and graduate students how to answer biological questions by harnessing the wealth of genomic and epigenomic data sets generated by high-throughput sequencing technologies.
Course usually offered in spring term
Prerequisites: Graduate students or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 510 Biomechanics and Biotransport
The course is intended as an introduction to continuum mechanics in both solid and fluid media, with special emphasis on the application to biomedical engineering. Once basic principles are established, the course will cover more advanced concepts in biosolid mechanics that include computational mechanics and bio-constitutive theory. Applications of these advanced concepts to current research problems will be emphasized.
Course usually offered in spring term
Prerequisites: MATH 241, BE 200, 350
Activity: Lecture
1 Course Unit

BE 512 Bioengineering III: Biomaterials
This course provides a comprehensive background in biomaterials. It covers surface properties, mechanical behavior and tissue response of ceramics, polymers and metals used in the body. It also builds on this knowledge to address aspects of tissue engineering, particularly the substrate component of engineering tissue and organs.
Course usually offered in fall term
Prerequisites: General Chemistry, basic biomechanics
Activity: Lecture
1 Course Unit

BE 514 Rehab Engineering and Design
Students will learn about problems faced by disabled persons and medical rehabilitation specialists, and how engineering design can be used to solve and ameliorate those problems. The course combines lectures, multiple design projects and exercises, and field trips to clinical rehabilitation facilities. Students will have substantial interaction with clinical faculty, as well as with patients.
Course usually offered in fall term
Also Offered As: IPD 504
Prerequisite: Graduate students or permission of the instructor
Activity: Lecture
1 Course Unit

BE 515 Bioengineering Case Studies
This course has the unofficial title "What Makes Medical Technology Work?" We will examine biomedical devices and technologies with significant engineering components for use in breast cancer detection, for minimally invasive treatment of cancer and other disease, and applied neuroscience technologies for rehabilitation. Various factors that determine the success of particular medical systems will be discussed, including the "fit" of the technology with a medical need, testing for safety and efficacy, FDA premarket approval requirements, clinical studies used to assess the technology for evidence-based medicine. The class will examine successful and unsuccessful examples of these technologies. The course will require extensive reading of papers from the professional literature, group presentations and papers. BE seniors and graduate students are encouraged to enroll.
Course usually offered in fall term
Prerequisites: Graduate students or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 518 Optical Microscopy
Course usually offered in fall term
Prerequisites: MATH 240 or equivalent. Graduate students or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 521 Brain-Computer Interfaces
The course is geared to advanced undergraduate and graduate students interested in understanding the basics of implantable neuro-devices, their design, practical implementation, approval, and use. Reading will cover the basics of neuro signals, recording, analysis, classification, modulation, and fundamental principles of Brain-Machine Interfaces. The course will be based upon twice weekly lectures and "hands-on" weekly assignments that teach basic signal recording, feature extraction, classification and practical implementation in clinical systems. Assignments will build incrementally toward constructing a complete, functional BMI system. Fundamental concepts in neurosignals, hardware and software will be reinforced by practical examples and in-depth study. Guest lecturers and demonstrations will supplement regular lectures.
Course usually offered in spring term
Also Offered As: NGG 521
Prerequisites: BE 301 (Signals and Systems) or equivalent, computer programming experience, preferably MATLAB (e.g., as used the BE labs, BE 310). Some basic neuroscience background (e.g. BIOL 215, BE 305, INSC core course), or independent study in neuroscience, is required. This requirement may be waived based upon practical experience on a case by case basis by the instructor.
Activity: Lecture
1 Course Unit
BE 530 Theoretical Neuroscience.
This course will develop theoretical and computational approaches to structural and functional organization in the brain. The course will cover: (i) the basic biophysics of neural responses, (ii) neural coding and decoding with an emphasis on sensory systems, (iii) approaches to the study of networks of neurons, (iv) models of adaptation, learning and memory, (v) models of decision making, and (vi) ideas that address why the brain is organized the way that it is. The course will be appropriate for advanced undergraduates and beginning graduate students.
Course usually offered in spring term
Prerequisites: Knowledge of multivariable calculus, linear algebra and differential equations is required (except by permission of the instructor).
Prior exposure to neuroscience and/or Matlab programming will be helpful.
Activity: Lecture
1 Course Unit

BE 537 Biomedical Image Analysis
This course covers the fundamentals of advanced quantitative image analysis that apply to all of the major and emerging modalities in biological/biomaterials imaging and in vivo biomedical imaging. While traditional image processing techniques will be discussed to provide context, the emphasis will be on cutting edge aspects of all areas of image analysis (including registration, segmentation, and high-dimensional statistical analysis). Significant coverage of state-of-the-art biomedical research and clinical applications will be incorporated to reinforce the theoretical basis of the analysis methods.
Course usually offered in fall term
Also Offered As: CIS 537
Prerequisites: Math through multivariate calculus (MATH 241), programming experience, as well as some familiarity with linear algebra, basic physics, and statistics
Activity: Lecture
1 Course Unit

BE 540 Biomolecular and Cellular Engineering
This course will introduce concepts and methods for the quantitative understanding of molecular and cellular phenomena. Topics include molecular recognition, receptor-ligand binding, viral infection, signal transduction, cell adhesion, motility, and cytoskeletal dynamics. The course requires mathematics at the level of differential equations, and some knowledge of Matlab programming. A basic knowledge of cell biology is suggested, although not required.
One-term course offered either term
Also Offered As: CBE 540
Prerequisites: Graduate students or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 541 Engineering and Biological Principles in Cancer
This course provides an integrative framework and provides a quantitative foundation for understanding molecular and cellular mechanisms in cancer. The topics are divided into three classes: (1) the biological basis of cancer; (2) cancer systems biology; and (3) multiscale cancer modeling. Emphasis is placed on quantitative models and paradigms and on integrating bioengineering principles with cancer biology.
Course usually offered in spring term
Also Offered As: CBE 541
Prerequisite: Seniors in BE or permission of the instructor
Activity: Lecture
1 Course Unit

BE 546 Fundamental Techniques of Imaging I
This course covers the fundamentals of modern techniques in biological and in vivo biomedical imaging. This practical course consists of a series of hands-on lab exercises, covering major imaging modalities, but also extends to non-radiology modalities of interest in biological, pathological or animal imaging (e.g., optical imaging). Topics include x-ray, mammography, CT, proton therapy, radiation safety and brachytherapy. The emphasis will be on hands-on aspects of all areas of imaging and imaging analysis. Small groups of students will be led by a faculty member with technical assistance as appropriate.
Course usually offered in spring term
Prerequisites: Graduate students or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 547 Fundamental Techniques of Imaging 2 (BE 483/583 or MMP 507 preferred).
This laboratory course covers the fundamentals of modern medical imaging techniques. Students will participate in a series of hands-on exercises, covering the principals of X-ray imaging, CT imaging, photoacoustic imaging, diffusion tensor imaging, localized magnetic resonance (MR) spectroscopy, MR contrast agents, diffuse optical spectroscopy, and bioluminescence imaging. Each lab is designed to reinforce and expand upon material taught in BE483/583 Molecular Imaging and MMP507 Physics of Medical Imaging
Course usually offered in spring term
Prerequisites: Graduate students or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 550 Continuum Tissue Mechanics
This course introduces tensor calculus and continuum mechanics, with a focus on finite-deformation behavior of biological tissues including skin, tendon/ligament, cartilage, bone, blood vessels, nerves.
Course usually offered in spring term
Prerequisite: Senior/Graduate Student in Bioengineering or permission of the instructor
Activity: Lecture
1 Course Unit

BE 551 Biomicrofluidics
The focus of this course is on microfluidics for biomedical applications. Topics to be covered in the first half of this course include microscale phenomena, small-scale fabrication techniques, and sensing technologies that are often leveraged in the development of microfluidic systems for the study of biomolecules, cells, tissues, and organs in living biological systems. In the second half of this course, strong emphasis will be placed on the application of microfluidics in cell biology, bioanalytical chemistry, molecular biology, tissue engineering, and drug discovery.
Course usually offered in fall term
Prerequisites: Experience with an undergraduate level fluid mechanics course is preferred. Examples of relevant SEAS courses include BE 350 (Biotransport), CBE 350 (Fluid Mechanics), and MEAM 302 (Fluid Mechanics).
Activity: Lecture
1 Course Unit
BE 535 Principles, Methods, and Applications of Tissue Engineering
Tissue engineering demonstrates enormous potential for improving human health. This course explores principles of tissue engineering, drawing upon diverse fields such as developmental biology, cell biology, physiology, transport phenomena, material science, and polymer chemistry. Current and developing methods of tissue engineering, as well as specific applications will be discussed in the context of these principles. A significant component of the course will involve review of current literature within this developing field.
Course usually offered in fall term
Prerequisite: Graduate Standing or instructor’s permission
Activity: Lecture
1 Course Unit

BE 545 Engineering Biotechnology
Advanced study of re DNA techniques; bioreactor design for bacteria, mammalian and insect culture; separation methods; chromatography; drug and cell delivery systems; gene therapy; and diagnostics.
Course usually offered in fall term
Also Offered As: CBE 554
Prerequisites: Graduate standing, Senior standing, Admitted Junior submatriculants
Activity: Lecture
1 Course Unit

BE 555 Nanoscale Systems Biology
Nano-science and engineering approaches to systems in biology are of growing importance. They extend from novel methods, especially microscopies that invite innovation to mathematical and/or computational modeling which incorporates the physics and chemistry of small scale biology. Proteins and DNA, for example, are highly specialized polymers that interact, catalyze, stretch and bend, move, and/or store information. Membranes are also used extensively by cells to isolate, adhere, deform, and regulate reactions. In this course, students will become familiar with cell & molecular biology and nanobiotechnology through an emphasis on nano-methods, membranes, molecular machines, and ‘polymers’ - from the quantitative perspectives of thermodynamics, statistical physics, and mechanics. We specifically elaborate ideas of energetics, fluctuations and noise, force, kinetics, diffusion, etc. on the nano- thru micro- scale, drawing from very recent examples in the literature. Laboratory experiments will provide hands-on exposure to microscopies in a biological context (eg. fluorescence down to nano-scale, AFM), physical methods (eg. micromanipulation, tracking virus-scale particles or quantum dots), and numerical problems in applied biophysics, chemistry, and engineering. A key goal of the course is to familiarize students with the concepts and technology (plus their limitations) as being employed in current research problems in nanoscale systems biology, extending to nanobiotechnology.
Course usually offered in fall term
Also Offered As: CBE 555
Prerequisites: Background in Biology, Physics, Chemistry or Engineering with coursework in Thermodynamics or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 558 Principles of Biological Fabrication
BE 558 introduces methodological approaches that are currently used for the de novo construction of biological molecules - primarily, nucleic acids and proteins - and how to use these molecules to engineer the properties of cells and intact tissue. By the end of the semester, students should (i) possess a molecular-scale understanding of key biological synthesis (ii) and assembly processes, (iii) gain an intuition for how to create novel (iii) methodologies based on these existing processes, and (iv) appreciate the drivers of technology adoption (e.g. cost, time, ease, and reproducibility). Throughout the course, we will place the material in context of applications in bioengineering and human health, including: protein engineering, drug discovery, synthetic biology & optogenetics, bio-inspired materials, and bio-electronic devices.
Course offered fall; odd-numbered years
Prerequisites: Graduate standing or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 559 Multiscale Modeling of Chemical Systems
This course provides theoretical, conceptual, and hands-on modeling experience on three different length and time scales - (1) electronic structure (A, ps); (2) molecular mechanics (100A, ns); and (3) deterministic and stochastic approaches for microscale systems (um, sec). Students will gain hands-on experience, i.e., running codes on real applications together with the following theoretical formalisms: molecular dynamics, Monte Carlo, free energy methods, deterministic and stochastic modeling.
Course not offered every year
Also Offered As: CBE 559
Prerequisites: Undergraduate courses in numerical analysis and statistical mechanics.
Activity: Lecture
1 Course Unit

BE 561 Musculoskeletal Biology and Bioengineering
The goal of this course is to educate students in core principles and expose them to cutting-edge research in musculoskeletal biology and bioengineering through (1) lectures covering the basic engineering principles, biological fundamentals, and clinical practices involved in the function, repair, and regeneration of the musculoskeletal tissues; (2) critical review and presentation by student groups of recent and seminal publications in the field related to the basic science, translation, and clinical practice of musculoskeletal biology and bioengineering, with discussion input by faculty members with relevant expertise. This course will place an emphasis on delivering multidisciplinary knowledge of cell and molecular biology, mechanics, material science, imaging, and clinical medicine as it relates to the field of musculoskeletal bioengineering and science.
Course offered fall; odd-numbered years
Prerequisites: Graduate student standing in Engineering and/or CAMB.
Activity: Lecture
1 Course Unit
BE 562 Drug Discovery and Development
Intro to Drug Discovery; Overview of Pharmaceutical Industry and Drug Development Costs, Timelines; High Throughput Screening (HTS): Assay Design and Sensitivity Solid Phase Synthesis and Combinatorial Chemistry; Enzyme Kinetics; Fluorescence, Linearity, Inner-filter effect, quenching; Time dynamics of a Michaelis-Menton Reaction; Competitive Inhibitor; FLINT, FRET, TRF, FP SPA, alpha-screen; Enzyme HTS (protease); Cell based screening; Fura-2 ratio, loading signaling; Gpocalmodulin-gfp integrated calcium response; Estrogen/ERE-Luc HTS; Problems with cell based screening (toxicity, permeability, nonspecificity); Instrumentation, Robotics/Automation; Z-factor; SAR, Positioning Scanning; Microarray HTS; IC50, % Conversion in HTS and IC50, Assay Optimization.
Course usually offered in spring term
Also Offered As: CBE 562
Prerequisite: Graduate standing or permission of the instructor
Activity: Lecture
1 Course Unit

BE 566 Network Neuroscience
The human brain produces complex functions using a range of system components over varying temporal and spatial scales. These components are coupled together by heterogeneous interactions, forming an intricate information-processing network. In this course, we will cover the use of network science in understanding such large-scale and neuronal-level brain circuitry.
Course usually offered in spring term
Also Offered As: ESE 566
Prerequisites: Graduate standing or permission of the instructor. Experience with Linear Algebra and MATLAB.
Activity: Lecture
1 Course Unit

BE 567 Mathematical Computation Methods for Modeling Biological Systems
This course will cover topics in systems biology at the molecular/cellular scale. The emphasis will be on quantitative aspects of molecular biology, with possible subjects including probabilistic aspects of DNA replication, transcription, translation, as well as gene regulatory networks and signaling. The class will involve analyzing and simulating models of biological behavior using MATLAB.
One-term course offered either term
Also Offered As: CCB 567
Prerequisite: Graduate standing or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 568 Causality for Medicine and Biology
The goal of this course is to introduce students to the analysis of data which aims at understanding causal relations. Within biomedical research there are randomized experiments that effortlessly get at certain kinds of causality but generally only allow low-dimensional probing. There are also observational studies that generally do not meaningfully get at causality. The field of econometrics has worked out a great deal of approaches that meaningfully allow the estimation of causality without randomized experiments. This set of techniques is largely unknown in much of biology and medicine. We will thus review the econometric approaches with an eye towards applications to biology and medical problems. We will also review ways of infusing these techniques with machine learning approaches to obtain more meaningful estimates.
One-term course offered either term
Activity: Lecture
1 Course Unit

BE 570 Biomechatronics
Mechatronics is the combination of mechanical, electrical and computer engineering principles in the design of electromechanical systems. Biomechatronics is the application of these principles to human biology and includes orthopaedic, hearing, respiratory, vision and cardiovascular applications. In this hands-on, project-based course, these biomechatronic systems will be explored. Students will learn the basic mechanical and electrical elements needed to complete a biomechatronic design challenge including basic circuits, design considerations, material fabrication, microcontrollers and mechanisms (e.g. converting rotational motion into linear motion). Students will carry out a final design project utilizing these building blocks.
Course usually offered in fall term
Prerequisites: A first course in programming (Matlab and/or C++ preferred), Senior standing in BE or permission of the instructor
Activity: Lecture
1 Course Unit

BE 581 Techniques of Magnetic Resonance Imaging
Detailed introduction to physics and engineering of magnetic resonance imaging as applied to medical diagnosis. Covered are: Bloch equations, spatial encoding principles, Fourier analysis, spin relaxation, imaging pulse sequences and pulse design, contrast mechanisms, imaging, induced magnetism, flow encoding, diffusion and perfusion, high-field MRI and a discussion of the most relevant clinical applications.
Course offered spring; odd-numbered years
Also Offered As: BMB 581
Prerequisites: Graduate standing or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 583 Molecular Imaging
This course will provide a comprehensive survey of modern medical imaging modalities and the emerging field of molecular imaging. The basic principles of X-ray, ultrasound, nuclear imaging, and magnetic resonance imaging will be reviewed. The course will also cover concepts related to contrast media and targeted molecular imaging. Topics to be covered include the chemistry and mechanisms of various contrast agents, approaches to identifying molecular markers of disease, ligand screening strategies, and the basic principles of toxicology and pharmacology relevant to imaging agents.
Course usually offered in fall term
Also Offered As: BE 483, MMP 507
Prerequisites: BE 483, MMP 507
Activity: Lecture
1 Course Unit

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BE 584 Mathematics of Medical Imaging and Measurements
In the last 25 years there has been a revolution in image reconstruction techniques in fields from astrophysics to electron microscopy and most notably in medical imaging. In each of these fields one would like to have a precise picture of a 2 or 3 dimensional object which cannot be obtained directly. The data which is accessible is typically some collection of averages. The problem of image reconstruction is to build an object out of the averaged data and then estimate how close the reconstruction is to the actual object. In this course we introduce the mathematical techniques used to model measurements and reconstruct images. As a simple representative case we study transmission X-ray tomography (CT). In this context we cover the basic principles of mathematical analysis, the Fourier transform, interpolation and approximation of functions, sampling theory, digital filtering and noise analysis.
Course not offered every year
Prerequisites: MATH 314, MATH 508 and 509 or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 597 Master's Thesis Research
For students working on an advanced research program leading to the completion of master's thesis.
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

BE 599 Master's Independent Study
The purpose of BE 599 is to allow a student to create a customized curriculum to study material beyond or outside the scope of our standard BE course offerings. Independent study is NOT a research or design project, it is a one-on-one or small-group course with a professor. The course should require an effort comparable to that of a regular course, about 10-12 hours per week. A paper or presentation is required
One-term course offered either term
Activity: Independent Study
1 Course Unit

BE 608 Translational Therapeutics
To provide an in-depth view of the process by which scientific discoveries are commercialized. This course covers discovery in the laboratory, technology transfer, regulatory, financial, and managerial issues involved in moving a technology from the lab into the market place. The course contents fall into three broad categories: (1) examples of scientific discoveries that are candidates for commercialization, (2) fundamental elements of technology transfer, such as intellectual property protection and licensing, and (3) aspects of commercialization, such as regulatory approval, financing, and startup formation. In using this structure, the course provides parallel coverage of both the science and the commercialization process, in such a way that the elements of one contribute to the student's experience in learning the other.
Course usually offered in spring term
Also Offered As: MTR 620
Prerequisite: Engineering students only or permission of the instructor
Activity: Lecture
1 Course Unit

BE 640 The Extracellular Matrix
This course is geared towards first and second year graduate students in BGS/CAMB and SEAS/BE with an interest in the interface of extracellular matrix (ECM) cell biology and biomechanics. Students will learn about the ECM and adhesion receptors and their impact on the cytoskeleton and signaling, as well as fundamental concepts in biomechanics and engineered materials. We will discuss how these topics can inform the study of cell biology, physiology and disease. An additional objective of the course is to give students experience in leading critical discussions and writing manuscript reviews. Invited outside speakers will complement the strengths of the Penn faculty.
Course offered spring; even-numbered years
Prerequisites: BIOM 600. Graduate students only.
Activity: Lecture
1 Course Unit

BE 650 Advanced Biomedical Imaging Applications
The course will cover a broad range of biomedical imaging technologies including X-ray, MRI, US, molecular and optical imaging. The curriculum will focus on the design of biomedical imaging based research studies spanning from basic technology development through clinical trials. This discussion oriented course is expected prepare students for integrating imaging technology and biomedical concepts to answer biological and medical questions.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

BE 662 Advanced Molecular Thermodynamics
This course begins with a brief review of classical thermodynamics, including the development of Maxwell relationships and stability analysis. The remainder of the course develops the fundamental framework of statistical mechanics, then reviews various related topics including ideal and interacting gases, Einstein and Debye models of crystals, lattice models of liquids, and the basics of distribution function theory.
Course usually offered in spring term
Also Offered As: CBE 618
Prerequisites: MATH 508, MATH 509 or permission of the instructor.
Activity: Lecture
1 Course Unit

BE 699 Bioengineering Seminar
This is a required course for BE PhD candidates and involves attendance at seminars related to bioengineering topics, which can be either within the departmental seminar series or through other relevant seminar series on campus. The goal is to expose students to a breadth of bioengineering topics beyond their specific dissertation work. Students are required to submit summaries of the attended seminars to receive course credit.
One-term course offered either term
Activity: Seminar
0.5 Course Units
BE 711 Integrative Plant and Animal Mechanobiology
This course aims to provide students with an understanding of biomechanics that spans the plant and animal kingdoms, with the goal of emphasizing principles common to both. Modules include 1) Plant and Animal Cell Biology; 2) Solid, Fluid, and Transport Mechanics; and 3) Integrating Biology and Mechanics - Big Questions. Most lectures will be given by Penn faculty, although selected topics (particularly in plant biology and mechanics) will be covered by faculty at other sites through lectures broadcast remotely. The Penn director will be present at all sessions of the class.
Course usually offered in fall term
Corequisite: Undergraduates require special permission
Activity: Lecture
1 Course Unit

BE 899 PhD Independent Study
The purpose of BE 899 is to allow a student to create a customized curriculum to study material beyond or outside the scope of our standard BE course offerings. Rather than a research or design project, BE 899 is a one-on-one or small-group course with a professor. Students must submit a proposal outlining the study area along with the professor's approval. A paper or presentation is required.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Graduate Students Only

BE 990 Masters Thesis
For Master's students who have completed the course requirements for the Master's degree and are strictly working to complete the Master's Thesis leading to the completion of a Master's degree. Permission Required.
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

BE 995 Doctoral Dissertation Status
Ph.D. Students register for Doctoral Dissertation Status after they have advanced to Ph.D. candidacy by completing the Candidacy Exam which consists of the Dissertation Proposal Defense. Permission required
One-term course offered either term
Prerequisites: For Ph.D. Candidates only
Activity: Dissertation
1 Course Unit

BE 999 Thesis/Dissertation Research
For students working on an advanced research program leading to the completion of master's thesis or Ph.D. dissertation requirements.
One-term course offered either term
Activity: Independent Study
1 Course Unit
BIOETHICS (BIOE)

BIOE 282 Lying, Cheating, Stealing, and Killing: How to Think About Professional Ethic
Professionals - in business, medicine, law, and politics - face myriad ethical dilemmas in their daily work life that challenge, and sometimes conflict with, the moral commitments that guide their everyday life. This course systematically examines the ethical dimensions of these four professional roles, asking questions such as: Are there limits to what we should sell? How far should competitors go to "win"? Who should get ventilators in a flu pandemic? Is it morally permissible for physicians to assist in suicide? Should lawyers represent terrorists or child killers? How far does attorney-client privilege go? Is it morally justifiable to torture enemy combatants? Should politicians lie?
Taught by: Allen/Emanuel/Hirschmann/Strudler
Activity: Lecture
1 Course Unit

BIOE 401 Introduction to Bioethics
Course usually offered in fall term
Activity: Lecture
1 Course Unit

BIOE 402 Foundations of Bioethics
This course examines the various theoretical approaches to bioethics and critically assesses their underpinnings. Topics to be covered include an examination of various versions of deontological theories, utilitarianism, virtue ethics, principlism, casuistry, feminist ethics, narrative theory, and pragmatism.
Activity: Lecture
1 Course Unit

BIOE 505 Sex and Bioethics
While the topics of sex and sexuality have a long and storied history in medical culture, they have been especially complex and problematic in the past century. With the creation of distinct sexually-minded medical fields since the late 19th-century including sexology, psychiatry, and hormonal studies, medicine has also occasioned the very categories and labels of the homosexual, the hermaphrodite, the invert, and the nymphomaniac, to name a few. While medical historians and queer theorists have paid almost obsessive attention to these subjects, bioethicists have intervened to a lesser degree and on only a handful of relevant subjects. In this course, we will address the range of historical and theoretical matters that speak to this intersection of bioethics and sex, paying special attention to the health concerns of lesbian, gay, bisexual, trans, queer, and intersex (LGBTQI) persons. Who has sex with whom? What does it mean to pathologize or diagnose such desires? How do we raise the stakes when considering persons who question their sex or who are in sexual transition? And how do such questions reveal the dilemmas of bioethicists at large, not just those related to matters of sex and sexuality? Accordingly, this course will consider a range of historical and contemporary topics which speak to the bioethical dilemmas of the intersection of medicine, sex, and sexuality, including: the gay adolescent, the intersex person, gay-conversion therapies, the prospect of gay gene studies, sex addiction, and blood/organ donation policies in wake of the HIV/AIDS pandemic. Specifically, we will focus on literary sources (poetry, memoirs, diaries, and films) as well as on non-literary accounts (medical texts, bioethical scholarship, legal cases, and historical records) that explore the emotional and somatic aspects of matters related to sex and bioethics.
Activity: Lecture
1 Course Unit

BIOE 540 Challenging Clinical Ethics: Managing patient/caregiver conflicts through mediation.
The contemporary healthcare system in which patients, families, institutions and a multiplicity of caregivers interact over matters of life and death with legal, ethical, emotional and scientific complexities inherently gives rise to a variety of disputes. Such disputes are frequently highly charged and are often emergent in nature. In recent years, mediation has grown exponentially as a dispute resolution mechanism of choice. Not surprisingly, the success of mediation and a wider understanding of the process, has led to its application in the realm of healthcare disputes with encouraging results. This course will initially provide an overview of classical mediation theory and practice. Students will be introduced to negotiation fundamentals critical to the practice of mediation. Similarities and differences between mediation in the healthcare field, as distinct from other contexts, will be examined. All class members will participate in mediation role-plays designed to simulate disputes of the kind prevalent in healthcare landscape.
Taught by: Bergman
Course not offered every year
Prerequisites: None.
Activity: Lecture
1 Course Unit

BIOE 545 Mediation Intensive I
Students will be placed in a variety of clinical situations in which they will play the roles of disputants and mediators, with ongoing discussions and critiques of mediator performance. Each student will be videotaped during their mediation to elicit feedback from the group and to catalyze self-criticism. As distinct from the course, BIOE 540: Challenging Clinical Ethics, in which negotiation and mediation theory are taught as a prelude to clinical simulations, this course references the literature solely in relation to problems encountered in the hands-on mediation of specific cases. Students may take the mediation intensives in any order; they do not need to be taken from I to IV. Students may take all 4 intensive courses, as the material will not be repeated.
Taught by: Edward J. Bergman, Autumn Fiester, Lance Wahlert
Prerequisites: There are no prerequisites for this course.
Activity: Seminar
1 Course Unit

BIOE 546 Mediation Intensive II
Students will have an immersion experience, learning mediation through role-playing simulations. Note that the format is similar to Mediation Intensive I, but the Mediation Intensive II will NOT duplicate simulations. Students in this course will learn to effectively manage clinical disputes among and between caregivers, patients, and surrogates through mediation; discover how to define problems and assess underlying interests to generate mutually acceptable options; role play in a variety of clinical situations as both disputants and mediators; practice mediation with professional actors; and receive constructive feedback in a supportive environment. Students will also be required to complete a written research paper. Students may take the mediation intensives in any order; they do not need to be taken from I to IV. Students may take all 4 intensive courses, as the material will not be repeated.
Taught by: Edward J. Bergman, Autumn Fiester, Lance Wahlert
Prerequisites: There are no prerequisites for this course.
Activity: Seminar
1 Course Unit
BIOE 547 Mediation Intensive III
Students will have an immersion experience, learning mediation through role-playing simulations. Note that the format is similar to Mediation Intensive I and II, but med. intensive III will NOT duplicate simulations. Students in this course will: learn to effectively manage clinical disputes among and between caregivers, patients, and surrogates through mediation; discover how to define problems and assess underlying interests to generate mutually acceptable options; role play in a variety of clinical situations as both disputants and mediators; practice mediation with professional actors; and receive constructive feedback in a supportive environment. Students will also be required to complete a written research paper. Students may take the mediation intensives in any order; they do not need to be taken from I to IV. Students may take all 4 intensive courses, as the material will not be repeated.
Taught by: Edward J. Bergman, Autumn Fiester, Lance Wahlert
Activity: Seminar
1 Course Unit

BIOE 548 Mediation Intensive IV
Students will have an immersion experience, learning mediation through role-playing simulations. Note that the format is similar to earlier mediation intensives but the mediation intensive IV will NOT duplicate simulations. Students in this course will: learn to effectively manage clinical disputes among and between caregivers, patients, and surrogates through mediation; discover how to define problems and assess underlying interests to generate mutually acceptable options; role play in a variety of clinical situations as both disputants and mediators; practice mediation with professional actors; use video-tapes of simulations to improve mediation techniques and strengthen interpersonal skills; receive constructive feedback in a supportive environment. Students may take the mediation intensives in any order; they do not need to be taken from I to IV. Students may take all 4 intensive courses, as the material will not be repeated.
Taught by: Edward J. Bergman, Autumn Fiester, Lance Wahlert
Prerequisite: None
Activity: Seminar
1 Course Unit

BIOE 550 Bioethics and Society
This set of courses will deal with bioethical issues in popular culture addressed from a social science perspective. Courses to be offered include: "Sociology of Bioethics," and "Media and the Doctor-Patient Relationship."
Taught by: MERZ, JON
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course - for information on the topic currently being offered, please go to the course listing on the Bioethics website: http://www.med.upenn.edu/mb.

BIOE 551 Sociological Topics in Bioethics
This set of courses provides a rigorous introduction to the use of sociological methods and perspective to address bioethical topics and issues. Past courses have included the "Sociology of Medicine," "Medical Errors," and "Sociology of Jewish Bioethics."
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course - for information on the topic currently being offered, please go to the course listing on the Bioethics website: http://www.med.upenn.edu/mb.

BIOE 552 Anthropological Topics in Bioethics
This set of courses provides an introduction to the use of anthropological methods and approaches to address bioethical issues. Courses might include cross-cultural studies of medicine and doctoring, diversity and the culture of medicine, cross-cultural bioethics.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course - for information on the topic currently being offered, please go to the course listing on the Bioethics website: http://www.med.upenn.edu/mb.

BIOE 553 Historical Topics in Bioethics
This set of courses provides a historical perspective on the field of bioethics and/or key issues or areas within the field. Courses that might be offered include the history of medicine and the history of science.
Course not offered every year
Activity: Seminar
1 Course Unit

BIOE 555 Bioethics and Technology: Neuroethics
Activity: Lecture
1 Course Unit

BIOE 556 Evidence in Bioethics and Health Policy
The ability to critically appraise scholarly work is a necessary skill to effectively contribute to bioethics and health policy debates, and for development and implementation of health interventions. The object of this course is to provide students with the skills needed to become fluent in reading and assessment of empirical bioethics and health service research. The course will review and evaluate a wide range of qualitative and quantitative methods utilized in bioethics, health policy, and medical research. Specifically, students will learn the conceptual rational for standard qualitative and quantitative methods, their strengths and weaknesses. At course completion, students should be able to critically evaluate empirical research published in top bioethics, health policy, and medical journals.
Taught by: Maclean
Course usually offered in fall term
Activity: Lecture
1 Course Unit
BIOE 558 Reproductive Health
Whether dealing with personal decisions or public policy, reproductive health matters are almost always controversial and often intractable. It is almost 50 years since the Supreme Court decision Griswold v Connecticut “settled” the right to contraceptives yet the last several years have been marked by increasing legislative action and judicial review of this right. This course will explore the ethical dimensions of reproductive health controversies including: 1) the moral and legal status of the human embryo and fetus in the context of assisted reproduction, embryonic stem cell research and abortion; 2) contraception, including over-the-counter provision of emergency contraception and contraceptives and legislation challenges to contraceptive insurance coverage in the Affordable Care Act; 3) attempts to restrict access to abortion by restricting later term abortion, mandating informed consent and waiting periods, and regulating abortion clinics; 4) maternal-fetal relationship including prenatal testing and the regulation of women’s behavior while pregnant; 5) assisted reproduction and 6) global concerns such as sex selective abortion, forced abortion and sterilization and reproductive rights in relation to population dynamics and environmental concerns.
Activity: Lecture
1 Course Unit

BIOE 560 Clinical Approaches to Bioethics
This set of courses examines issues in bioethics from the perspective of the practicing clinician, physician, nurse, or other health care professional. These courses will often use case studies or clinical experience to analyze or understand contemporary problems in bioethics. An example of such a course is “Clinical Dilemmas Through the Life Cycle.”
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course - for information on the topic currently being offered, please go to the course listing on the Bioethics website: http://www.med.upenn.edu/mbe.

BIOE 565 Rationing
You have one liver but three patients awaiting a liver transplant. Who should get the liver? What criteria should be used to select the recipient? Is it fair to give it to an alcoholic? These are some of the questions that arise in the context of rationing and allocating scarce health care resources among particular individuals, what is called micro-allocation decisions. There are also macro-allocation decisions that focus on how health care systems distributes resources across populations. Using the cases of organs for transplantation, the rationing for vaccines in a flu pandemic, and oncology drug shortages, the course will critically examine alternative theories for allocating scarce resources among individuals. Using both the need to establish priorities for global health aid and to define an essential benefit package for health insurance, the course will critically examine diverse theories for macro-allocation from cost-effectiveness analysis to age-based rationing to accountability for reasonableness.
Taught by: Ezekiel Emanuel, Harald Schmidt
Prerequisite: None
Activity: Lecture
1 Course Unit

BIOE 566 Personal Responsibility
Activity: Lecture
1 Course Unit

BIOE 570 Bioethics and Policy
This set of courses will look at bioethical topics from either a legal or public policy perspective. Past courses have included: Ethics of Managed Care, Law, Medicine and Policy, and Legal Aspects of Healthcare in America.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course - for information on the topic currently being offered, please go to the course listing on the Bioethics website: http://www.med.upenn.edu/mbe.

BIOE 571 Global Health Policy
This course considers various theoretical approaches to global justice and global governance and analyzes their implications for global health. The course includes two parts. The first part examines accounts of cosmopolitanism, nationalism and other theories of global justice, critically assessing duties ascribed by each that may be owed universally to all persons or confined within associative boundaries of communities or nations. The second part explores applications to global health governance encompassing consideration of human rights and the operation and accountability of global institutions such as the United Nations, the International Monetary Fund, the World Bank, and the World Health Organization. The course scrutinizes the relevance of global justice for governing the global health realm, evaluating the current global health system and proposals for reforming it.
Activity: Lecture
1 Course Unit

BIOE 572 Global Bioethics
According to the WHO, around 30 million people with HIV/AIDS should receive anti-retroviral treatment. But only 10 million do. Drugs containing tenofovir—the standard of care in developed countries are expensive. Stavudine-based treatments are much cheaper but have worse side-effects. Is it ethical to use stavudine-based rather than tenofovir-based treatments in sub-Saharan Africa? Smoking rates have decreased drastically in most developed countries. But they are increasing in many developing countries. Established public health measures are not implemented, and the tobacco industry pursues a range of marketing activities that would be unacceptable in developed countries. As a consequence, global deaths from smoking are expected to increase to 1bn by the end of the 21st century, with 80% of deaths in developing countries. Is industry’s behavior immoral or normal in a global market? ARDS is a disease of premature newborns. Is it ethical to test a new ARDS drug in Bolivia if the drug—if proven to be effective—will be very expensive and accessible only to the richest people in Bolivia and other developing countries? An overarching question that these different cases raise is whether there are universal ethical standards that should apply to all people, or whether regional variations should be acceptable. Universalists typically argue that there must be no double standards, and that people should be treated the same regardless of where they live. Pragmatists raise concerns about moral imperialism, neo-colonialism, or insufficient respect for cultural or other differences. Increasing globalization fuels debates about which of competing sets of moral standards is the right one. Looking at a range of diverse cases including healthcare research, health policy, flu pandemics, family planning, smoking and obesity policy, and genetically modified crops, this course explores controversies in the cross winds of market forces, politics and ethics, and examines the roles and responsibilities of key actors and international policy guidance.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
BIOE 575 The Future of the American Health Care System: Health Policy and the Affordable Care Act
This course will provide students a broad overview of the current U.S. healthcare system. The course will focus on the challenges facing the health care system, an in-depth understanding of the Affordable Care Act, and its potential impact upon health care access, delivery, cost, and quality. The U.S. health care system is the worlds largest, most technologically advanced, most expensive, with uneven quality, and an unsustainable cost structure. This multi-disciplinary course will explore the history and structure of the current American health care system and the impact of the Affordable Care Act. How did the United States get here? The course will examine the history of and problems with employment-based health insurance, the challenges surrounding access, cost, and quality, and the medical malpractice conundrum. As the Affordable Care Act is implemented over the next decade, the U.S. will witness tremendous changes that will shape the American health care system for the next 50 years of more.
Taught by: Ezekiel Emanuel, J. Sanford Schwartz
Course usually offered in fall term
Prerequisite: None
Activity: Lecture
1 Course Unit
Notes: Course open to graduate students and upper level undergraduates. Freshman and Sophomores may request permission to enroll. Email mbe-info@mail.med.upenn.edu

BIOE 578 Bioethics and Human Righ: Bioethics and Human Rights
Activity: Lecture
1 Course Unit

BIOE 580 Research Ethics
This class is intended to give students a broad overview of research ethics and regulation. The students will come out of the class with an understanding of the moral bases of scientific ethics and the historical evolution of biomedical research ethics. Students will be fully conversant with the development, implementation, and limitation of US human subjects regulation. The course will include reading assignments and lectures addressing the following topics: ethics and morality in science, science in society, scientific integrity, misconduct: from FFP to MIM; conflicts of interest; collegiality, publication, and authorship; ethics codes and regulation; research with human subjects; historical review of human experimentation; human subjects regulation (HHS, FDA), Institutional Review Boards; informed consent, waivers, vulnerable populations, privacy and the confidentiality of records; and research on animals.
Taught by: Merz
Course not offered every year
Activity: Lecture
1 Course Unit

BIOE 590 Philosophical Topics in Bioethics
This set of courses provides a philosophical perspective on bioethical topics and issues. This can include courses that integrate ethical theory with concern for particular applications of theory or conceptual issues in medicine, health care, and the life sciences. Past courses have included Philosophy of Death and Dying, Genetics and Ethics, Philosophy of Medicine, Pragmatic Bioethics, and Feminism and Bioethics.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course - for information on the topic currently being offered, please go to the course listing on the Bioethics website: http://www.med.upenn.edu/mbe.

BIOE 601 Introduction to Clinical Bioethics
This course is intended to serve as a broad introduction to the field of bioethics. The course will focus on three of the most important areas in bioethics: Genetics & Reproduction, Human Experimentation, and End-of-Life. Each module of the course will cover essential bioethics concepts, relevant legal cases, and classical readings of that theme. Each module will include one guest lecture from our distinguished bioethics faculty.
Taught by: Fiester
Course usually offered in fall term
Activity: Lecture
1 Course Unit

BIOE 602 Conceptual Foundations in Bioethics
This course examines the various theoretical approaches to bioethics and critically assesses their underpinnings. Topics to be covered include an examination of various versions of deontological theories, utilitarianism, virtue ethics, principlism, casuistry, feminist ethics, narrative theory, and pragmatism.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

BIOE 605 Mentored Research I
Activity: Masters Thesis
1 Course Unit

BIOE 606 Mentored Research II
Activity: Masters Thesis
1 Course Unit

BIOE 607 Mentored Research III
Activity: Masters Thesis
1 Course Unit

BIOE 608 Mentored Research IV
Activity: Masters Thesis
1 Course Unit

BIOE 996 Research Topics
This course serves the final MBE project. This course requires students to work with faculty to produce original research that is of publishable quality. Past students have published in Nature, Science, and other prominent journals.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: This course is only open to students in the Master of Bioethics program.

BIOE 999 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: This course is only open to students in the Master of Bioethics program.
**BIOLOGICAL BASIS OF BEHAVIOR (BIBB)**

**BIBB 030 Neurobiology of Brain Disorders**
The human brain is clearly the most complicated and magical organ in the body. We don't completely understand how it works, but we do know, unfortunately, for a variety of reasons, the human brain is prone to failure, either by acute injury, chronic degeneration, genetic flaws in its composition, or unknown disturbances in its behavior. Diseases of the brain can take many forms but are all uniformly devastating for individuals, families, and our society, and are also very costly. This course will explore the ways in which various brain disorders (both neurological and psychiatric) manifest themselves and discuss their underlying neurobiological mechanisms. In addition, the social and economic impact of these diseases in society will be considered, as well as some well-publicized political issues surrounding many of these brain disorders.

Taught by: Dichter
Activity: Seminar
1 Course Unit

**BIBB 050 Forensic Neuroscience**
Progress in behavioral neuroscience and brain-imaging techniques, such as functional and structural Magnetic Resonance Imaging (MRI) and Positron Emission Tomography (PET) has forced the courts to reconsider the role of behavioral sciences in courtroom decision-making. The goal of this course is to enable students to understand and interpret the use of behavioral neuro evidence in the justice system. The course will introduce the students to the relevant behavioral neuroscience constructs, principles of brain imaging and rules of scientific evidence. Students will be asked to use this introductory knowledge to critically evaluate the use of brain imaging and other behavioral neuroscience techniques as evidence in representative legal cases. For each case, students will serve as neuroscience experts for the defense or prosecution and prepare, present and defend their testimony against the opposing team. Through this course, students will develop the ability to critically evaluate brain imaging and other neuroscience data in forensic and legal settings.

Taught by: Langleben
Activity: Seminar
1 Course Unit

**BIBB 060 Music and the Brain**
Every human culture that has ever been described makes some form of music. The musics of different cultures cover a wide range of styles, but also display fascinating similarities, and a number of features are shared by even the most disparate musical traditions. Within our own culture, music is inescapable—there are very few individuals who do not listen to some form of music every day and far more who listen to music virtually all day long. Appreciation of music comes very early: newborns prefer music to normal speech and mothers all over the world sing to their babies in a fundamentally similar way. And yet, despite this seeming ubiquity, the real origin and purpose of music remains unknown. Music is obviously related to language, but how? Why do so many cultures make music in such fundamentally similar ways? What goes into the formation of music “taste” and preferences? Does music have survival value, or is it merely “auditory cheesecake”, a superfluous byproduct of evolution as some critics have maintained? What is the nature of musical ability and how do musicians differ from non-musicians? In this course, we will look for answers by looking at the brain. Almost 200 years of scientific research into brain mechanisms underlying the production and appreciation of music is beginning to shed light on these and other questions. Although the sciences and the arts are often seen as entirely separate or even in opposition, studying the brain is actually telling us a lot about music, and studying music is telling us just as much about the brain.

Taught by: Kaplan
Activity: Seminar
1 Course Unit

**BIBB 080 Brain Changes Through Tragedy and Triumph**
There are currently major advances in understanding how the brain works. Whereas sixty years ago, it was believed that the mature brain was a fixed structure, new research shows not only that the brain can change, but also that it changes continuously throughout life. An overview of neuroplasticity, as it refers to change in the nervous system, will be presented in this course. Major topics will regard: an introduction to the brain anatomy necessary in explanations of neuropsychiatric changes that occur in response to the nerve injury and brain damage; a consideration of addiction and pain as conditions involving maladaptive forms of neuroplasticity; and an overview of lifelong brain changes illustrating neuroplasticity as a lifelong process.

Taught by: Jacqueline Cunningham
Activity: Lecture
1 Course Unit

**BIBB 109 Introduction to Brain and Behavior**
Introduction to the structure and function of the vertebrate nervous system. We begin with the cellular basis of neuronal activities, then discuss the physiological bases of motor control, sensory systems, motivated behaviors, and higher mental processes. This course is intended for students interested in the neurobiology of behavior, ranging from animal behaviors to clinical disorders.

For BA Students: Living World Sector
Taught by: Kane and McLean
One-term course offered either term
Activity: Lecture
1 Course Unit
**BIBB 150 Sex and Human Nature**
This is an introduction to the scientific study of sex in humans. Within an evolutionary framework, the course examines genetic, physiological, ecological, social and behavioral aspects of sex in humans. After providing the basic principles of evolutionary biology, the course will examine the development of sexual anatomy and physiology. How is sex determined? How is orgasm achieved? Why do girls and boys develop sexually at different ages? The role of ecology and social life in shaping human mating patterns will be evaluated through the use of ethnographies and cross-cultural materials on a variety of human cultures. Does everybody have sex the way we do? Why marry? Are there biological bases for love? Why do we experience jealousy? Finally, topics relevant to human sexuality today will be discussed, such as recreational sex, contraception, and sexually transmitted diseases. Examples are drawn primarily from traditional and modern human societies; data from studies of nonhuman primates are also considered.

For BA Students: Living World Sector
Taught by: Schurr
Course usually offered in spring term
Activity: Lecture
1 Course Unit

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**BIBB 160 ABCS of Everyday Neuroscience**
This course is an opportunity for undergraduates to share their interest and enthusiasm for neuroscience with students in grades 9-12 attending urban public schools in West Philadelphia. The course will allow Penn students to develop their science communication and teaching skills. Students will prepare neuroscience demonstrations, hands-on activities, and assessment tools. In parallel, the course aims to engage local high school students, increasing their interest and knowledge in science, and ultimately promoting lifelong science literacy.

Taught by: Lori Flanagan-Cato
Prerequisite: BIBB109
Activity: Lecture
1 Course Unit

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**BIBB 217 Visual Neuroscience**
An introduction to the scientific study of vision, with an emphasis on the biological substrate and its relation to behavior. Topics will typically include physiological optics, transduction of light, visual thresholds, anatomy and physiology of the visual pathways, retinal processing, properties of visual cortex, and color vision.

Taught by: Rust
Course usually offered in spring term
Prerequisites: BIBB 109, PSYC 001, COGS 001 or VLST 101
Activity: Lecture
1 Course Unit

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**BIBB 227 Physiology of Motivated Behaviors**
This course focuses on evaluating the experiments that have sought to establish links between brain structure (the activity of specific brain circuits) and behavioral function (the control of particular motivated and emotional behaviors). Students are exposed to concepts from regulatory physiology, systems neuroscience, pharmacology, and endocrinology and read textbooks as well as original source materials. The course focuses on the following behaviors: feeding, sex, fear, anxiety, the appetite for salt, and food aversion. The course also considers the neurochemical control of responses with an eye towards evaluating the development of drug treatments for: obesity, anorexia/cachexia, vomiting, sexual dysfunction, anxiety disorders, and depression.

Taught by: Grill
One-term course offered either term
Prerequisite: PSYC001
Activity: Lecture
1 Course Unit

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**BIBB 231 Animal Behavior**
The evolution of social behavior in animals, with special emphasis on group formation, cooperation among kin, mating systems, territoriality and communication.

Taught by: Seyfarth/Cheney
One-term course offered either term
Prerequisite: PSYC 001 or BIOL 102 or BIOL 122
Activity: Lecture
1 Course Unit

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**BIBB 233 Neuroethology**
In course, students will learn how neurobiologists study the relationship between neural circuitry and behavior. Behaviors such as bat echolocation, birdsong, insect olfaction, spatial navigation, eye movement and others will be used to explore fundamental principles of brain function that include brain oscillations, population codes, efference copy, sensorimotor maps and sleep replay. The course will also discuss the various methodologies that are used to address these questions. The reading material will be derived mostly from the primary literature.

Taught by: McLean
Course usually offered in spring term
Prerequisite: BIBB 109
Activity: Lecture
1 Course Unit

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**BIBB 240 Chronobiology and Sleep**
Topics to be covered include basic principles of chronobiology; neuroscience mechanisms of circadian rhythms and sleep; phylogeny and ontogeny of sleep; human sleep and sleep disorders; circadian dysfunction; circadian and sleep homeostatic influences in human health and safety.

Taught by: Dinges
Course usually offered in spring term
Prerequisite: BIBB109
Activity: Lecture
1 Course Unit

Notes: Students may not receive credit for both BIBB240 and BIBB040
BIBB 249 Cognitive Neuroscience
The study of the neuronal systems that underlie human perception, memory and language; and of the pathological syndromes that result from damage to these systems.
Taught by: Epstein
One-term course offered either term
Prerequisite: PSYC 001 or BIBB 109
Activity: Lecture
1 Course Unit

BIBB 251 Molecular and Cellular Neurobiology
Cellular physiology of neurons and excitable cells; molecular neurobiology and development. Topics include: action potential generation; synaptic transmission; molecular and physiological studies of ion channels; second messengers; simple neural circuits; synaptic plasticity; learning and memory; and neural development.
Taught by: Schmidt, M./Kaplan
Course usually offered in fall term
Prerequisites: BIOL 101 and 102, or BIOL 121; PHYS 102 or 151 strongly recommended
Activity: Lecture
1.5 Course Unit
Notes: (3hrs. lec., 3hrs. lab, 1.5 c.u.)

BIBB 260 Neuroendocrinology
This course is designed to examine the various roles played by the nervous and endocrine systems in controlling both physiological processes and behavior. First, the course will build a foundation in the concepts of neural and endocrine system function. Then, we will discuss how these mechanisms form the biological underpinnings of various behaviors and their relevant physiological correlates. We will focus on sexual and parental behaviors, stress, metabolism, neuroendocrine-immune interactions, and mental health.
Taught by: Flanagan-Cato
One-term course offered either term
Prerequisite: BIBB 109 or Permission of Instructor
Activity: Lecture
1 Course Unit

BIBB 269 Autonomic Physiology
This course will introduce the student to the functioning of the autonomic nervous system (ANS), which is critically involved in the maintenance of body homeostasis through regulation of behavior and physiology. The course will begin with a review of the basic anatomy and physiology of the ANS including the sympathetic, parasympathetic and enteric divisions. The mechanisms by which the ANS regulates peripheral tissues will be discussed, including reflex and regulatory functions, as will the effect of drugs which modulate ANS activity. The role of the ANS in regulating behavior will be addressed in the context of thirst, salt appetite and food intake. MONDAY MEETING ONLY ON-LINE
Taught by: Heerdin
Course usually offered in spring term
Prerequisite: BIBB 109
Activity: Lecture
1 Course Unit

BIBB 270 Drugs, Brain and Mind
The course will begin with a review of basic concepts in pharmacology including: routes of drug administration, drug metabolism, the dose response curve, tolerance and sensitization. Following a brief overview of cellular foundations of neuropharmacology (neuronal biology, synaptic and receptor function), the course will focus on several neurotransmitter systems and the molecular and behavioral mechanisms mediating the mind-altering, addictive and neuropsychiatric disorders, including depression, schizophrenia and anxiety with an emphasis on their underlying neurobiological causes, as well as the pharmacological approaches for treatment.
Taught by: Kane
Course usually offered in fall term
Prerequisite: BIBB 109 or PSYC 109
Activity: Lecture
1 Course Unit

BIBB 271 Primate Behavior and Ecology
This course explores the behavior of wild primates and the ecological models that attempt to explain the evolution of these behaviors. The evolution and taxonomy of primates will be reviewed, followed by a brief history of wild primate studies. We will then explore primate behavior through theoretical frameworks ranging from socioecological theory to sexual selection. Topics discussed include, but are not limited to, socioecology, aggression, kinship cooperation, reproductive strategies, cognition, and conservation. Those enrolled in 507 will have additional responsibilities assigned.
Taught by: Caitlin O'Connell
One-term course offered either term
Prerequisites: ANTH 003 or consent of instructor. Undergraduates that would like to enroll as the 500 level need consent of instructor.
Activity: Lecture
1 Course Unit

BIBB 310 Laboratory in the Structure of the Nervous System
A laboratory course designed to familiarize the student with the fundamental gross and histological organization of the brain. The mammalian brain will be dissected and its microscopic anatomy examined using standard slide sets. Comparative brain material will be introduced, where appropriate, to demonstrate basic structural-functional correlations.
Taught by: McLean
One-term course offered either term
Prerequisite: BIOL 101 or permission of instructor
Activity: Laboratory
1 Course Unit
Notes: Lab Fee: $50

BIBB 317 Comp Neuroscience Lab
Activity: Laboratory
1 Course Unit

BIBB 350 Developmental Neurobiology
This course will focus on cellular and molecular mechanisms of the organogenesis of the central nervous system. A goal of the course will be to understand the form, function and pathology of the adult nervous system in terms of antecedent developmental processes.
Taught by: Julie McGurk
One-term course offered either term
Prerequisites: BIBB 109 and BIOL 101 or Permission of Instructor
Activity: Lecture
1 Course Unit
BIBB 399 Independent Research
Individual research of an experimental nature with a member of the standing faculty leading to a written paper. The grade is based primarily on a serious term paper describing original research carried out by the student. Students must submit a proposal prior to registering. During the semester, students must attend two seminars to discuss planning and independent research project, ethical concerns in research and writing a scientific paper. Attendance at the meetings is mandatory. Students doing more than one credit of independent study will be required to present a poster at the annual BBB Symposium.
Taught by: Standing Faculty
One-term course offered either term
Prerequisites: BIBB 109 and Permission of the Director
Activity: Independent Study
1 Course Unit

BIBB 417 Seminar in Perception: Visual Processing
This seminar will focus on how visual information is processed by the eye and the brain to produce visual perception. These issues will be explored through lectures and student presentations of journal articles, combined with Matlab-based tutorials and exercises. The course requires no prior knowledge of visual processing, math, or computer programming.
Taught by: Rust
One-term course offered either term
Prerequisites: BIBB 109, Psych 149 or Psych 217, or permission of instructor
Activity: Seminar
1 Course Unit

BIBB 420 Smell and Taste
All organisms respond to chemicals in their environment. This chemosensation guides diverse behaviors such as a feeding, avoiding predators, sex, and social interactions. This course will provide a broad survey of our current understanding of taste and smell, focusing on insect and rodent model systems as well as studies in humans. The course will begin with a review of chemical signal transduction mechanisms, and build to an exploration of the cortical integration of chemical signals and chemical guided behaviors. Class time will emphasize primary literature, discussion, and student presentations. The goal is to reach an integrated understanding of the physiology and psychology of chemical sensory systems. In the process, students will learn to read and critically evaluate data from primary research articles.
Taught by: Lewandowski
Course not offered every year
Prerequisites: Introductory Psychology and Biology, BIBB 109. PSYC 111 (Perception) preferred.
Activity: Seminar
1 Course Unit

BIBB 421 Functional Imaging of the Human Brain
The course will provide a detailed overview of functional brain imaging and its potential uses. Issues regarding advantages and disadvantages of different modalities, study design, image analysis & interpretation and how these relate to various neurological & psychological phenomena will be discussed. Class will cover the following specific topics in this general time frame: Introduction to functional brain function, basics of nuclear medicine imaging (including instrumentation, image acquisition, and radiopharmaceuticals for positron emission tomography and single photon emission computed tomography), imaging of neurological disorders, imaging of psychological disorders, introduction to activation studies, image analysis and statistical problems, study design, literature review, journal article presentation, tour of Penn imaging facilities, interpretation of imaging studies, implications for clinical and research, and implications for understanding the human mind and consciousness.
Taught by: Newberg
Course usually offered in spring term
Prerequisite: BIBB 109
Activity: Seminar
1 Course Unit

BIBB 429 SEMINAR HUMAN MEMORY: Big Data, Memory, and the Human Brain
Taught by: Kahana
Prerequisite: CIS121 & Python experience
Activity: Seminar
1 Course Unit
Notes: Instructor permission required. Application form can be found here: http://psychology.sas.upenn.edu/undergraduate/forms

BIBB 430 Neurobiological Basis of Autism
This course examines the neurobiological processes underlying autism spectrum disorders. In this seminar course, we will first examine the brain phenotypes associated with Autism Spectrum Disorders (ASD), in addition to investigating the genetic and environmental contributions to the etiology and pathophysiology of ASD. After an initial examination of the clinical literature and research, we will focus on animal models of ASD, including those of syndromic causes of autism (Rett Syndrome, Tuberous Sclerosis, Fragile X) and investigate changes in neurotransmitter systems and synaptic dysfunctions in the brain of these models.
Taught by: Herrington
One-term course offered either term
Prerequisite: BIBB 109
Activity: Lecture
1 Course Unit
BIBB 440 The Neuroscience behind the addiction to chocolate, wine, coffee and tobacco
Both clinical observations and popular culture support the idea that food might have addictive properties. Similar to the narrative for addictive drugs, individuals and the media use terms like “food addict” and “chocoholic” and refer to cravings, symptoms of withdrawal, and escalating patterns of eating that might be viewed as evidence of tolerance. The class will discuss chocolate and coffee as examples of so-called “additive” food and compare their effects and mechanisms with those of alcohol and nicotine, two substances with well-characterized addictive properties. Furthermore, we will discuss why some forms of overeating are thought to reflect an addictive behavior. Considering the social dimension of alcohol, coffee, and tobacco consumption and the fact that large numbers of the population consume them together, we will also discuss the possible interactive effects of combinations of these psychoactive substances on mood and disease state. At the end of the course the student will become familiar with the diagnostic criteria for substance dependence, the anatomy and physiology of the brain circuits involved in reward processing and drug dependence, and the neurotransmitter systems involved.
Taught by: Mariella De Biasi, PhD
One-term course offered either term
Activity: Lecture
1 Course Unit

BIBB 442 Neurobiology of Learning and Memory
This course focuses on the current state of our knowledge about the neurobiological basis of learning and memory. A combination of lectures and student seminars will explore the molecular and cellular basis of learning in invertebrates and vertebrates from a behavioral and neural perspective.
Taught by: Abel
Also Offered As: NGG 575
Prerequisites: BIOL 251, BIBB 251 or Permission of Instructor
Activity: Seminar
1 Course Unit

BIBB 445 Information Representation
One-term course offered either term
Activity: Seminar
1 Course Unit

BIBB 451 Behavioral Genetics
This course covers basic principles of human and animal behavioral genetics, including normal variation and extreme phenotypes represented by behavioral, psychiatric and neurologic disorders. The course will focus on methods necessary to critically evaluate research findings on normal and abnormal human behavior. Animal models will also be reviewed. The first third of the class is in lecture format and reviews basic genetic methodologies as they apply to behavior. The remainder of the class is in seminar format and covers recently published work related to behavioral genetics.
Taught by: (c) Price
Course offered spring; odd-numbered years
Prerequisites: BIBB 109, Basic statistics or Permission of Instructor
Activity: Seminar
1 Course Unit

BIBB 460 Neuroendocrinology Seminar
This course is an upper-level seminar, designed to examine the various roles played by the nervous and endocrine systems in controlling both physiological processes and behavior. We will focus on sexual and parental behaviors, stress, metabolism, neuroendocrine-immune interactions, and mental health. The format will be a mixture of lectures and journal club discussions based on recent primary literature in the field of neuroendocrinology. Students will also write several short papers based on the clinical neuroendocrinology.
Taught by: Flanagan-Cato
One-term course offered either term
Prerequisite: BIBB 109 or Permission of Instructor
Activity: Seminar
1 Course Unit

BIBB 466 Molecular Genetics of Neurological Disease
This course will focus on the molecular basis of neurological diseases, exploring in detail key papers that cover topics including defining the disease genes, development of animal models that provide mechanistic insight, and seminal findings that reveal molecular understanding. Diseases covered will include neurological diseases of great focus today such as Alzheimer’s, Fragile-X and autism, dementia, motor neuron degeneration, and microsatellite repeat expansion disorders. The course will provide a perspective from initial molecular determination through current status. Students will gain an understanding of how the molecular basis of a disease is discovered (from classical genetics to modern genomics) and how such diseases can be modeled in simple genetic systems for mechanistic insight. The course will be comprised of lectures with detailed analysis of primary literature and in-class activities. Grading will be based on class participation, exams, and written papers.
Taught by: Bonini
Prerequisites: BIOL 221 is required; BIOL 251 and BIOL 421 are recommended
Activity: Lecture
1 Course Unit

BIBB 469 Stress Neuroscience
Stress can be caused by a variety of conditions, ranging from low-level noise in the workplace to life-threatening situations and these stressors can cause changes in the physiology and behavior of individuals. This course will examine the neural mechanisms underlying physiological and emotional responses to stress in a journal club format. Topics to be covered include anxiety disorders, depression and other mood disorders, the differential effects of stress on males and females, the physiological effects of stress on the immune system and feeding behavior, the effects of maternal stress on offspring as well as strategies to mitigate the effects of stress.
Taught by: Heering
One-term course offered either term
Prerequisite: BIBB 109
Activity: Seminar
1 Course Unit
BIBB 470 Animal Models of Neuropsychiatric Disorders
This seminar will focus on the significant role of animal models in the investigation of the pathophysiology of a variety of human neuropsychiatric disorders as well as in the development of treatments for these disorders. The course will focus on the use of genetically modified mice in the investigation of Autistic Spectrum Disorders (ASD), anxiety and affective disorders, schizophrenia and obsessive-compulsive disorder (OCD), with an emphasis on the limitations of such models. Class time will consist of short lectures and open discussions via student-led presentations. Emphasis will be placed on the critical analysis of primary literature.
Taught by: Kane
Course not offered every year
Prerequisite: BIBB 109
Activity: Seminar
1 Course Unit

BIBB 473 Neuroeconomics
This course will review recent research that combines psychological, economic and neuroscientific approaches to study human and animal decision-making. A particular focus will be on how evidence about the neural processes associated with choices might be used to constrain economic and psychological theories of decision-making. Topics covered will include decisions involving risk and uncertainty, reinforcement learning, strategic interactions and games, and social preferences.
Taught by: Kable
Also Offered As: NGG 706
Prerequisites: PSYC 149, 253, or 265
Activity: Seminar
1 Course Unit

BIBB 474 Neurodegenerative Diseases
This course will familiarize students with advances in our understanding of the clinical features and pathogenesis of a wide range of neurodegenerative diseases, including Alzheimer’s disease and other dementias, prion diseases, Parkinson’s disease and atypical parkinsonisms, neurodegenerative ataxias, motoneuron diseases, degenerative diseases with chorea, iron and copper disorders, and mitochondrial diseases. Students will analyze original research reports on a range of proposed pathological cellular processes that may represent steps in cell death pathways leading to neuron loss seen in these diseases. Significant emphasis will be placed on the fast-expanding field exploring genetic contributions to neurodegenerative disease, as identification of genetic mutations pathogenic for familial neurodegenerative diseases has been a major driving force in neurodegenerative research and pointed researchers towards essential molecular processes that may underlie these disorders. Strategies for therapeutic intervention in the management, prevention, and cure of neurodegenerative disease will be addressed.
Taught by: Lexow
One-term course offered either term
Prerequisite: BIBB 109 or Permission of Instructor
Activity: Seminar
1 Course Unit

BIBB 479 Neural Systems and Behavior
This course will investigate neural processing at the systems level. Principles of how brains encode information will be explored in both sensory (e.g. visual, auditory, olfactory, etc.) and motor systems. Neural encoding strategies will be discussed in relation to the specific behavioral needs of the animal. Examples will be drawn from a variety of different model systems.
Taught by: Schmidt, M./Medina
Course not offered every year
Prerequisites: BIOL 251/BIBB 251 and permission of instructor
Activity: Lecture
1 Course Unit

BIBB 480 Biological Basis of Psychiatric Disorders
The contributions of basic sciences (neuroanatomy, neurophysiology, neurochemistry, and neuropharmacology) to an understanding of behavior and behavioral disorders will be covered and important psychiatric disorders will be discussed, primarily from the viewpoint of their biological aspects. Emphasis will be placed on critical evaluation of research strategies and hypotheses.
Taught by: Lexow
One-term course offered either term
Prerequisite: BIBB 109 or permission of instructor
Activity: Seminar
1 Course Unit

BIBB 481 Behavioral Pharmacology
This seminar course reviews the behavioral effects of drugs in animals, the general biological and psychological principles of drug action, and the relationship between drugs that affect brain monoamine and opiate systems and their behavioral effects. Introductory lectures on general topics will be followed by advanced discussion of specific topics in a journal club format through student presentations.
Taught by: Heerding
Course not offered every year
Prerequisite: BIBB 109
Activity: Seminar
1 Course Unit

BIBB 482 Clinical Psychopharmacology
This course examines the history, rationale and putative mechanism of action of drugs used in the treatment of psychiatric disorders. Emphasis is placed on neurobiological processes underlying psychopathology and pharmacological intervention. Drugs currently in use as well as new drugs in development will be covered. Strategies, techniques, issues and challenges of clinical psychopharmacological research will be addressed and new approaches to drug discovery, including the use of pharmacogenomics and proteomics to understand variability in drug response and identify new molecular drug targets, will be covered in detail. Specific drug classes to be considered include antidepressants, anxiolytics, typical and atypical antipsychotics, narcotic analgesics, sedative hypnotics, and antiepileptic medications. A contrasting theme throughout the course will be the use of drugs as probes to identify neural substrates of behavior.
Taught by: Lexow
Course not offered every year
Prerequisite: BIBB 109 or permission of instructor
Activity: Seminar
1 Course Unit
**BIBB 485 Signaling in Nerve and Muscle**

This seminar based course will expand and deepen knowledge gained in BIBB 251 about excitability in the nervous system and about how synapses function. A new area of study will be skeletal and cardiac muscle which are both excitable tissues. A particular focus of the course will be the roles which calcium ions play as second messengers in nerve, muscle and synapse. We will learn about how calcium is handled in nerve and muscle and about the techniques used to study intracellular calcium. The later part of the course will have a journal club format, based on the reading and presentation of original papers. These will include papers on calcium related muscle diseases and on the integration of nerve and muscle signaling in animal motor behaviors.

Taught by: Hollingworth
One-term course offered either term
Prerequisite: BIBB 251 or Permission
Activity: Lecture
1 Course Unit

**BIBB 492 Experimental Methods in Synaptic Physiology**

In this lab course, a small number of students meet once per week to discuss topics in synaptic physiology and to become proficient at sharp electrode techniques for intracellular recording, using isolated ganglia from the snail Heliosoma. The first part of each class will consist of discussion of weekly reading from the primary literature, with the remainder of the class devoted to hands-on experiments. After learning to record from and characterize single neurons, students will study synaptic transmission by stimulating incoming nerve trunks or by recording from pairs of interconnected neurons. As a midterm assignment, students will prepare and present a short research proposal using this model system, to be evaluated by the class. For the last half of the course, the class will work together on one or two of these proposals, meeting at the end of each class to pool our data, analyze the results and discuss their significance.

Taught by: Kaplan
One-term course offered either term
Prerequisite: BIBB 251
Activity: Laboratory
1 Course Unit
Notes: Lab fee $100

**BIBB 499 Senior Honors Thesis**

Continuation of BIBB 399 research. Students will be required to give an oral presentation of their research at the annual BBB symposium Honors Seminar.

Taught by: Standing Faculty
One-term course offered either term
Prerequisites: BIBB 399, Permission of BIBB Director and a GPA of 3.5 or better
Activity: Independent Study
1 Course Unit

**BIBB 585 Theoretical and Computational Neuroscience**

This course will develop theoretical and computational approaches to structural and functional organization in the brain. The course will cover: (i) the basic biophysics of neural responses, (ii) neural coding and decoding with an emphasis on sensory systems, (iii) approaches to the study of networks of neurons, (iv) models of adaptation, learning and memory, (v) models of decision making, and (vi) ideas that address why the brain is organized the way that it is. The course will be appropriate for advanced undergraduates and beginning graduate students. A knowledge of multi-variable calculus, linear algebra and differential equations is required (except by permission of the instructor). Prior exposure to neuroscience and/or Matlab programming will be helpful.

Taught by: Balasubramanian
Course not offered every year
Also Offered As: BE 530, NGG 594
Activity: Lecture
1 Course Unit
BIOL 006 Evaluating Medical Treatment: How Do We (and the FDA) Know What Works?
The development of new medical treatments typically culminates in one or more clinical trials - experiments in which the effects of the new treatment are compared with the effects of another treatment or no treatment. A great many considerations go into the design of these medical experiments. In this seminar, we will discuss the basic structure of the clinical trial, the varying types of designs that may be used, the scientific and ethical issues that arise, and the regulatory process that ultimately determines whether medical products are effective and safe and whether they can be made available to the public.
Taught by: Ellenberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: May not be counted toward the Biology major or minor.

BIOL 011 Humans in a Microbial World
Microbes are a fundamental part of life on this planet. This course will explore the causes and consequences of the distribution and abundance of microbes (microbial ecology) as well as microbial evolution on human health and disease risk. We will address the interplay between human society and microbial ecology and evolution in shaping disease risk and directing scientific study. This course will apply concepts from basic biology, ecology, and evolution to study infectious microbes as living creatures.
For BA Students: Living World Sector
Taught by: Brisson
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: May not be counted toward the Biology major or minor

BIOL 014 Descent with Modification: An introduction to the science of evolution
Evolution provides the unifying framework for the biological sciences and has been confirmed by a huge and diverse body of evidence. Public opinion polls show, however, that evolution continues to be socially and politically controversial in the United States. In this freshman seminar, we will explore the scientific basis for evolution by reading and discussing historical sources, a current nonspecialist text on evolution, and selected papers and articles from the scientific and popular literature. With our knowledge of evolutionary fact and theory as background, we will also discuss social and political opposition to the teaching of evolution. Grading will be based on participation in class discussions and on performance in several brief writing assignments. There is no course prerequisite, but high school introductory biology would be helpful.
For BA Students: Living World Sector
Taught by: Sniegowski
Course offered fall; even-numbered years
Activity: Seminar
1 Course Unit
Notes: May not be counted toward the Biology major or minor. General biology background preferred but not required

BIOL 017 The Biology of Food
This course will examine the ways in which humans manipulate - and have been manipulated by - the organisms we depend on for food, with particular emphasis on the biological factors that influence this interaction. The first part of the course will cover the biology, genetics, evolution, and breeding of cultivated plants and animals; the second part will concern the ecological, economic, and political factors that influence food production. Lab activities include demonstrations and field trips to local farms.
For BA Students: Living World Sector
Taught by: Poethig
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit
Notes: May not be counted toward the Biology major or minor.

BIOL 019 Biological Science and Public Policy
This course will examine the scientific basis of public policy decision making in areas of human health, the environment, energy, and agriculture. A general understanding of the science involved in these areas - predominantly genetics, cell biology, physiology, and ecology - will be applied to topics such as drug and herbicide resistance, endangered species, regulation of biotechnology, microbial sources of energy, control of toxic substances, and the war against cancer. No formal background in biology or policy is required. The course should be particularly useful for non-science students who would like to gain insight into areas of biology of importance to public decision making and to students of public policy who would like a better background on biological issues.
Course usually offered in fall term
Prerequisite: High school biology recommended
Activity: Lecture
1 Course Unit
Notes: May not be counted toward the Biology major or minor. Only offered through the College of Liberal and Professional Studies

BIOL 101 Introduction to Biology A
General principles of biology focusing on the basic chemistry of life, cell biology, molecular biology, and genetics in all types of living organisms. Particular emphasis will be given to links between the fundamental processes covered and current challenges of humankind in the areas of energy, food, and health.
For BA Students: Living World Sector
One-term course offered either term
Activity: Lecture
1.5 Course Unit
Notes: (3 hrs. lec., 3 hrs. lab, 1.5 c.u.) Biology majors and pre-medical students should take either BIOL 101 or 121. BIOL 101 is the companion course to BIOL 102 and should be taken before BIOL 102.

BIOL 102 Introduction to Biology B
General principles of biology focusing on evolution, physiology, development, and ecology in all types of living organisms.
For BA Students: Living World Sector
One-term course offered either term
Prerequisite: BIOL 101
Activity: Lecture
1.5 Course Unit
Notes: (3 hrs. lec., 3 hrs. lab, 1.5 c.u.) BIOL 102 is the companion course to BIOL 101 and should be taken after BIOL 101.
BIOL 109 Introduction to Brain and Behavior
Introduction to the structure and function of the vertebrate nervous system. We begin with the cellular basis of neuronal activities, then discuss the physiological basis of motor control, sensory systems, motivated behaviors, and higher mental processes. This course is intended for students interested in the neurobiology of behavior, ranging from animal behaviors to clinical disorders. 
For BA Students: Living World Sector
Taught by: Kane and McLean
One-term course offered either term
Activity: Lecture
1 Course Unit

BIOL 121 Introduction to Biology - The Molecular Biology of Life
An intensive introductory lecture course covering the cell, molecular biology, biochemistry, and the genetics of animals, bacteria, and viruses. This course is comparable to Biology 101, but places greater emphasis on molecular mechanisms and experimental approaches. Particular attention is given to the ways in which modern cell biological and molecular genetic methods contribute to our understanding of evolutionary processes, the mechanistic basis of human disease, and recent biotechnological innovations. Students are encouraged to take BIOL 121 and 123 concurrently. 
For BA Students: Living World Sector
Course usually offered in fall term
Prerequisites: Solid high school biology or credit by exam for BIOL 102 or CHEM 101
Corequisite: BIOL 123 is recommended
Activity: Lecture
1 Course Unit
Notes: Biology majors and pre-medical students should take either BIOL 101 or 121. BIOL 121 is the companion course to BIOL 124 and may be taken before or after BIOL 124

BIOL 123 Introductory Molecular Biology Laboratory
An intensive introductory laboratory course emphasizing how molecular biology has revolutionized our understanding of cell and organism functions. BIOL 121 and 123 should be taken concurrently. 
Taught by: Hogan
Course usually offered in fall term
Corequisite: BIOL 121 or credit by exam for BIOL 101 or 121
Activity: Lecture
0.5 Course Units
Notes: (1 hr. lec., 3 hrs. lab, 0.5 c.u.) Students may not take both BIOL 101 and 123 for credit.

BIOL 124 Introductory Organismal Biology Lab
An intensive introductory laboratory course in organismal biology. 
Taught by: Robinson/Hogan
Course usually offered in spring term
Prerequisite: Solid high school biology or credit by exam for BIOL 102
Activity: Lecture
0.5 Course Units
Notes: (1 hr. lec., 3 hrs. lab, 0.5 c.u.) BIOL 124 is the companion course to BIOL 121 and may be taken before or after BIOL 121. Students may not take both BIOL 102 and 124 for credit.

BIOL 138 Energy Transformations and Living Off-the-Grid
The course will examine major sources of energy on earth: sunlight, mechanical, chemical and biological, and how this energy is transformed into useful energy for humans - typically electrical energy or food. Considerable emphasis will be on forms of regenerative energy that can be used when living off-the-grid. As a case study, we will examine some approaches taken by the US military to provide energy capability for dismounted Marines operating on foot in austere environments. Faculty lectures will be supplemented by guest lectures from leaders in government and industry. No scientific knowledge is assumed beyond high school biology, chemistry and physics. Energy is necessarily a quantitative subject so students should be comfortable with quantitative approaches. A major goal of this course is for students to develop an awareness for the amounts of energy they use in their daily lives, and how they might reduce them. As an exercise, students will measure how much energy their smart phones and laptops use in a day and try to generate a comparable amount of energy through physical effort. 
Taught by: Rome
Course offered fall; odd-numbered years
Prerequisites: High school biology and math
Activity: Seminar
1 Course Unit

BIOL 140 Humans and the Environment
Intensive exposure to current issues and solutions in contemporary human interactions with the environment. Global in scope, but focused on case histories. Emphasis on providing biological and sociological background for a given major environment-human interaction, and state-of-the-art suggested solutions. 
For BA Students: Natural Science and Math Sector
Taught by: Janzen
Course usually offered in fall term
Prerequisites: Sophomore standing or greater. Some biology background suggested
Activity: Lecture
1 Course Unit

BIOL 199 Clinical & Translational Research
Independent study for students doing research based on data that is generated in a clinical setting. Projects must be sponsored by standing faculty of the University of Pennsylvania and co-sponsored by a faculty member in the Department of Biology. The project must be of biological interest and must use appropriate quantitative or statistical methods. A final paper is required. Apply at the Academic Office, 102 Leidy Labs.
One-term course offered either term
Activity: Independent Study
1 Course Unit

BIOL 201 Essentials of Cell Biology
An intermediate level exploration of cell structure and function including membrane structure, intracellular organelles, membrane trafficking, surface receptors and signal transduction, the cytoskeleton, cell motility and communication, and the cell cycle. This course is open to students in the College of Liberal and Professional Studies only.
One-term course offered either term
Prerequisites: BIOL 101 and 102 or BIOL 121 or equivalent courses
Activity: Lecture
1 Course Unit
BIOL 203 Essentials of Biochemistry
Intermediate level course covering principles of modern biochemistry. Topics include protein structure, protein purification and characterization, proteomics, enzyme kinetics and mechanisms, membrane structure and function, metabolism, and cellular energy transduction. Emphasis will be on biochemical problem solving, experimental design, and application of quantitative methods in a biological and clinical context. This course is open to students in the College of Liberal and Professional Studies only. One-term course offered either term
Prerequisites: BIOL 101 and 102 or BIOL 121, and CHEM 241, the latter of which may be taken concurrently. CHEM 242 is recommended and may also be taken concurrently
Activity: Lecture
1 Course Unit

BIOL 204 Biochemistry
BIOL 204 examines the basic principles of protein structure, protein purification and characterization, proteomics, enzyme kinetics and mechanism, membrane structure and function, metabolism, and cellular energy transduction. The primary objective is to provide life scientists with an appreciation of basic principles of modern biochemistry, and of how the current conceptual and technical framework arose. Emphasis is placed on the experimental approaches and reasoning behind the dissection and reconstitution of these processes in a biological and, in some cases, clinical context. Discussions directed at biochemical problem solving, experimental design and the application of quantitative methods are integral to the course.
Taught by: Rea
Course usually offered in spring term
Prerequisites: BIOL 101 and 102 or BIOL 121, and CHEM 241, the latter of which may be taken concurrently. CHEM 242 is recommended and may also be taken concurrently
Activity: Lecture
1 Course Unit

BIOL 205 Cell Biology
A conceptual view of cell structure and function including membrane structure, intracellular organelles, membrane trafficking, surface receptors and signal transduction, the cytoskeleton, cell motility and communication, and the cell cycle. Cell biology is a dynamic field and recent research discoveries will be included in the lectures.
Taught by: Guo and Svitkina
Course usually offered in fall term
Prerequisites: BIOL 101 and 102, or BIOL 121
Activity: Lecture
1 Course Unit

BIOL 211 Essentials of Molecular Biology and Genetics
This course will survey the discipline of molecular genetics. Mendelian and molecular genetics will be discussed as well as the use of genetic analysis to address questions in all areas of biology. The processes of DNA replication, transcription, and translation will be discussed at the molecular level. Other topics include the regulation of gene expression and genomics. This course is open to students in the College of Liberal and Professional Studies only.
One-term course offered either term
Prerequisites: BIOL 101 and 102 or BIOL 121 or equivalent courses
Activity: Lecture
1 Course Unit

BIOL 213 Essentials of Vertebrate Physiology
A comparative and quantitative approach to the physiological function of vertebrates. Topics include muscles, nervous system, cardiovascular system, respiration, and renal function. This course is open to students in the College of Liberal and Professional Studies only.
One-term course offered either term
Prerequisites: BIOL 101 and 102 or BIOL 121 and 124 or equivalent courses
Activity: Lecture
1 Course Unit

BIOL 215 Vertebrate Physiology
The course will focus on integrative aspects of physiological function of vertebrates. Comparative, environmental and quantitative approaches will be used. Major topics include muscle, the cardiovascular system, respiration, renal function and the nervous system.
Taught by: Woodward
One-term course offered either term
Prerequisite: BIOL 102 or 121
Activity: Lecture
1 Course Unit

BIOL 221 Molecular Biology and Genetics
This course will survey the discipline of molecular genetics. Two broad areas will be considered 1) Molecular Biology: DNA replication, transcription, translation, regulation of gene expression in both prokaryotic and eukaryotic systems, and genomics and 2) Genetics: basic Mendelian & molecular genetics.
Taught by: Bonini/Gallagher/Guild/Levine
One-term course offered either term
Prerequisite: BIOL 101 or 121
Activity: Lecture
1 Course Unit

BIOL 230 Evolutionary Biology
Theories and mechanisms of evolution, with emphasis on the genetic basis of evolutionary change.
Taught by: Schmidt, P
Course usually offered in spring term
Prerequisites: BIOL 101 and 102, or BIOL 121
Activity: Lecture
1 Course Unit

BIOL 231 The Evolution of Animal Behavior
The evolution of social behavior in animals, with special emphasis on group formation, cooperation among kin, mating systems, territoriality and communication.
Course not offered every year
Prerequisite: BIOL 102 or 121 or PSYC 001
Activity: Lecture
1 Course Unit

BIOL 240 Ecology: From individuals to ecosystems
The study of living organisms in their natural environment, spanning the ecological physiology of individuals, the structure of populations, and interactions among species, including the organization of communities and ecosystem function.
Taught by: Helliker/Akcay
Course usually offered in fall term
Prerequisite: BIOL 102 or 121
Activity: Lecture
1 Course Unit
BIOL 251 Molecular and Cellular Neurobiology
Cellular physiology of neurons and excitable cells, molecular neurobiology and development. Topics include: action potential generation, synaptic transmission, molecular and physiological studies of ion channels, second messengers, simple neural circuits, synaptic plasticity, learning and memory, and neural development.
Taught by: Schmidt, M./Kaplan
Course usually offered in fall term
Prerequisites: BIOL 101 and 102, or BIOL 121 and BIBB 109; PHYS 101 or 151 strongly recommended
Activity: Lecture
1.5 Course Unit
Notes: (3hrs. lec., 3hrs. lab, 1.5 c.u.)

BIOL 275 Elements of Microbiology
Microbiology plays a central role in diverse areas of human life such as infectious disease, ecology, and biotechnology. This course will cover aspects of modern microbiology with an emphasis on prokaryotic organisms. The topics will include basic aspects of microbial diversity, genetics, and pathogenesis as well as examples of applied microbiology. This course is open to students in the College of Liberal and Professional Studies only.
One-term course offered either term
Prerequisites: BIOL 101 or 121, BIOL 211 or 221 or equivalent strongly recommended
Activity: Lecture
1 Course Unit
Notes: Combined lecture and lab course.

BIOL 304 Infectious Disease Biology
This course focuses on selected topics concerning infectious agents, the diseases they cause in humans, and the social and scientific challenges they pose. The first section addresses the principles of epidemiology and microbial pathogenesis, as well as pathophysiology of infectious diseases. In the second section, tools and techniques of diagnosis, tracking, and control of infectious diseases will be discussed. To develop a broad understanding of the many different aspects of infectious processes, selected viral, fungal, protozoan, and helminthic pathogens and related infectious diseases will be presented. This course is open to students in the College of Liberal and Professional Studies only.
Course usually offered in spring term
Prerequisites: BIOL 211 or 221, 275 and 404, the later of which may be taken concurrently
Activity: Lecture
1 Course Unit

BIOL 306 Histology
This course is designed to introduce the undergraduate student to the structure of tissues at the cellular level and to the way in which those tissues are assembled into organs. This knowledge of structure will be the basis for discussion of tissue and organ function. This course is open to students in the College of Liberal and Professional Studies only.
One-term course offered either term
Prerequisites: BIOL 101 and 102 or BIOL 121, and BIOL 201 or 205 recommended
Activity: Lecture
1 Course Unit

BIOL 330 Comparative Vertebrate Anatomy and Evolution
This course will survey the phylogeny and anatomy of vertebrate organisms from a comparative evolutionary perspective. The lecture will concentrate on the history, diversity, structure and function of vertebrates. A companion lab course, BIOL 336, is available for those students interested in a more complete understanding of vertebrate anatomy.
Taught by: Dunham
Course usually offered in spring term
Prerequisite: BIOL 102 or 121
Activity: Lecture
1 Course Unit

BIOL 336 Comparative Vertebrate Anatomy Lab
Laboratory portion of BIOL 330 Comparative Vertebrate Anatomy and Evolution. Students will learn comparative anatomy through dissection of representative vertebrates. Students taking the lab must have credit or register for the lecture course, BIOL 330.
Taught by: Dunham
Course usually offered in spring term
Prerequisite: BIOL 330 previously or concurrently is required
Activity: Laboratory
0.5 Course Units
Notes: (3 hrs lab., 0.5 c.u.)

BIOL 354 Developmental Biology
A view of how an animal embryo is specified to develop and differentiate into a wide spectrum of cell types, and how the spatial patterns and axes of embryos are determined. The course will focus on genetic and molecular approaches, but will also cover the comparative anatomy of developing embryos to the extent necessary to understand the conserved aspects of embryonic patterning. Special emphasis will be placed on organisms with particular advantages for the study of embryonic development: e.g., mouse, frog, zebrafish, and Drosophila. The first half of the course will cover cell fate restrictions, cloning animals using nuclear transfer, stem cell biology, formation of the embryonic axes in vertebrates and Drosophila, and patterning of the neural tube and mesodermal tissues. The second half of the course will focus on emerging ideas and findings in the field, with emphasis on analysis of original literature.
Taught by: Wagner J
Course usually offered in spring term
Prerequisite: BIOL 205 or 221
Activity: Lecture
1 Course Unit

BIOL 375 Microbial Diversity and Pathogenesis
Microbiology plays a central role in diverse areas of human life such as infectious disease, ecology, and biotechnology. This course will cover aspects of modern microbiology with an emphasis on prokaryotic organisms. The topics will include basic aspects of microbial diversity, genetics, virology, and pathogenesis as well as examples of applied microbiology.
Taught by: Pohlschroder
Course usually offered in spring term
Prerequisites: BIOL 101 and 102 or BIOL 121, BIOL 221
Activity: Lecture
1 Course Unit
The importance of microbiology in complex issues, such as the impact of the microbiome in human health or as alternative energy sources, is being appreciated more and more each day. This upper level laboratory course provides students with a robust technical skill set while also giving them an opportunity to participate in an authentic research project that may lead to novel discoveries. Students will generate research questions, formulate hypotheses, design experiments, analyze data, and present their research findings to the class. In each project, students will use the cutting edge approach of metagenomics to evaluate the microbial diversity of their environment via Next Generation Sequencing. Students will also examine the function of microbial species within their communities. Potential projects include the isolation of novel antibiotic producers and the antibiotic they produce, designing and optimizing microbial fuel cells that can be used to generate electricity, or isolating antibiotic resistant bacteria and attempting novel approaches to inhibit or prevent their growth.

Taught by: Pohlschroder and Hogan

Course usually offered in spring term

Prerequisite: BIOL 375 previously or concurrently is recommended but not required

Activity: Laboratory

0.5 Course Units

Notes: (3 hrs lab., 0.5 c.u. or 6 hrs lab., 1.0 c.u. in some years)

**BIOL 399 Independent Study**

Laboratory research with a faculty member in the Department of Biology. Research may also be conducted elsewhere on campus but co-sponsored by a faculty member in Biology. A final paper is required. Apply at the Biology Academic Office, 102 Leidy Labs.

One-term course offered either term

Activity: Independent Study

1 Course Unit

**BIOL 400 Field Botany**

This course focuses on teaching students the Pennsylvania flora, both native and naturalized. Through weekly field trips, students will gain an appreciation for the diversity of plant species and plant communities in PA, and observe and discuss ecological and historical forces that influence plant species occurrences and plant communities. The ability to quickly and accurately identify plants in the field, through both sight identification and the use of a dichotomous key, is the major thrust of this course. Students will also learn how to appropriately collect plant materials for further study/identification in the laboratory and for archiving in an herbarium collection.

Taught by: Block and Skema

Course usually offered in fall term

Prerequisite: BIOL 101 or 124 or permission of instructor

Activity: Laboratory

1 Course Unit

**BIOL 401 Prokaryotic Microbiology: A Pragmatic View**

This interactive course is intended for a small group of students aspiring to pursue research in microbiology, preferably using prokaryotes. Students will study selected papers and will attend the Prokaryotic Microbiology Seminars on Fridays. Specific problems of importance to a given field at a particular time will be critically analyzed and discussed: How were cutting edge techniques of the time used to address these problems? How would the same problems be approached using current techniques? The emphasis of the course will be on learning to become a thoughtful experimentalist rather than acquiring the hottest emerging knowledge.

Taught by: Daldal

Course usually offered in spring term

Prerequisite: BIOL 375 is recommended but not required

Activity: Seminar

1 Course Unit

**BIOL 404 Immunobiology**

Early development of microbiology, pathology, and immunobiology; molecular and cellular bases of immune phenomena including: immunity to pathogens, immune diseases, autoimmunity, and hypersensitivity.

This course is open to students in the College of Liberal and Professional Studies only.

One-term course offered either term

Prerequisites: BIOL 201 or 205 and BIOL 211 or 221

Activity: Lecture

1 Course Unit

**BIOL 405 First Line of Defense: The Role of Innate Immunity in Disease**

All organisms, from bacteria to humans, rely on innate, non-specific defense systems to protect against infection and mediate damage. Even in organisms that can generate highly specific and efficient adaptive responses, such as humans, defects in innate immune system components can be fatal. In this course, we will examine the cellular and molecular mechanisms of the components of the innate immune system through discussion of primary literature. We will explore how the innate immune system influences the course of infections and cancer, as well as autoinflammatory disorders that lead to host tissue damage. Though our focus will be on mammalian immunity, we will also explore the evolutionary development of innate immunity through comparison of systems in different organisms.

Taught by: Elliott

Course usually offered in fall term

Prerequisites: BIOL 205 or permission of instructor, BIOL 221 recommended

Activity: Seminar

1 Course Unit
BIOL 406 Molecular Mechanisms of Infectious Disease Biology
This course is designed for advanced undergraduates and beginning graduate students with a particular interest in infectious disease biology. Note that this course is not a comprehensive survey of the field and is not appropriate for students seeking a lecture course on disease. The primary objective of this course is to teach students considering a career in the biomedical sciences how to read, discuss, and question research papers effectively. Intensive classroom discussions focus on the experimental methods used, results obtained, interpretation of these results in the context of pathogen interactions with host cells and organisms, and implications for basic research and therapeutic development.
Taught by: Roos
Course usually offered in spring term
Prerequisite: BIOL 205; BIOL 221 recommended
Activity: Seminar
1 Course Unit

BIOL 407 Cancer Cell Biology
This course will focus on the molecular mechanisms by which fundamental cellular processes are disrupted in the development of cancer.
Taught by: Keith
Course usually offered in fall term
Prerequisites: BIOL 205 and 221 or equivalent courses
Activity: Seminar
1 Course Unit

BIOL 410 Advanced Evolution
Mechanisms of evolution at the genetic and populational levels. Empirical and theoretical approaches to natural selection, population structure, gene flow, and quantitative genetics will be emphasized.
Taught by: Sniegowski/Plotkin
Course offered fall; odd-numbered years
Prerequisite: BIOL 230 or permission of instructor
Activity: Lecture
1 Course Unit

BIOL 411 Evolutionary Ecology
This course will focus on topics at the intersection of evolutionary biology and ecology, including the evolution of cooperation and conflict from genes to societies to ecological communities, life history evolution, and the evolution of interspecific interactions and ecological communities. The course will use a combination of lectures and discussion of readings from the primary literature.
Taught by: Linksvayer
Course usually offered in spring term
Prerequisite: BIOL 230 or 231 or 240
Activity: Seminar
1 Course Unit

BIOL 412 Animal Physiological and Population Ecology
This course explores the interactions of environmental variables, such as temperature, with the physiology of vertebrate animals and the mechanistic links of those interactions with population dynamics.
Taught by: Dunham
Course offered spring; even-numbered years
Prerequisite: BIOL 240 or permission of instructor
Activity: Seminar
1 Course Unit

BIOL 415 Freshwater Ecology
Survey of the physical, chemical and biological properties of freshwater ecosystems, both riverine and lentic, natural and polluted.
Taught by: Arscott
Course usually offered in spring term
Prerequisites: BIOL 101 or 121 and one semester of college chemistry
Activity: Lecture
1 Course Unit

BIOL 417 Theoretical Population Biology
Introduction to basic theoretical tools to study the evolutionary and ecological dynamics of populations. Topics to be discussed include: basic population dynamics and population genetics theory, evolutionary game theory/adaptive dynamics, social evolution (kin selection/multilevel selection), life-history evolution, and stochastic models. Other topics may be added based on the specific interests of students in the class.
Taught by: Akcay
Course usually offered in spring term
Prerequisites: BIOL 230 and MATH 104 recommended
Activity: Seminar
1 Course Unit

BIOL 421 Molecular Genetics
A detailed analysis of gene structure and expression in both prokaryotic and eukaryotic organisms. Rapid advances in DNA technology and genomics will be emphasized. The application of these advances to the molecular genetic analysis of development, cell function and disease will be discussed.
Taught by: Weinberg
Course usually offered in fall term
Prerequisite: BIOL 221 or equivalent course
Activity: Lecture
1 Course Unit

BIOL 422 Genomics of Human Disease and Evolution
In this course we will discuss the identification and characterization of genetic diversity in the human genome, the genetic basis of normal variable traits, and the genetic basis of human disease. The study of the human genome increasingly impacts almost every aspect of our society, from medicine to law enforcement to how we view ourselves. The focus of this course will be to apply concepts and methods of genetics and genomic analysis (gene mapping, genome sequencing, epigenetics, gene expression) to better understand the genetic basis of both normal variable traits as well as disease. We will discuss how to distinguish the evolutionary and demographic forces (i.e. mutation, migration, selection, population size) that influence genotypic and phenotypic variation within and among human populations. We will discuss how genomics and population genetics methodologies are being applied to study modern human origins, analysis of ancient DNA, ancestry, and population history. We will also discuss the implications of these studies for personalized medicine.
Taught by: Tishkoff
Course offered spring; odd-numbered years
Prerequisite: BIOL 221
Activity: Lecture
1 Course Unit
BIOL 425 Biochemistry and Molecular Genetics Superlab
Intensive laboratory class where open-ended, interesting biological problems are explored using modern lab techniques. Topics may include protein structure/function studies; genetic screens, genomics and gene expression studies; proteomics and protein purification techniques; and molecular cloning and DNA manipulation. The course emphasizes developing scientific communication and independent research skills. Course topics reflect the interests of individual Biology faculty members. This course is recommended for students considering independent research.
Taught by: Wagner J
One-term course offered either term
Prerequisite: BIOL 204 or 205 or 221 or an equivalent course is recommended
Activity: Laboratory
1 Course Unit

BIOL 430 Evolution and Ecology of Infectious Diseases
This course will focus on fundamental topics related to the ecological and evolutionary processes driving the transmission of pathogenic microbes among hosts including life-history strategies; evolution of pathogenic traits; the impacts of temporal, spatial and host-trait heterogeneity; and factors causing the emergence of an infectious pathogen. Examples will be drawn from human, wildlife, and plant pathogens to illustrate these ecological and evolutionary topics. Students will learn to develop and apply current ecological and evolutionary theory to infectious microbe research and gain practical experience accessing, interpreting and synthesizing the peer-reviewed scientific literature through a combination of popular and scientific readings, discussion, and lecture.
Taught by: Brisson
Course offered fall; even-numbered years
Prerequisite: BIOL 230
Activity: Seminar
1 Course Unit

BIOL 431 Genome Science and Genomic Medicine
This course will be a focused study of genomes, genomic techniques, and how these approaches are and will be used in diagnosing and treating human disease. Topics will include genome sequencing, analysis of sequences and microarrays, and new techniques including high-throughput sequencing and reverse genetic analysis with a focus on genome-wide mutant collections.
Taught by: Gregory
Course usually offered in spring term
Prerequisite: BIOL 221; BIOL 421 strongly recommended
Activity: Lecture
1 Course Unit

BIOL 432 The Genetics of Adaptation: How sex, conflict, and pathogens shape modern genomes
In this course we explore the genetic basis of adaptation. We will investigate the forces that drive adaptation (e.g., environmental stress, pathogens, conflict, sex), the genetic mechanisms of adaptation (protein sequence changes, expression divergence, gene duplication, etc.), and the consequences of adaptation for contemporary cellular functions, developmental processes, and ecological interactions. The class meetings will be structured around both lectures and student-led discussions of the primary literature.
Taught by: Levine
Course usually offered in spring term
Prerequisite: BIOL 221 or 230 or permission of instructor
Activity: Seminar
1 Course Unit

BIOL 436 Molecular Physiology
This course is designed for advanced undergraduate and graduate students who are interested in molecular physiology of sensory signal transduction. The major topics to cover will be signal transduction mechanisms used by membrane ion channels and receptors that detect the sensory stimuli (light, sound, temperature and taste, for example) and transmit the signals to the nervous system. Modern molecular/structural techniques (patch clamp, protein crystallization, molecular genetics, expression cloning and protein purification) will be introduced along with each topic. References will be primary research articles. Students will critically evaluate research discoveries by reading and presenting one to two original research papers. Each student is required to write a 10-page research proposal and to critique proposals written by fellow students.
Taught by: Ren
Course usually offered in fall term
Prerequisite: A year of introductory biology or equivalent
Activity: Seminar
1 Course Unit

BIOL 437 Introduction to Computational Biology & Biological Modeling
The goal of this course is to develop a deeper understanding of techniques and concepts used in Computational Biology. The course will strive to focus on a small set of approaches to gain both theoretical and practical understanding of the methods. We will aim to cover practical issues such as programming and the use of programs, as well as theoretical issues such as algorithm design, statistical data analysis, theory of algorithms and statistics. This course WILL NOT provide a broad survey of the field nor teach specific tools but focus on a deep understanding of a small set of topics. We will discuss string algorithms, hidden markov models, dimension reduction, and machine learning (or phylogeny estimation) for biomedical problems.
Taught by: Kim
Course usually offered in fall term
Also Offered As: CIS 436, GCB 536
Prerequisites: Intermediate level biology; MATH 104; BIOL 446 or equivalent. Probability theory and linear algebra are highly recommended
Activity: Lecture
1 Course Unit
**BIOL 438 Systems Biology: Integrative physiology and biomechanics of the muscular system**
The course will focus on muscle function from the level of molecules to whole animal locomotion. At each level of organization, muscle function will be explored from mechanical and energetic viewpoints. The course will include lectures, demonstrations, and several guest expert lectures. Students will also be introduced to realistic musculo-skeletal modelling and forward dynamic simulations to explore integrated function.
Taught by: Rome
Course usually offered in spring term
Prerequisites: 1 year physics, 1 year chemistry, and BIOL 215 or 251
Activity: Lecture
1 Course Unit

**BIOL 440 Advanced Analysis of Humans and the Environment**
Advanced version of BIOL 140: Humans and the Environment. Additional readings and course work as directed.
For BA Students: Natural Science and Math Sector
Taught by: Janzen
Course usually offered in fall term
Prerequisite: Permission of instructor
Activity: Lecture
1 Course Unit

**BIOL 442 Neurobiology of Learning and Memory**
This course focuses on the current state of our knowledge about the neurobiological basis of learning and memory. A combination of lectures and student seminars will explore the molecular and cellular basis of learning in invertebrates and vertebrates from a behavioral and neural perspective.
Course usually offered in fall term
Also Offered As: NGG 575
Prerequisite: BIOL 251/BIBB 251 or PSYC 001 or permission of instructor
Activity: Seminar
1 Course Unit

**BIOL 444 Molecular Evolution of Physiological Functions**
This course is designed for students who are interested in understanding how physiological functions are achieved. Taking advantage of the recent explosion in genetic data and high-resolution protein structure analysis across organisms, the course focuses on the evolution of physiological functions at the genetic, structural, circuit and organismal levels. Examples include the co-evolution of toxins and toxin resistance between hunter and prey, the evolution of substance transport across cell membranes, intracellular signaling cascades, intracellular communication, distributed and centralized nervous systems, neural circuits controlling physiological functions such as feeding, locomotion and visual information processing. Students are expected to learn 1) basic physiological processes, their origin and adaptation, 2) modern genetic, structural and physiological techniques, 3) to critically evaluate research findings, 4) to present scientific papers, and 5) to write a research report.
Taught by: Ren
Course usually offered in fall term
Prerequisites: Introductory biology is required; BIOL 109, 215, 221, or 251 are recommended but not required
Activity: Seminar
1 Course Unit

**BIOL 446 Statistics for Biologists**
Introductory probability theory. Principles of statistical methods. Problems of estimation and hypothesis testing in biology and related areas.
Taught by: Plotkin
Course usually offered in fall term
Prerequisite: MATH 104 or equivalent; or permission of instructor
Activity: Lecture
1 Course Unit

**BIOL 448 Principles of Drug Action**
Principles of Drug Action covers the concepts of pharmacological sciences as they relate to biochemistry, cell biology, and drug therapy. The intent of the course is to provide a solid grounding in targets of drug action, dose-response relationships, pharmacodynamics, and pharmacokinetics. The grounding is achieved by a discussion of these concepts explicitly and, through selected examples, implicitly. The first part of the course covers each of the concepts. Emphasis is placed on the integration with principles of cell biology and biochemistry. The second part of the course covers selected therapeutic applications. The applications chosen fall within four areas: cardiovascular, brain and behavior, antipyretic and anti-inflammatory, and antimicrobial. They are used to recapitulate important concepts and provide insight into the interplay between pharmacology and human physiology. The applications and the areas they represent are by no means comprehensive, but students will be able to pursue additional interests through papers.
Taught by: Manning
Course usually offered in fall term
Prerequisite: BIOL 205; BIOL 204 is recommended
Activity: Lecture
1 Course Unit

**BIOL 451 Neural Systems and Behavior**
This course will investigate neural processing at the systems level. Principles of how brains encode information will be explored in both sensory (e.g. visual, auditory, olfactory, etc.) and motor systems. Neural encoding strategies will be discussed in relation to the specific behavioral needs of the animal. Examples will be drawn from a variety of different model systems.
Taught by: Schmidt, M.
Course usually offered in spring term
Prerequisites: BIOL 251/BIBB 251 and permission of instructor
Activity: Lecture
1 Course Unit

**BIOL 456 Neural Circuits for Survival**
A fundamental goal of neuroscience is to understand how neural circuits in the brain function to influence behavior. The aim of this course is to highlight the neural basis of behavior and discuss modern approaches and novel methods to study the neuronal control of classically studied aspects of behavior. Through a combination of discussions, student presentations, and interactive lectures, we will explore the neural systems that regulate the interactions an animal has with the external world. We will explore sensory systems (such as vision, taste, and olfaction), motor systems, and survival behaviors (such as feeding, drinking, mating, and aggression). The course evaluation will be based largely on written work, participation, and presentations.
Taught by: Betley
Course usually offered in spring term
Prerequisite: BIOL 251/BIBB 251 or permission of instructor
Activity: Seminar
1 Course Unit
BIOL 466 Molecular Genetics of Neurological Disease
This course will focus on the molecular basis of neurological diseases, exploring in detail key papers that cover topics including defining the disease genes, development of animal models that provide mechanistic insight, and seminal findings that reveal molecular understanding. Diseases covered will include neurological diseases of great focus today such as Alzheimer’s, Fragile X and autism, dementia, motor neuron degeneration, and microsatellite repeat expansion disorders. The course will provide a perspective from initial molecular determination through current status. Students will gain an understanding of how the molecular basis of a disease is discovered (from classical genetics to modern genomics) and how such diseases can be modeled in simple genetic systems for mechanistic insight. The course will be comprised of lectures with detailed analysis of primary literature and in-class activities. Grading will be based on class participation, exams, and written papers.
Taught by: Bonini
Course usually offered in fall term
Prerequisites: BIOL 221 is required; BIOL 251 and BIOL 421 are recommended
Activity: Lecture
1 Course Unit

BIOL 469 Plant Physiology Through Space and Time
This course is a lab/lecture/seminar hybrid that will meet once per week for three hours. Each session will consist of mini-lecture/lab, paper discussions/lab, or solely lab efforts. All reading assignments will be available on Canvas (no textbook fees). We will examine various aspects of photosynthesis, water relations and nutrient acquisition in the context of the evolutionary progression of higher plants. With each subject, we will consider, measure, and in some cases model whole-plant physiology while examining sub-cellular-level controls and ecosystem-to-global-level consequences. This course is designed to give molecular biologists through earth-system scientists the tools to measure and understand whole-plant physiological responses to molecular manipulation and environmental variability. All students will learn to appreciate the context of their work on both micro and macro scales.
Taught by: Helliker
Course usually offered in spring term
Prerequisite: BIOL 240 or permission of instructor
Activity: Seminar
1 Course Unit

BIOL 475 Topics in Prokaryotic Biology: From Molecules to Microbiomes
This course will cover research articles from both the classic and contemporary literature on the genetics, cell biology, and physiology of prokaryotes. The material will focus on a small number of subjects in depth, with an emphasis on how the field has arrived at its current state of knowledge and on exciting new research directions. Possible topics include: stress responses, cell signaling, subcellular organization, bacteriophages, microbial communities, and host-microbe interactions.
Taught by: Goulian
Course offered spring; even-numbered years
Prerequisite: BIOL 221 or BIOL 375 or permission of instructor
Activity: Seminar
1 Course Unit

BIOL 477 The Science and Art of Biotechnology
Biotechnology transforms basic biological research into pharmaceutical therapies. This course will examine some explanations for American biotechnology vitality by studying case histories in which fundamental, biological observations were subsequently developed, successfully and unsuccessfully, for therapeutic applications. Along the way, we will also seek to understand the interactions among academic research institutions, biotechnology companies, large pharmaceutical companies, the Food and Drug Administration, financial institutions, venture groups, and the Patent and Trademark Office. Classes will be highly interactive. Students will present case histories in a critical fashion. Ultimately, students will conduct mock negotiations focused on university technology transfers, clinical trial design, financing, and intellectual property.
Taught by: Roth
Course usually offered in fall term
Prerequisite: Either BIOL 204 or 205 or 221 or permission of the department
Activity: Seminar
1 Course Unit

BIOL 480 Advanced Cell Biology
This course is designed for beginning graduate students and advanced undergraduates with a particular enthusiasm for cell biology. Biology 480 does not attempt to cover all aspects of cell biology, and is therefore not appropriate for students seeking a lecture course which provides a comprehensive survey of the field. Rather, the primary objective of this course is to teach those students considering a career in the biomedical sciences how to read, discuss, and question original research papers effectively. Intensive classroom discussions focus on the experimental methods used, results obtained, interpretation of these results in the context of cell structure and function, and implications for further studies.
Taught by: Guo
Course usually offered in fall term
Prerequisite: BIOL 201 or 205
Activity: Lecture
1 Course Unit

BIOL 482 Cell Signaling
The evolution of multicellularity required that cells be able to both send and receive signals from their neighbors. The development of organs and differentiation of cells and tissues requires reliable and continuous communication between cells. Consequences of inappropriate or anomalous signaling include development abnormalities and cancer. This class will examine mechanisms of cell-to-cell signaling between cells in plants and animals with an emphasis on the cell biology of development.
Taught by: Gallagher
Course usually offered in fall term
Prerequisite: BIOL 205 or permission of instructor
Activity: Seminar
1 Course Unit
BIOL 483 Epigenetics
This course investigates epigenetic phenomena: heritable alternate states of gene activity that do not result from an alteration in nucleotide composition (mutations). Epigenetic mechanisms regulate genome accessibility and cell differentiation. They play a key role in normal development and in oncogenesis. For example both mammalian X-chromosome inactivation and nuclear transfer (cloning) are subject to epigenetic regulation. Amongst the epigenetic mechanisms we will discuss in this course are chromatin organization, histone modification, DNA methylation and non-coding RNAs. The course is geared toward advanced undergraduate and beginning graduate students and is a combination of lectures, student presentations and research presentations by guest speakers. Students will work with the current scientific literature.
Taught by: Wagner D
Course usually offered in fall term
Prerequisite: BIOL 221
Activity: Lecture
1 Course Unit

BIOL 484 Cell Motility and the Cytoskeleton
Cytoskeleton and cell motility plays a crucial role in many aspects of normal and pathological physiology of individual cells, tissues, and whole organisms, including morphogenesis, immune response, wound healing, oncogenesis, and infection. This course will cover current topics in cell biology with emphasis on cytoskeleton and cell motility and their roles in these processes. Lectures, student presentations, and discussions in the class will be based on primary scientific literature.
Taught by: Svitkina
Course usually offered in fall term
Prerequisite: BIOL 205
Activity: Seminar
1 Course Unit

BIOL 485 The RNA World: A functional and computational analysis
A focused study of genomic, biochemical, cellular, and molecular aspects of RNA. Topics of study will include RNA structure, RNA processing and turnover, splicing, ribozymes and riboswitches, RNA editing and modification, RNA interference, endogenous eukaryotic RNA silencing pathways, small RNA biology, computational methodologies for studying RNA biology, and RNA viruses. Lectures, student presentations, and discussions will be based on readings from the primary literature.
Taught by: Gregory
Course offered spring; even-numbered years
Prerequisite: BIOL 221 required; BIOL 421 strongly recommended
Activity: Seminar
1 Course Unit

BIOL 486 Chromosomes and the Cell Cycle
Life depends on the propagation of genetic material from one generation to the next through cycles of genome replication and cell division. The genome is copied by the parent, and one exact copy is inherited by each daughter cell. We will treat chromosomes as discrete entities, rather than collections of genes, that are replicated and divided with high fidelity to ensure that the genome remains stable over many generations. By reading selected primary literature covering several decades, we will build an understanding of the cell cycle by focusing on chromosomes and the associated molecular machinery. We will explore mechanisms that underlie replication and division, particularly control mechanisms that maintain genome integrity and are critical to prevent disease. The goal of the course is to develop a picture of the cell cycle by examining some of the key experiments and insights that have led to our current understanding.
Taught by: Lampson
Course offered spring; even-numbered years
Prerequisite: BIOL 205 or permission of instructor
Activity: Seminar
1 Course Unit

BIOL 493 Epigenetics of Human Health and Disease
Epigenetic alterations encompass heritable, non-genetic changes to chromatin (the polymer of DNA plus histone proteins) that influence cellular and organismal processes. This course will examine epigenetic mechanisms in directing development from the earliest stages of growth, and in maintaining normal cellular homeostasis during life. We will also explore how diverse epigenetic processes are at the heart of numerous human disease states. We will review topics ranging from an historical perspective of the discovery of epigenetic mechanisms to the use of modern technology and drug development to target epigenetic mechanisms to increase healthy lifespan and combat human disease. The course will involve a combination of didactic lectures, primary scientific literature and research lectures, and student-led presentations.
Taught by: Berger
Course offered spring; odd-numbered years
Also Offered As: GCB 493
Prerequisites: BIOL 221 required, BIOL 483 recommended
Activity: Seminar
1 Course Unit

BIOL 499 Advanced Independent Study
A second semester of independent study, in most cases extending the research undertaken for the BIOL 399. Apply at the Biology Academic Office, 102 Leidy Labs.
One-term course offered either term
Prerequisite: BIOL 399 in the same laboratory as the proposed BIOL 499
Activity: Independent Study
1 Course Unit

BIOL 522 Human Evolutionary Genomics
Advanced seminar on current topics in human genomics and human evolution. Topics include the methods used for mapping and sequencing genomes; phylogenetic and population genetic analysis; and detecting variation in the human genome. This course is designed for graduate students but advanced undergraduates with a strong background in genetics are also welcome.
Taught by: Tishkoff
Course offered spring; even-numbered years
Prerequisite: Permission of instructor
Activity: Seminar
1 Course Unit
BIOL 527 Genetics for Computational Biology
This course will survey the discipline of molecular genetics. Two broad areas will be considered: 1) Molecular biology: DNA replication, transcription, translation, and the regulation of gene expression in both prokaryotic and eukaryotic systems and genomics and 2) Genetics: basic Mendelian & molecular genetics.
Taught by: Bonini/Gallagher/Guild/Keith
One-term course offered either term
Prerequisites: BIOL 101 or 121. Permission of instructor required
Activity: Lecture
1 Course Unit

BIOL 535 Topics in Theory of Living Systems
The goal of this course is to discuss broad conceptual theories that address complex phenomena of living systems. Example questions include: what is the molecular architecture of information processing in cells and developing organisms? What is the functional architecture of cooperative organization from molecules in a cell to whole organism social interactions? How is complex multi-factorial information represented in organisms? The course will meet once a week and students will research relevant papers, lead discussions, and generate synopsis of group discussions. At the end of the semester, faculty and students are expected to co-author a review report of the discussed topics.
Taught by: Kim, Goulian, Akcay, Balasubramanian, Raj, Mossel
Course not offered every year
Prerequisite: Permission of instructor
Activity: Seminar
0.5 Course Units

BIOL 537 Advanced Computational Biology
Discussion of special research topics.
Taught by: Barash, Wang
Course usually offered in spring term
Also Offered As: GCB 537
Prerequisite: BIOL 437 or permission of instructor
Activity: Seminar
1 Course Unit

BIOL 540 Genetic Analysis
The logic and methodology of genetic analysis in plants and animals. This lecture course will focus on the use of mutations to study gene function and higher order biological processes, methods for reporting and manipulating gene expression, and analysis of the genetic basis of natural variation.
Taught by: Poethig
Course not offered every year
Prerequisite: BIOL 221 or permission of instructor
Activity: Lecture
1 Course Unit

BIOL 575 Microbial Diversity and Pathogenesis
Advanced version of BIOL 375: Microbial Diversity and Pathogenesis for graduate students only. Additional readings and course work as directed.
Taught by: Pohlschroder
Course usually offered in spring term
Prerequisites: Permission of instructor and BIOL 221 or equivalent
Activity: Lecture
1 Course Unit

BIOL 576 Microbial Diversity and Pathogenesis Lab
Advanced version of BIOL 376: Microbial Diversity and Pathogenesis Lab for graduate students only. Additional readings and course work as directed.
Taught by: Pohlschroder and Hogan
Course usually offered in spring term
Prerequisites: Permission of instructor. BIOL 575 previously or concurrently is recommended but not required
Activity: Laboratory
1 Course Unit

BIOL 586 Topics in Mathematical Biology
This course will cover various mathematical models and tools that are used to study modern biological problems. The specific emphasis will vary from year to year, but typically will include an introduction to stochastic processes and computational methods that arise in evolutionary biology and population genetics. No prior knowledge of biology is needed to take this course, but a strong background in probability and familiarity with algorithms and combinatorics will be assumed.
Course not offered every year
Prerequisites: MATH 430 or equivalent is required. MATH 241 and 340 are recommended
Activity: Lecture
1 Course Unit

BIOL 599 Master's Independent Study
Laboratory research for the Master's of Science in Biology submatriculation program. Apply at the Academic Office, 102 Leidy Labs.
One-term course offered either term
Activity: Independent Study
1.5 Course Unit

BIOL 607 Writing for Biologists
The course teaches scientific writing in a workshop format, where students both produce weekly writing assignments and critique writing submitted by others. Emphasis is placed on simplicity and clarity with the goal of writing effectively to a wide audience beyond the student’s immediate research area.
Taught by: Schmidt, P
Course usually offered in fall term
Activity: Seminar
0.5 Course Units
Notes: Course open to PhD students in Biology only.

BIOL 700 Advanced Topics in Current Biological Research
Integrative seminar on current biological research for first-year PhD students.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Course open to PhD students in Biology only.

BIOL 999 Independent Study and Research
Advanced laboratory research with a member of the Biology Graduate Group.
One-term course offered either term
Activity: Independent Study
0.5 Course Units
Notes: May be taken for multiple course unit credit
BIOMEDICAL GRADUATE STUDIES (BIOM)

BIOM 502 Molecular Basis of Disease
BIOM 502 introduces students to basic mechanisms of disease and examines a different disease each week. The focus of the course will be on understanding the pathophysiology of the diseases and how research has enhanced not only our knowledge of disease mechanisms but has also led to improved therapy for patients with these diseases.
Taught by: Dr. Hao Shen and John Lynch
Course usually offered in spring term
Prerequisites: Permission of course directors. This course is reserved for BGS students only.
Activity: Lecture
1 Course Unit

BIOM 510 Case Studies in Translational Research (CSTR) (Open to MD/PhD and VMD/PhD students only)
This course is open to MD/PhD, VMD/PhD and Biomedical Graduate Studies PhD students. All second year combined degree students are expected to take this course unless excused by Dr. Brass. Enrollment is limited to 24 students but interested VMD/PhD and BGS students are welcome as space permits CSTR is a seminar style course where groups of students work with selected Penn faculty to prepare a discussion and literature review on disease topics. Topics will include gene therapy for hemophilia, retinal disease and wound healing, cytokine therapies for immune disorders, genetic sleep disturbances and vaccine development.
Most of the course will focus on the analysis of successful translational research projects that are taking place here at Penn.
Taught by: Drs. Mitch Weiss, Emma Meagher and Skip Brass
Course usually offered in fall term
Prerequisite: Prerequisite: Must be in the MD/PhD or VMD/PhD program and have completed the first year of training.
Activity: Seminar
1 Course Unit

BIOM 555 Regulation of the Genome
Regulation of gene expression including chromatin structure, transcription, DNA modification, RNA processing, translation, control of gene expression via microRNAs and post-translational processing.
Taught by: Drs. Zhaolan Zhou and Ben Black
Course usually offered in spring term
Prerequisite: Permission of Instructors
Activity: Lecture
1 Course Unit

BIOM 600 Cell Biology
BIOM 600 is an intermediate level graduate course designed to introduce students to the molecular components and physiological mechanisms that underlie the structure and function of cells. The course is designed as an in-depth survey to cover general concepts central to the field of biochemistry and cell biology and to emphasize these concepts within the context of current scientific research questions and technical approaches. Lectures will focus on recent discoveries in contemporary cell biology involving (i) basic cellular biochemistry; (ii) mechanisms of membrane transport and excitability; (iii) intracellular compartmentalization and protein/vesicle targeting, organelle biogenesis; (iv) cytoskeletal architecture, cell motility and adhesion; and (v) molecular mechanisms of signal transduction. Efforts will be made to familiarize students with recent technical advances in molecular, biochemical, microscopic, spectroscopic, and electrophysiologic techniques.
Taught by: Dr. Richard Assoian, Director. Dr. Kurt Engleka, Assistant Course Director. Theme Directors: Drs. Mickey Marks, John Weisel, Toshi Hoshi, and Xiaolu Yang
Course usually offered in spring term
Prerequisite: Permission of course directors. This course is reserved for BGS students only.
Activity: Lecture
1 Course Unit

BIOM 611 Statistics in Experimental Design and Analysis
BIOM 611 is an introductory course providing an overview of fundamental concepts in biostatistics as they relate to experimental design and analysis. It introduces the student as well to the related concepts of premise and reproducibility. The first unit introduces the scientific method as a series of six steps. In the first unit we explore the strength of evidence supporting a particular research hypothesis, consider the generalizability of our conclusion and estimate the magnitude of the effect. The second unit specifically introduces methods for comparing means and proportions between groups, and the analysis of paired data. We conclude by considering differences in means and proportions between multiple groups and associations between quantitative variables. Analysis of variance (ANOVA), correlation and linear regression are explored. Statistical methods will be implemented using the software package R (in Rstudio). Students will have an opportunity to code directly in R or to use the graphical user interface, Rcmdr to facilitate work with R.
Taught by: Mary Putt, PhD
Course usually offered in spring term
Prerequisites: This course is NOT recommended for students with a strong quantitative background. Those of you with a strong background should take a statistics course with more rigorous mathematical underpinnings and or with exposure to more advanced statistical methods. Discuss with advisor or see the following page for detailed instructions. www.med.upenn.edu/bgs/documents/BGSStatisticsRequirements10-6-16.pdf
Activity: Lecture
1 Course Unit
**BIOMEDICAL INFORMATICS (BMIN)**

**BMIN 501 Introduction to Biomedical and Health Informatics**
This course is designed to provide a survey of the major topic areas in medical informatics, especially as they apply to clinical research. Through a series of lectures and demonstrations, students will learn about topics such as databases, natural language, clinical information systems, networks, artificial intelligence and machine learning applications, decision support, imaging and graphics, and the use of computers in education.

Taught by: Holmes
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**BMIN 502 Databases in Biomedical Research**
This course is intended to provide in-depth, practical exposure to the design, implementation, and use of databases in biomedical research, and to provide students with the skills needed to design and conduct a research project using primary and secondary data. Topics to be covered include: database architectures, data normalization, database implementation, client-server databases, concurrency, validation, Structured-Query Language (SQL) programming, reporting, maintenance, and security. All examples will use problems or data from biomedical domains. MySQL will be used as the database platform for the course, although the principles apply generally to biomedical research and other relational databases.

Taught by: Holmes
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**BMIN 503 Data Science for Biomedical Informatics**
In this course, we will use R and other freely available software to learn fundamental data science applied to a range of biomedical informatics topics, including those making use of health and genomic data. After completing this course, students will be able to retrieve and clean data, perform explanatory analyses, build models to answer scientific questions, and present visually appealing results to accompany data analyses; be familiar with various biomedical data types and resources related to them; and know how to create reproducible and easily shareable results with R and github.

Taught by: Himes
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**BMIN 504 Special Topics in Biomedical and Health Informatics**
This course is designed to provide an in-depth look at four topics that are of essential importance in biomedical informatics. Each topic will be allotted four consecutive weeks in the class schedule, as four modules, with the intention that each module becomes its own “mini-course.” The topics for each module may rotate from semester to semester, based on criteria such as historical importance to the current field of biomedical informatics research and/or practice, and cutting-edge developments in biomedical informatics.

Taught by: Moore
Two terms. student must enter first term.
Prerequisites: BMIN 501: Introduction to Biomedical and Health Informatics, or permission of the instructor
Activity: Lecture
1 Course Unit

**BMIN 505 Precision Medicine and Health Policy**
Through a series of lectures, redingsm and response papers, students will learn about topics such as medical ethics, unintended consequences of medicine/research, genetics, genetic interpretation, hospital performance, and informatic methods to assess these factors. The informatics topics covered in this course include: decision support, genetic database, clinical interpretation of genetics, detection of bias in EMRs, detection of bias in guidelines, methods to ameliorate bias, mapping clinical guidelines to computable standards, performance assessment, machine learning, and artificial intelligence applications in this space.

Taught by: Boland
Course usually offered in fall term
Activity: Lecture
1 Course Unit
BIOSTATISTICS (BSTA)

BSTA 509 Introduction to Epidemiology
This course is a series of lectures designed to teach basic principles of epidemiologic research. It provides an overview of the types of research questions that can be addressed by epidemiologic methods. Topics covered include definitions of epidemiology; measures of disease frequency; measures of effect and association; epidemiologic study designs, both experimental and non-experimental; data collection methods; and an overview of analysis of epidemiologic studies. (The lectures for this course are identical to those in EPID 801)
Taught by: Yu-Xiao Yang
Activity: Lecture
0.5 Course Units

BSTA 511 Biostatistics in Practice
Taught by: Russell T. Shinohara
Course usually offered in fall term
Prerequisites: Open to Biostatistics student only.
Activity: Lecture
0.5 Course Units

BSTA 550 App Reg and Anal of Var
Activity: Lecture
1 Course Unit

BSTA 620 Probability I
This course covers Elements of (non-measure theoretic) probability necessary for the further study of statistics and biostatistics. Topics include set theory, axioms of probability, counting arguments, conditional probability, random variables and distributions, expectations, generating functions, families of distributions, joint and marginal distributions, hierarchical models, covariance and correlation, random sampling, sampling properties of statistics, modes of convergence, and random number generation.
Course usually offered in fall term
Prerequisites: Two semesters of calculus (through multivariable calculus), linear algebra; permission from the instructor.
Activity: Lecture
1 Course Unit

BSTA 621 Statistical Inference I
This class will cover the fundamental concepts of statistical inference. Topics include sufficiency, consistency, finding and evaluating point estimators, finding and evaluating interval estimators, hypothesis testing, and asymptotic evaluations for point and interval estimation.
Course usually offered in spring term
Prerequisites: BSTA 620, permission of instructor.
Activity: Lecture
1 Course Unit

BSTA 622 Statistical Inference II
This class will cover the fundamental concepts of statistical inference. Topics include sufficiency, consistency, finding and evaluating point estimators, finding and evaluating interval estimators, hypothesis testing, and asymptotic evaluations for point and interval estimation.
Course usually offered in fall term
Prerequisites: BSTA 621; permission of instructor
Activity: Lecture
1 Course Unit

BSTA 630 Statistical Methods and Data Analysis I
This first course in statistical methods for data analysis is aimed at first-year Biostatistics students. It focuses on the analysis of continuous data. Topics include descriptive statistics (measures of central tendency and dispersion, shapes of distributions, graphical representations of distributions, transformations, and testing for goodness of fit); populations and sampling (hypotheses of differences and equivalence, statistical errors); one- and two-sample t tests; analysis of variance; correlation; nonparametric tests on means and correlations; estimation (confidence intervals and robust methods); categorical data analysis (proportions; statistics and test for comparing proportions; test for matched samples; study design); and regression modeling (simple linear regression, multiple regression, model fitting and testing, partial correlation, residuals, multicollinearity). Examples of medical and biologic data will be used throughout the course, and use of computer software demonstrated.
Course usually offered in fall term
Prerequisites: Multivariable calculus and linear algebra, BSTA 620 (may be taken concurrently) and permission of instructor.
Activity: Lecture
1 Course Unit

BSTA 632 Statistical Methods for Categorical and Survival Data
This is the second half of the methods sequence, where the focus shifts to methods for categorical and survival data. Topics in categorical include defining rates; incidence and prevalence; the chi-squared test; Fisher's exact test and its extension; relative risk and odds ratio; sensitivity; specificity; predictive values; logistic regression with goodness of fit tests; ROC curves; the Mantel-Haenszel test; McNemar's test; the Poisson model; and the Kappa statistic. Survival analysis will include defining the survival curve, censoring, and the hazard function; the Kaplan-Meier estimate, Greenwood's formula and confidence bands; partial correlation, residuals, and process models. Cox's proportional hazards regression model. Examples of medical and biologic data will be used throughout the course, and use of computer software demonstrated.
Course usually offered in spring term
Prerequisites: BSTA 630, 620, 621 (may be taken concurrently), linear algebra, calculus and permission of instructor.
Activity: Lecture
1 Course Unit

BSTA 651 Introduction to Linear Models and Generalized Linear Models
This course extends the content on linear models in BSTA 630 and BSTA 632 to more advanced concepts and applications of linear models. Topics include the matrix approach to linear models including regression and analysis of variance, general linear hypothesis, estimability, polynomial, piecewise, ridge, and weighted regression, regression and collinearity diagnostics, multiple comparisons, fitting strategies, simple experimental designs (block designs, split plot), random effects models, Best Linear Unbiased Prediction. In addition, generalized linear models will be introduced with emphasis on the binomial, logit and Poisson log-linear models. Applications of methods to example data sets will be emphasized.
Course usually offered in spring term
Prerequisites: Linear algebra, calculus, BSTA 620, 630. BSTA 621 and 632 (may be taken concurrently), permission of instructor.
Activity: Lecture
1 Course Unit
**BSTA 656 Longitudinal Data Analysis**

This course covers both the applied aspects and methods developments in longitudinal data analysis. In the first part, we review the properties of the multivariate normal distribution and cover basic methods in longitudinal data analysis, such as exploratory data analysis, two-stage analysis and mixed-effects models. Focus is on the linear mixed-effects models, where we cover restricted maximum likelihood estimation, estimation and inference for fixed and random effects and models for serial correlations. We will also cover Bayesian inference for linear mixed-effects models. The second part covers advanced topics, including nonlinear mixed-effects models, GEE, generalized linear mixed-effects models, nonparametric longitudinal models, functional mixed-effects models, and joint modeling of longitudinal data and the dropout mechanism.

Prerequisites: BSTA 621, 631 or 632, 651, 653 or 754, permission of instructor.

Activity: Lecture
1 Course Unit

**BSTA 660 Design of Observational Studies**

This course will cover statistical methods for the design and analysis of observational studies. Topics for the course will include epidemiologic study designs, issues of confounding and hidden bias, matching methods, propensity score methods, sensitivity analysis, and instrumental variables. Case studies in biomedical research will be presented as illustrations.

Prerequisites: BSTA 621, 631 or 632, 651, permission of instructor.

Activity: Lecture
1 Course Unit

**BSTA 661 Design of Intervenional Studies**

This course is designed for graduate students in statistics or biostatistics interested in the statistical methodology underlying the design, conduct, and analysis of clinical trials and related interventional studies. General topics include designs for various types of clinical trials (Phase I, II, III), endpoints and control groups, sample size determination, and sequential methods and adaptive design. Regulatory and ethical issues will also be covered.

Prerequisites: BSTA 621, 631 or 632, permission of instructor.

Activity: Lecture
1 Course Unit

**BSTA 670 Statistical Computing**

This course concentrates on computational tools, which are useful for statistical research and for computationally intensive statistics. Through this course you will develop a knowledge base and skill set of a wide range of computational tools needed for statistical research. Topics include computer storage, architecture and arithmetic; random number generation; numerical optimization methods; spline smoothing and penalized likelihood; numerical integration; simulation design; Gibbs sampling; bootstrap methods; and the EM algorithm.

Prerequisites: BSTA 651, 620, 621 or equivalents or permission of instructor.

Activity: Lecture
1 Course Unit

**BSTA 699 Lab Rotation**

Activity: Laboratory
0.33 Course Units

**BSTA 754 Advanced Survival Analysis**

This advanced survival analysis course will cover statistical theory in counting processes, large sample theory using martingales, and other state of the art theoretical concepts useful in modern survival analysis research. Examples in deriving rank-based tests and Cox regression models as well as their asymptotic properties will be demonstrated using these theoretical concepts. Additional potential topics may include competing risk, recurrent event analysis, multivariate failure time analysis, joint modeling of survival and longitudinal data, sample size calculations, multistate models, and complex sampling schemes involving failure time data.

Course usually offered in fall term
Prerequisites: BSTA 622 (may be taken concurrently) and permission of instructor.

Activity: Lecture
1 Course Unit

**BSTA 820 Statistical Inference III**

Statistical inference including estimation, confidence intervals, hypothesis tests and non-parametric methods.

Taught by: Faculty

Course usually offered in spring term

Prerequisites: To be advised.

Activity: Lecture
1 Course Unit

**BSTA 899 Pre-Dissertation Research**

Activity: Lecture
0.5 Course Units

**BSTA 920 Guided Dissertation Research**

Activity: Masters Thesis
1 Course Unit

**BSTA 990 Guided Dissertation Research**

Activity: Masters Thesis
1 Course Unit

**BSTA 995 Dissertation**

One-term course offered either term
Activity: Dissertation
1 Course Unit
BIOTECHNOLOGY (BIOT)

BIOT 599 Biot Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
BUSINESS ECONOMICS & PUBLIC POLICY (BEPP)

BEPP 201 Public Finance and Policy.
This course explores the economics and politics of public policy to provide an analytic framework for considering why, how, and with what success/failure government intervenes in a variety of policy areas. Particular attention will be paid to important policy issues relating to taxation, social security, low-income assistance, health insurance, education (both K-12 and higher ed), the environment, and government deficits. The costs and benefits of alternative policies will be explored along with the distribution of responsibilities between the federal, state and local governments. While the course will focus primarily on U.S. policies, the topics covered (e.g. tax reform, deficits versus austerity, etc.) are currently at the center of the policy debate in many other industrialized countries as well.
Taught by: Katja Seim.
One-term course offered either term
Prerequisites: BEPP 250.
Activity: Lecture
1 Course Unit

BEPP 203 Business in the Global Political Environment.
This course examines the non-market components of business and the broader political, regulatory, and civil context in which companies function. This course addresses how businesses interact with political and regulatory institutions, as well as the general public, with a focus on the global economy. The first portion examines the realities associated with political economy and the actual making of laws and regulations by imperfect politicians and regulators. The second portion analyzes the economic rationale for legislation and regulation in the presence of market failures. The course covers specific market failures and potential solutions including government regulation.
Taught by: Santosh Anagol/Shing-yi Wang
One-term course offered either term
Prerequisites: ECON 1 or equivalent.
Activity: Lecture
1 Course Unit

BEPP 208 Housing Markets
This course is designed for students interested in the economics and operations of housing markets. It is primarily a U.S. focused course, but does include a limited amount of international material for comparative purposes. The class is divided into four sections: (1) supply and demand for housing, including the operations of homebuilders and rental landlords; (2) house prices, including cycles and price dynamics; (3) international comparisons; and (4) public policy analysis applied to a current housing markets-related issue. This course presumes knowledge of intermediate economics, as we will apply that knowledge throughout the semester. For Wharton students, this means you must have passed BEPP 250 (undergrads) or MGEC 611 and MGEC 612 (MBAs). Non-Wharton students should have taken the equivalent course in the College.
Taught by: Joseph Gyourko
Course usually offered in spring term
Prerequisites: Managerial Economics (BEPP 250) or equivalent.
Activity: Lecture
1 Course Unit
Notes: Lecture with discussion required.

BEPP 210 Firms, Markets and Public Policy.
Many dimensions of firms’ strategies, including agreements with suppliers and competitors, mergers and acquisitions, pricing, and technology standards development, among others, are subject to the oversight of regulatory bodies and governmental agencies. This course studies how public policy impacts firms’ strategic choices in a host of economic environments. We will analyze pricing strategies including versioning and bundling; product standardization decisions; the management of complementarities between products; the role of network effects and platform competition; and how firms can take advantage of the regulatory environment they operate in when making such decisions. We will study, for example, why Sony won the Blu-Ray format war against the widely supported HD-DVD format; how the FCC plans to incentivize television broadcasters to return spectrum holdings for auction to wireless broadband providers; and how contracts with content providers affect firms’ strategic interactions in the e-reader market. To understand how firm strategy and public policy interact, the course will rely on a mix of simple but rigorous analytical models and case studies.
Taught by: Katja Seim.
One-term course offered either term
Prerequisites: BEPP 250.
Activity: Lecture
1 Course Unit

BEPP 212 Economic Analysis of Law.
The course provides an introduction to the economic analysis of law and legal institutions. Our goal is to develop intuitions about the ways law simultaneously shapes and responds to private behavioral incentives. In the first half of the course, we will survey the application of key economic concepts to basic features of the Anglo-American common law of property, contract, and tort. In the second half of the course, we will use the tools developed in our survey to focus in depth on antitrust policy in conventional as well as network industries.
Taught by: Vincent Buccola.
One-term course offered either term
Prerequisites: ECON 1 or ECON 10.
Activity: Lecture
1 Course Unit
BEPP 214 Nonprofit Sector: Economic Challenges and Strategic Responses.
The nonprofit sector plays a key role in the provision of many goods and services which are fundamental in our society and which may be difficult to provide using market mechanisms alone. Education, health care, charitable services, and the arts are some primary examples of these. Nonprofit organizations operate in service of specific social missions rather than profit maximization, but in order to serve those missions effectively while ensuring their own survival, they must also make many of the decisions typically associated with private firms. That is, they must compete for funding, human resources, and consumers of their services, they must manage and invest their resources efficiently, and they must innovate new products and services over time. Importantly, the latter requirements may at times come in conflict with the organizations’ social values. As a result, nonprofit organizations as economic decision-makers confront a number of unique challenges to their success and growth. The goal of this course is to give students a broad overview of the economic, organizational, and strategic concerns facing the non-profit sector. Our objective is to characterize the unique economic environment, identify effective strategic governance, and management approaches, and explore how appropriate measurement techniques can can inform the policy treatment of nonprofits. This course is organized around a number of lectures, readings and outside speakers, a midterm exam and a required project.
Taught by: Ashley Swanson.
Prerequisites: None.
Activity: Lecture
1 Course Unit

BEPP 220 Behavioral Economics, Markets, and Public Policy
Behavioral economics has revealed a variety of systematic ways in which people deviate from being perfectly selfish, rational, optimizing agents. These findings have important implications for government policy and firm behavior. This course will explore these implications by answering two main questions: (1) what does behavioral economics imply for when and how the government should intervene in markets? (2) What does behavioral economics imply for firms’ pricing and production decisions? The course will present the standard economic approaches to answering these questions and then explore how answers change when we consider that people act in behavioral ways. Towards the end of the course, we will investigate specific policy questions, allowing us to debate solutions while hearing from policy makers operating in a world of behavioral agents.
Taught by: Judd Kessler.
Activity: Lecture
1 Course Unit

BEPP 230 Urban Fiscal Policy
The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent fiscal crises, local services and taxes as important determinants of real estate prices, the infrastructure crisis, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.
Taught by: Robert Inman
Course usually offered in fall term
Prerequisites: ECON 1, FNCE 101.
Activity: Lecture
1 Course Unit

BEPP 233 Consumers, Firms and Markets in Developing Countries
Nearly four-fifths of the world's population lives in low income or developing countries. Though currently far behind the U.S., the 15 fastest growing economies/markets in the world are all developing countries. And developing countries already account for 6 of the world’s 15 largest economies. This course will examine economic life, including consumers, firms and markets, in low income countries. We will apply both economic theory and empirical analysis for analyzing the roles of both business and government in consumption, production and market equilibria.
Taught by: Robert Jensen
One-term course offered either term
Activity: Lecture
1 Course Unit

BEPP 236 International Housing Comparisons
This course analyzes housing finance systems and housing market outcomes across the globe. In the US, the course focuses on development of securitization markets and addresses current challenges of housing finance reform, including the future of Fannie Mae and Freddie Mac. Internationally, the course covers issues of access to housing and housing informality in developing countries, financial crises arising out of the housing sector, and potential market-oriented and public policy solutions. The course features a wide array of speakers in finance, government and academia who contribute their perspectives to pressing issues of mortgage market design.
Taught by: Susan Wachter
Course usually offered in spring term
Prerequisites: Econ 1 and Econ 2 or Econ 10.
Activity: Lecture
1 Course Unit
BEPP 250 Managerial Economics
This course will introduce you to "managerial economics" which is the application of microeconomic theory to managerial decision-making. Microeconomic theory is a remarkably useful body of ideas for understanding and analyzing the behavior of individuals and firms in a variety of economic settings. The goal of the course is for you to understand this body of theory well enough so that you can effectively analyze managerial (and other) problems in an economic framework. While this is a "tools" course, we will cover many real-world applications, particularly business applications, so that you can witness the usefulness of these tools and acquire the skills to use them yourself. We will depart from the usual microeconomic theory course by giving more emphasis to prescription: What should a manager do in order to achieve some objective? That course deliverable is to compared with description: Why do firms and consumers act the way they do? The latter will still be quite prominent in this course because only by understanding how other firms and customers behave can a manager determine what is best for him or her to do. Strategic interaction is explored both in product markets and auctions. Finally, the challenges created by asymmetric information - both in the market and within the firm - are investigated.
One-term course offered either term
Prerequisites: ECON 1 or equivalent; MATH 103 or equivalent.
Activity: Lecture
1 Course Unit

BEPP 261 Risk Analysis and Environmental Management
This course is designed to introduce students to the complexities of making decisions about threats to human health and the environment when people's perceptions of risks and their decision-making processes differ from expert views. Recognizing the limitations of individuals in processing information, the course explores the role of techniques such as decision analysis, cost-benefit analysis, risk assessment and risk perception in structuring risk-management decisions. We will also examine policy tools such as risk communication, incentive systems, third party inspection, insurance and regulation in different problem contexts. The problem contexts for studying the interactions between analysis, perceptions, and communication will include risk-induced stigmatization of products (e.g. alar, British beef), places (e.g. Love Canal), and technologies (e.g. nuclear power); the siting of noxious facilities, radon, managing catastrophic risks including those from terrorism. A course project will enable students to apply the concepts discussed in the course to a concrete problem.
Taught by: Howard Kunreuther
Course not offered every year
Prerequisites: ECON 1 helpful.
Activity: Lecture
1 Course Unit

BEPP 263 Environmental & Energy Economics and Policy
This course examines environmental and energy issues from an economist's perspective. Over the last several decades, energy markets have become some of the most dynamic markets of the world economy, as they experienced a shift from heavy regulation to market-driven incentives. First, we look at scarcity pricing and market power in electricity and gasoline markets. We then study oil and gas markets, with an emphasis on optimal extraction and pricing, and geopolitical risks that investors in hydrocarbon resources face. We then shift gears to the sources of environmental problems, and how policy makers can intervene to solve some of these problems. We talk about the economic rationale for a broad range of possible policies: environmental taxes, subsidies, performance standards and cap-and-trade. In doing so, we discuss fundamental concepts in environmental economics, such as externalities, valuation of the environment and the challenge of designing international agreements. At the end of the course, there will be special attention for the economics and finance of renewable energy and policies to foster its growth. Finally, we discuss the transportation sector, and analyze heavily debated policies such as fuel-economy standards and subsidies for green vehicles.
Taught by: Arthur van Benthem
Activity: Lecture
1 Course Unit

BEPP 280 Applied Data Analysis.
This course will examine how and when data can be used specifically to infer whether there is a causal relationship between two variables. We will emphasize (a) the critical role of an underlying economic theory of behavior in interpreting data and guiding analysis, as well as (b) a range of advanced techniques for inferring causality from data, such as randomized controlled trials, regression discontinuity, difference-in-difference, audit study (mystery shopping) approaches and stock-market event studies. The issue of causality, and the relevance of thinking about models and methods for inferring causality, is just as central and important for "Big Data" as it is when working with traditional data sets in business and public policy. The emphasis will not be on proofs and derivations but rather on understanding the underlying concepts, the practical use, implications and limitations of techniques. Students will work intensively with data, drawing from examples in business and public policy, to develop the skills to use data analysis to make better decisions. All analysis will be conducted using R. The goals of the course are for students to become expert consumers able to interpret and evaluate empirical studies as well as expert producers of convincing empirical analysis themselves.
Taught by: Santosh Anagol.
One-term course offered every term
Prerequisites: Relevant introductory statistics course covering at least hypothesis testing and linear regression (STAT 102,112, 431 or equivalent) (i.e. ECON 104), or at the discretion of the instructor.
Activity: Lecture
1 Course Unit
BEPP 284 Game Theory for Business and Life
The objective of this course is to make you more skilled in the art and science of strategic reasoning. Strategic situations permeate our lives and we will examine many such situations through the lens of game theory. The course is composed of game-theoretic concepts, applications, and experiential learning. The bulk of the applications are to business situations including investment and entry, bargaining, managerial incentive contracts, network effects, product location, and two-sided markets. However, given the ubiquitous presence of strategic situations in human societies, applications will extend to politics, war, sports, history, crime, theology, and every day life, and cover the existence of God, steroid use in sports, racial discrimination, land conflict, trench warfare in World War I, and the Medieval Law Merchant. Students will regularly participate in experiments involving strategic reasoning, and form teams to compete in a simulated industry environment.
Taught by: Joseph Harrington
One-term course offered either term
Prerequisite: None
Activity: Lecture
1 Course Unit

BEPP 289 Nations, Politics, and Market
This course is intended to deepen understanding of the major contemporary issues in the world economy. The focus is on the "big picture" of global economic developments and the evolution of economic thought over the last one hundred years. The topics include: financial market booms and busts; business cycles; monetary and fiscal policies; inequality; the social welfare state; technological change and economic growth; and international trade and financial arrangements. The time period covers: the Roaring Twenties; the Great Depression, the post war Golden Age (1945-1973); the stagflation of the 1970s; the Washington Consensus era of the market liberalization (1980-2007); and the 2008 financial crisis and Great Recession of 2007-2010 and its aftermath. The course also explores different schools of thought. The course will chronicle and compare economic policy and performance of the United States, Europe, Japan and emerging markets (Asia, Latin America, Africa).
Taught by: Stephen Golub
Course usually offered in spring term
Prerequisites: Econ 2 or its equivalent.
Activity: Lecture
1 Course Unit

BEPP 299 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

BEPP 305 Risk Management
The last financial crisis and subsequent recession provide ample evidence that failure to properly manage risk can result in disaster. Individuals and firms confront risk in nearly all decisions they make. People face uncertainty in their choice of careers, spending and saving decisions, family choices and many other facets of life. Similarly, the value that firms create by designing and marketing good products is at risk from a variety of sources. The bankruptcy of a key supplier, sharp rise in cost of financing, destruction of an important asset, impact of global warming, or a liability suit can quickly squander the value created by firms. In extreme cases, risky outcomes can bankrupt a firm, as has happened recently to manufacturers of automobile parts and a variety of financial service firms. The events since the Global Financial Crisis also offer stark reminders that risk can impose significant costs on individuals, firms, governments, and society as a whole. This course explores how individuals and firms assess and evaluate risk, examines the tolls available to successfully manage risk and discusses real-world phenomena that limit the desired amount of risk-sharing. Our focus is primarily on explaining the products and institutions that will serve you better when making decisions in your future careers and lives.
One-term course offered either term
Prerequisites: Students are assumed to have introductory knowledge of statistics, microeconomics, and finance at the level of the Wharton undergraduate classes STAT 101, BEPP 250, and FNCE 100.
Activity: Lecture
1 Course Unit

BEPP 322 Business Insurance and Estate Planning.
This course presents an analysis of overall private wealth management. This includes planning for disposition of closely-held business interests; the impact of income taxes and other transfer costs on business interests and other assets; integration of life insurance, disability insurance, medical benefits, and long-term care insurance in the financial plan; planning for concentrated asset (e.g. common stock) positions, diversification techniques, and asset allocation strategies; distribution of retirement assets; lifetime giving and estate planning; and analysis of current developments in the creation, conservation, and distribution of estates. Attention also is given to various executive compensation techniques (including restricted stock and stock options) and planning for various employee benefits. The course also covers sophisticated charitable giving techniques and methods for financing educaton expenses. Reading consist of textbooks, case studies, and bulk pack articles.
Taught by: Victor Hallman.
One-term course offered either term
Prerequisites: None.
Activity: Lecture
1 Course Unit

Taught by: Jean Lemaire.
Course usually offered in fall term
Prerequisites: None.
Activity: Lecture
1 Course Unit
BEPP 452 Fundamentals of Actuarial Science I.
This course is the usual entry point in the actuarial science program. It is required for students who plan to concentrate or minor in actuarial science. It can also be taken by others interested in the mathematics of personal finance and the use of mortality tables. For future actuaries, it provides the necessary knowledge of compound interest and its applications, and basic life contingencies definition to be used throughout their studies. Non-actuaries will be introduced to practical applications of finance mathematics, such as loan amortization and bond pricing, and premium calculation of typical life insurance contracts. Main topics include annuities, loans and bonds; basic principles of life contingencies and determination of annuity and insurance benefits and premiums.
Taught by: Jean Lemaire.
Course usually offered in spring term
Prerequisites: One semester of Calculus.
Activity: Lecture
1 Course Unit

BEPP 453 Actuarial Statistics.
Taught by: Jean Lemaire.
Course usually offered in fall term
Prerequisites: None.
Activity: Lecture
1 Course Unit

BEPP 454 Applied Statistical Methods for Actuaries.
One half of the course is devoted to the study of time series, including ARIMA modeling and forecasting. The other half studies modifications in random variables due to deductibles, co-payments, policy limits, and elements of simulation. This course is a possible entry point into the actuarial science program. No INSR course is a prerequisite for INSR 854. The Society of Actuaries has approved INSR 854 for VEE credit on the topic of time series.
Taught by: Jean Lemaire.
Course usually offered in spring term
Prerequisites: None.
Activity: Lecture
1 Course Unit

BEPP 708 Housing Markets
This course is designed for students interested in the economics and operations of housing markets. It is primarily a U.S. focused course, but does include a limited amount of international material for comparative purposes. The class is divided into four sections: (1) supply and demand for housing, including the operations of home builders and rental landlords; (2) house prices, including cycles and price dynamics; (3) international comparisons; and (4) public policy analysis applied to a current housing markets-related issue. This course presumes knowledge of intermediate economics, as we will apply that knowledge throughout the semester. For Wharton students, this means you must have passed BEPP 250 (undergrads) or MGEC 611/MGEC 612 (MBAs). Non-Wharton students should have taken the equivalent course in the College.
Taught by: Joseph Gyourko
Course usually offered in spring term
Prerequisites: Microeconomics for Managers (MGEC 611) and Microeconomics for Managers (Advanced) (MGEC 612) or equivalent.
Activity: Lecture
1 Course Unit
Notes: Lecture with discussion required.

BEPP 710 Firms, Markets and Public Policy.
Many dimensions of firms’ strategies including agreements with suppliers and competitors, mergers and acquisitions, pricing and technology standards development, among others, are subject to the oversight of regulatory bodies and governmental agencies. This course studies how public policy impacts firms’ strategic choices in a host of economic environments. We will analyze pricing strategies including versioning and bundling; product standardization decisions; the management of complementarities between products; the role of network effects and platform competition; and how firms can take advantage of the regulatory environment they operate in when making such decisions. We will study, for example, why Sony won the Blu-Ray format war against the widely supported HD-DVD format; how the FCC plans to incentivize television broadcasters to return spectrum holdings for auction to wireless broadband providers; and how contracts with content providers affect firms’ strategic interactions in the e-reader market. To understand how firm strategy and public policy interact, the course will rely on a mix of simple but rigorous analytical models and case studies.
Taught by: Katja Seim.
Prerequisites: MGEC 611, MGEC 612 or equivalent.
Activity: Lecture
1 Course Unit

BEPP 761 Risk Analysis and Environmental Management.
This course is designed to introduce students to the role of risk assessment, risk perception and risk management in dealing with uncertain health, safety and environmental risks including the threat of terrorism. It explores the role of decision analysis as well as the use of scenarios for dealing with these problems. The course will evaluate the role of policy tools such as risk communication, economic incentives, insurance, regulation and private-public partnership in developing strategies for managing these risks. A project will enable students to apply the concepts discussed in the course to a concrete problem. Cross-listed with OPIM 761.
Taught by: Howard Kunreuther.
Course not offered every year
Prerequisites: None, but a basic understanding of microeconomics helpful.
Activity: Lecture
1 Course Unit
BEPP 763 Energy Markets & Policy
Over the last several decades, energy markets have become some of the most dynamic markets of the world economy. Traditional fossil fuel and electricity markets have been seen a partial shift from heavy regulation to market-driven incentives, while rising environmental concerns have led to a wide array of new regulations and "environmental markets". The growth of renewable energy could be another source of rapid change, but brings with it a whole new set of technological and policy challenges. This changing energy landscape requires quick adaptation from energy companies, but also offers opportunities to turn regulations into new business. The objective of this course is to provide students with the economist’s perspective on a broad range of topics that professionals in the energy industry will encounter. Topics include the effect of competition, market power and scarcity on energy prices, the impact of deregulation on electricity and fossil fuel markets, extraction and pricing of oil and gas, geopolitical uncertainty and risk in hydrocarbon investments, the environmental impact and policies related to the energy sector, environmental cap-and-trade markets, energy efficiency, the economics and finance of renewable energy, and recent developments in the transportation sector.
Taught by: Arthur van Benthem
Activity: Lecture
1 Course Unit

BEPP 770 Introduction to Business Economics and Public Policy
This course explores the economics and politics of public policy to provide an analytic framework for considering why, how, and with what success/failure government intervenes in a variety of policy areas. Particular attention will be paid to important policy issues relating to taxation, social security, low-income assistance, health insurance, education (both K-12 and higher ed), the environment, and government deficits. The costs and benefits of alternative policies will be explored along with the distribution of responsibilities between the federal, state, and local governments. While the course will focus primarily on U.S. policies, the topics covered (e.g. tax reform, deficits versus austerity, etc.) are currently at the center of the policy debate in many other industrialized countries as well.
Taught by: Katja Seim.
Two terms. student may enter either term.
Prerequisites: MGEC 611, MGEC 612 or equivalent.
Activity: Lecture
1 Course Unit

BEPP 773 Urban Fiscal Policy
The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent fiscal crises, local services and taxes as important determinants of real estate prices, the infrastructure crisis, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.
Taught by: Robert Inman.
Course usually offered in fall term
Prerequisites: Microeconomics, FNCE 601.
Activity: Lecture
1 Course Unit

BEPP 780 Applied Data Analysis
Activity: Lecture
1 Course Unit

BEPP 789 Nations, Politics, and Markets
This course is intended to deepen understanding of the major contemporary issues in the world economy. The focus is on the "big picture" of global economic developments and the evolution of economic thought over the last one hundred years. The topics include: financial market booms and busts; business cycles; monetary and fiscal policies; inequality; the social welfare state; technological change and economic growth; and international trade and financial arrangements. The time period covers: the Roaring Twenties; the Great Depression, the post war Golden Age (1945-1973); the stagflation of the 1970s; the Washington Consensus era of the market liberalization (1980-2007); and the 2008 financial crisis and ensuing Great Recession; and the recent rise of populism. This course also explores different schools of thought. The course will chronicle and compare economic policy and performance of the United States, Europe, Japan and emerging markets (Asia, Latin America, Africa).
Taught by: Steve Golub.
One-term course offered either term
Prerequisites: Microeconomics.
Activity: Lecture
1 Course Unit

BEPP 805 Risk Management
The last financial crisis and subsequent recession provide ample evidence that failure to properly manage risk can result in disaster. Individuals and firms confront risk in nearly all decisions they make. People face uncertainty in their choice of careers, spending and saving decisions, family choices, and many other facets of life. Similarly, the value that firms create by designing and marketing good products is at risk from a variety of sources. The bankruptcy of a key supplier, sharp rise in cost of financing, destruction of an important asset, impact of global warming, or a liability suit can quickly squander the value created by firms. In extreme cases, risky outcomes can bankrupt a firm, as has happened recently to manufacturers of automobile parts and a variety of financial service firms. The events since the Global Financial Crisis also offer stark reminders that risk can impose significant costs on individuals, firms, governments, and society as a whole. This course explores how individuals and firms assess and evaluate risk, examines the tools available to successfully manage risk, and discusses real-world phenomena that limit the desired amount of risk-sharing. Our focus is primarily on explaining the products and institutions that will serve you better when making decisions in your future careers and lives.
One-term course offered either term
Prerequisite: None
Activity: Lecture
1 Course Unit
BEPP 811 Risk and Crisis Management.
The growing connectivity of global economies and financial markets has produced widespread risk contagion, resulting in increased volatility and an ever-increasing demand for risk capital. This course focuses on understanding the drivers of risk contagion and ways to restore confidence in worldwide markets for pure and financial risk. The class begins with an evaluation of recent financial and pure risk events: for example, the sovereign debt crisis, Japanese earthquake, and BP Deepwater Horizon. We explore how these events are being financed in innovative ways via the capital and insurance markets. Next we emphasize the role of risk management in the preservation and creation of value, helping firms identify, measure, monitor and manage/finance risk. Doing so results in risk-adjusted returns (or return on risk-adjusted capital) that exceed the cost of capital. We devote substantial focus on the practical implementation of effective risk management/financing, given evolving regulatory and governance standards. In addition, we explore opportunities for corporate growth as well as public/private partnerships. The course will conclude with a discussion of emerging markets and the role of risk management in developing a middle class needing new forms of risk transfer/financing.
One-term course offered either term
Prerequisites: None.
Activity: Lecture
0.5 Course Units

BEPP 812 Markets for Pure Risk.
The increased frequency and severity of pure risk events hinders corporations’ abilities to execute strategy and deliver sustainable financial results to stakeholders. Prominent recent examples include disruptions from Hurricane Katrina, Japan’s earthquake/nuclear disaster/supply chain breakdowns, Thai floods, U.S. wildfires, and global terrorist attacks. At the same time, both industrialized and emerging economies understand that the management and financing of pure risk is critical to the success of their economies. Consequently, the rising demand for risk capital has ushered in several capital market innovations and public/private partnerships necessary for managing and financing pure risk. This course investigates these issues, beginning with an introduction to pure risks, their centers of gravity and global consequences for corporations, consumers, and the macroeconomies. Next we move on to traditional sources of risk capital provided to corporations and governments via insurance and reinsurance mechanisms. The course concludes with a discussion of new sources of risk capital provided by capital markets including catastrophic risk bonds, securitization of mortality and liability risk, and other forms of insurance-linked securities. Our focus is on the supply of risk capital to corporations and economies, recognizing the unique position of emerging economies in this nexus. Throughout, the class emphasizes current real-world cases to illustrate the competitive differences in strategies taken by hedge funds, private equity pools, and insurers, as they address the increasing need for risk capital around the world. This course complements BEPP 811, Risk and Crisis Management, which focuses on how firms can use various types of hedging instruments to manage pure risks (that is BEPP 811’s emphasis is primarily on the demand side of markets for pure risks whereas BEPP 812 examines the supply side of these markets). However, BEPP 811 is not required as a prerequisite. Format: Lecture and discussion, midterm and final.
One-term course offered either term
Prerequisites: Basic microeconomics and finance.
Activity: Lecture
0.5 Course Units

BEPP 823 Business Insurance and Estate Planning.
This course presents an analysis of overall private wealth management. This includes planning for disposition of closely-held business interests; the impact of income taxes and other transfer costs on business interests and other assets; integration of life insurance, disability insurance, medical benefits, and long-term care insurance in the financial plan; planning for concentrated asset (e.g., common stock) positions, diversification techniques, and asset allocation strategies; distribution of retirement assets; lifetime giving and estate planning; and analysis of current developments in the creation, conservation, and distribution of estates. Attention also is given to various executive compensation techniques (including restricted stock and stock options) and planning for variable employee benefits. The course also covers sophisticated charitable giving techniques and methods for financing education expenses. Readings consist of textbook, case studies, and bulk pack articles. This course should be attractive to most students to help them plan for their own or their families’ financial affairs. It also should be particularly attractive to students specializing in entrepreneurship, wealth management finance, and law.
Taught by: Victor Hallman.
One-term course offered either term
Prerequisites: None.
Activity: Lecture
1 Course Unit

BEPP 836 International Housing Comparisons
This course analyzes housing finance systems and housing market outcomes across the globe. In the US, the course focuses in development of securitization markets and addresses current challenges of housing finance reform, including the future of Fannie Mae and Freddie Mac. Internationally, the course covers issues of access to housing and housing informality in developing countries, financial crises arising out of the housing sector, and potential market-oriented and public policy solutions. The course features a wide array of speakers in finance, government and academia who contribute their perspectives to pressing issues of mortgage market design.
Prerequisites: MGEC 611: Microeconomics for Managers.
Activity: Lecture
1 Course Unit

BEPP 851 Fund of Act Sci I (formerly INSR 851)
Course usually offered in fall term
Prerequisites: One semester of Calculus.
Activity: Lecture
1 Course Unit

BEPP 852 Fund of ActuariaI Sci II (formerly INSR 852)
This specialized course is usually only taken by Wharton students who plan to concentrate in actuarial science and Penn students who plan to minor in actuarial science mathematics. It provides a comprehensive analysis of advanced life contingencies problems such as reserving, multiple life functions, multiple decrement theory with application to the valuation of pension plans.
Course usually offered in spring term
Prerequisites: STAT 851 OR BEPP 851.
Activity: Lecture
1 Course Unit
**BEPP 853 Actuarial Statistics (formerly INSR 853)**
This course covers models for insurer’s losses, and applications of Markov chains. Poisson processes, including extensions such as non-homogenous, compound, and mixed Poisson processes are studied in detail. The compound model is then used to establish the distribution of losses. An extensive section on Markov chains provides the theory to forecast future states of the process, as well as numerous applications of Markov chains to insurance, finance and genetics. The course is abundantly illustrated by examples from the insurance and finance literature. While most of the students taking the course are future actuaries, other students interested in applications of statistics may discover in class many fascinating applications of stochastic processes and Markov chains.
Taught by: Lemaire
Course usually offered in fall term
Prerequisites: Two semesters of Statistics.
Activity: Lecture
1 Course Unit

**BEPP 854 Appl Stat Methd For Actu (formerly INSR 854)**
One half of the course is devoted to the study of time series, including ARIMA modeling and forecasting. The other half studies modifications in random variables due to deductibles, co-payments, policy limits, and elements of simulation. This course is a possibly exit point into the actuarial science program. No INSR course is a pre-requisite for INSR 854. The Society of Actuaries has approved INSR 854 for VEE credit on the topic of time series.
Course usually offered in spring term
Prerequisites: One semester of Probability.
Activity: Lecture
1 Course Unit

**BEPP 895 Global Business Week: Cuba Before and After Normalization of US Relations**
Activity: Lecture
0.5 Course Units

**BEPP 900 Research Seminar.**
Of the many ways that doctoral students typically learn how to do research, two that are important are watching others give seminar presentations (as in Applied Economics Seminars) and presenting one’s own research. The BEPP 900 course provides a venue for the latter. Wharton doctoral students enrolled in this course present applied economics research. Presentations both of papers assigned for other classes and of research leading toward a dissertation are appropriate in BEPP 900. This course aims to help students further develop a hands-on understanding of the research process. All doctoral students with applied microeconomic interests are encouraged to attend and present. Second and third year Applied Economic Ph.D. students are required to enroll in BEPP 900 and receive one-semester credit per year of participation.
Taught by: Shing-yi Wang and Corinne Low
Two terms. student may enter either term.
Prerequisites: None.
Activity: Seminar
0.5 Course Units
Notes: Permission of instructor required.

**BEPP 904 Experimental Economics**
This course will help prepare you to run your own economics laboratory and field experiments. Experimental methods have been widely adopted by economists to develop new insights, and some economic theories and hypotheses are uniquely well-suited for testing with experimental tools and data. Achieving high internal and external validity requires careful experimental design. Substantive areas of application in the course will include market equilibrium, asset bubbles, learning in games, public good provision, and labor market relationships. Additional topics may include biases in individual decision-making; field experiments in development economics; and happiness, neuroeconomics, and behavioral/experimental welfare economics. Economists’ typical interests in strategic and market-based interactions raise particular methodological challenges and opportunities.
Course not offered every year
Activity: Lecture
1 Course Unit

**BEPP 911 Empirical Public Policy**
This course examines econometric research on a variety of topics related to public policy, with the goal of preparing students to undertake academic-caliber research. The course is not an econometrics or statistics course per se; rather, it focuses on research designs with observational data and how econometric techniques are applied in practice. The course aims to train students to do applied economic research that involves measuring effects of theoretical or practical interest. It proceeds in two major parts. The first part examines endogeneity and inference about causal relationships, instrumental variables methods and critiques, and panel data methods. The second part of the course addresses ‘structural’ econometric modeling. Topics covered in this part include sorting and selection, entry models, and counterfactual analyses of policy changes. The course proceeds by analyzing, in detail, approximately 24 well-known empirical research papers in applied economics or related fields. These include public economics and tax policy, labor economics, law and economics, health care policy, industrial organization and competition, transportation demand and policy, and others.
Taught by: Ulrich Doraszelski
Course usually offered in spring term
Prerequisites: A graduate-level statistics or econometrics course.
Activity: Lecture
1 Course Unit

**BEPP 931 Numerical Methods in Economics**
The objective of this course is to introduce graduate students to computational approaches for solving economic models. We will formulate economic problems in computationally tractable form and use techniques from numerical analysis to solve them. Examples of computational techniques in the current economics literature as well as discuss areas where these techniques may be useful in future research will be disclosed. We will pay particular attention to methods for solving dynamic optimization problems and computing equilibria of games. The substantive applications will cover a wide range of problems including industrial organization, game theory, macroeconomics, finance, and econometrics.
Taught by: Ulrich Doraszelski
One-term course offered either term
Prerequisites: None.
Activity: Lecture
1 Course Unit
BEPP 932 Contract Theory and Applications
The course provides an advanced introduction to the theory of contracts and its mixture of foundational theories and applications to fields such as labor, reguindustrial organization.
Course usually offered in spring term
Prerequisite: None
Activity: Lecture
1 Course Unit

BEPP 933 Public Economics: Social Insurance and Government Expenditures
The first part of this course will examine the rationale for and economic impact (e.g. on saving, labor supply, etc.) of social insurance programs such as social security, unemployment insurance and disability insurance. The next major part of the course will explore these same issues for government interventions in health insurance markets. The course will then cover research on public goods, externalities, fiscal federalism, and economic stimulus (including the government's recent response to the "Great Recession") before proceeding to an exploration of the government's role in K-12 and high education. Both theoretical and empirical evidence will be covered along with a mix of classic studies and more cutting-edge research. Throughout the course we will discuss the tradoffs - for example between the protection and distortion of social insurance programs -- that influence government's optimal role. While the focus will be on evidence from the U.S., some research from other industrialized and developing countries will also be covered.
Prerequisites: None.
Activity: Lecture
1 Course Unit

BEPP 934 Economics of Risk and Time
This course deals with the economic theory of supply, demand, and equilibrium in savings and insurance markets, including social insurance. We will review decision models under conditions of risk and use these to address problems of optimal insurance, moral hazard and adverse selection, social security, and contract enforcement.
Course usually offered in fall term
Prerequisites: Economics (Basic).
Activity: Lecture
1 Course Unit

BEPP 941 Development Economics
This course will cover current microeconomic issues of developing countries including poverty, risk, savings, human capital, and institutions. We will also explore the causes and consequences of market failures that are common in many developing countries with a focus on credit, land, and labor markets. The course is designed to introduce recent research with focus on empirical methods and testing theories with data.
Taught by: Shing-yi Wang/Robert Jensen
One-term course offered either term
Activity: Lecture
1 Course Unit

BEPP 950 Managerial Economics
Public goods, externalities, uncertainty, and income redistribution as sources of market failures; private market and collective choice models as possible correcting mechanisms. Microeconomic theories of taxation and public sector expenditures. The administration and organization of the public sector.
Taught by: Postlewaite
One-term course offered either term
Prerequisites: Microeconomics, Economics 701 and 703. Any deviation from that must be approved by the Instructor.
Activity: Lecture
1 Course Unit

BEPP 951 Political Economy
This course will introduce the students to the basic models of formal political economy and methods for empirically estimating those models from policy data, both for the developed and developing economies. Topics to be covered will include Downsian electoral competition and median voter politics, theories of legislative politics including minimum winning coalition and universalistic (pork-barrel) politics, models of lobbying and political corruption, models of executive influence in legislative settings. Particular attention is paid to the role of formal (constitutional) and informal (non-constitutional) institutions as they determine policy outcomes in democratic societies, including majoritarian (first-past-the-post) and proportional representation systems of elections, partisan (party) and non-partisan (special interest) legislatures, executive agenda-setting and veto powers, federal and unitary forms of governance, and finally, the role of judicial review. Policy applications will focus on fiscal policy (taxes, spending, and debt), though students should feel free to apply the analysis to other public policies of interest. Students should have a firm understanding of micro-economic theory and applied econometrics.
Course usually offered in fall term
Prerequisites: PHD course with advanced microeconomics.
Activity: Lecture
1 Course Unit

BEPP 952 Economics and Law
Activity: Lecture
1 Course Unit

BEPP 956 Risk Analysis and Environmental Management
This course is designed to introduce students to the role of risk assessment, risk perception and risk management in dealing with uncertain health, safety and environmental risks including the threat of terrorism. It explores the role of decision analysis as well as the use of scenarios for dealing with these problems. The course will evaluate the role of policy tools such as risk communication, economic incentives, insurance, regulation and private-public partnerships in developing strategies for managing these risks. A project will enable students to apply the concepts discussed in the course to a concrete problem.
Taught by: Howard Kunreuther
Course not offered every year
Prerequisites: None, but microeconomics helpful.
Activity: Lecture
1 Course Unit
**BEPP 962 Applied Economics Seminar**

The goal of this course is to help doctoral students develop critical thinking skills through both seminar participation and writing of referee reports. To this end students will attend the Wharton Applied Economics each Wednesday at noon seminar when it meets; prepare two written referee reports on WAE papers per semester, due before the seminar is presented; after attending the seminar - and the ensuing discussion of the paper - students will prepare follow-up evaluations of their referee report reports, due one week after the seminar.

Taught by: Fernando Ferreira

Two terms. student may enter either term.

Prerequisites: None.

Activity: Seminar

0.5 Course Units

**BEPP 971 Market Design**

The course covers Market Design, the analysis and engineering of market rules and institutions. In the last 60 years practitioners and academics have deliberately engineered the rules of an increasing number of markets, with classic examples including medical resident matching (e.g., NRMP), spectrum auctions (e.g., FCC auctions), and organ donation exchanges. In the last few years, very large markets have been created from scratch, such as eBay, Adwords, and smaller markets like odesk.com and sittercity.com. These designs use a broad set of tools, including economic theory, empirical analysis and experiments (and a fair dose of trial-and-error). With this experience, useful principles have emerged, on what market failures typically have to be addressed, and on which rules work and which do not.

Taught by: Eduardo Azevedo

Activity: Lecture

1 Course Unit

**BEPP 987 Industrial Organization and Competition Policy**

This course focuses on empirical methods and applications of research topics in Industrial Organization. Although not exclusively, the course will focus mostly on the application of econometric techniques used to study specific markets and antitrust policies. The topics that will be covered include the evaluation of market power and mergers, product differentiation, investment and innovation, collusion, price discrimination, vertical relations, entry and product positioning, and the dynamics of industries. The course will also discuss research methodologies related to microeconomic theory, computational methods, and econometric analysis. The applicability of the techniques goes beyond the field of Industrial Organization, and include the Labor, Health, Trade and Public economics.

One-term course offered either term

Prerequisites: Doctoral level economics (e.g. ECON 701, 703 or ECON 680, 682).

Activity: Lecture

1 Course Unit
CELL AND MOLECULAR BIOLOGY (CAMB)

CAMB 422 Genomics of Human Disease and Evolution
In this course we will discuss the identification and characterization of genetic diversity in the human genome, the genetic basis of normal variable traits, and the genetic basis of human disease. The study of the human genome increasingly impacts almost every aspect of our society, from medicine to law enforcement to how we view ourselves. The focus of this course will be to apply concepts and methods of genetics and genomics analysis (gene mapping, genome sequencing, epigenetics, gene expression) to better understand the genetic basis of both normal variable traits as well as disease for Mendelian (those traits influenced by a single gene) and complex (those traits influenced by multiple genes and environment) traits. We will discuss how to distinguish the evolutionary and demographic forces (i.e. mutation, migration, selection, population size) that influence genotypic and phenotypic variation within and among human populations. We will discuss how genomics and population genetics methodologies are being applied to study modern human origins, analysis of ancient DNA, ancestry, and population history. We will also discuss the implications of these studies for personalized medicine. An ability to understand human genetic and genomics analyses will serve you well since in your lifetime you are almost certain to be faced with a major decision involving your heredity; and society will be forced to make major reforms in medicine, business, and law because of increasing genomics data. By the end of this class you should have a better understanding of the science behind the study of the human genome.
Taught by: S. Tishkoff
Prerequisite: BIOL 221
Activity: Lecture
1 Course Unit

CAMB 431 Genome Sciences and Genomic Medicine
This course will be a focused study of genomes, genomic techniques, and how these approaches are and will be used in diagnosing and treating human disease. Topics will include genome sequencing, analysis of sequences and microarrays, and new techniques including high-throughput sequencing and reverse genetic analysis with a focus on genome-wide mutant collections.
Taught by: B. Gregory
Prerequisite: BIOL 221; BIOL 421 strongly recommended
Activity: Lecture
1 Course Unit
Notes: Graduate students do not need permits or prerequisites as those will have been taken in undergraduate studies

CAMB 480 Advanced Cell Biology
This course is designed for beginning graduate students and advanced undergraduate students with a particular enthusiasm for Cell Biology. CAMB/BIOL 480 does not attempt to cover all aspects of cell biology, and is therefore not appropriate for students seeking a lecture course that provides a comprehensive survey of the field. Rather, the primary objective of this course is to teach those students considering a career in the biomedical sciences how to read, discuss, and question research papers effectively. Intensive classroom discussions focus on the experimental methods used, results obtained, interpretation of these results in the context of cell structure and function, and implications for further studies. There is no assigned text; students learn to critically evaluate current literature by reading original papers on selected topics in modern cell biology. Accordingly, class participation/discussion is essential and the grade will be determined significantly by that. In addition, there will be two exams including answering short questions and an essay critiquing an original paper that is selected on a topic in Cell Biology.
Taught by: Wei Guo
Course usually offered in fall term
Prerequisites: College level biochemistry and cell biology
Activity: Lecture
1 Course Unit

CAMB 483 Epigenetics
This course investigates epigenetic phenomena: heritable alternate states of gene activity that do not result from alteration in nucleotide composition (mutations). Epigenetic mechanisms regulate genome accessibility and cell differentiation. They play a key role in normal development and in oncogenesis. For example both mammalian X-chromosome inactivation and nuclear transfer (cloning) are subject to epigenetic regulation. Amongst the epigenetic mechanisms we will discuss in this course are chromatin organization, histone modification, DNA methylation and non-coding RNAs. The course is geared toward advanced undergraduate and beginning graduate students and is a combination of lectures, student presentations and research presentations by guest speakers. Students will work with the current scientific literature.
Taught by: Wagner
Course usually offered in fall term
Prerequisite: BIOL 221
Activity: Lecture
1 Course Unit

CAMB 485 The RNA World: A Functional and Computational Analysis
A focused study of genomic, biochemical, cellular, and molecular aspects of RNA. Topics of study will include RNA structure, RNA processing and turnover, splicing, ribozymes and riboswitches, RNA editing and modification, RNA interference, endogenous eukaryotic RNA silencing pathways, small RNA biology, computational methodologies for studying RNA biology, and RNA viruses. Lectures, student presentations, and discussions will be based on readings from the primary literature.
Taught by: B. Gregory
Course usually offered in spring term
Prerequisites: BIOL 221 required. BIOL 421 strongly recommended.
Activity: Seminar
1 Course Unit
Notes: Graduate students will have satisfied prerequisites in their undergraduate studies
CAMB 486 Chromosomes and the Cell Cycle

Life depends on the propagation of genetic material from one generation to next through cycles of genome replication and cell division. The genome is copied by the parent, and one exact copy is inherited by each daughter cell. We will treat chromosomes as discrete entities, rather than collections of genes, that are replicated and divided with high fidelity to ensure that the genome remains stable over many generations. By reading selected primary literature covering several decades, we will build an understanding of the cell cycle by focusing on chromosomes and the associated molecular machinery. We will explore mechanisms that underlie replication and division, particularly control mechanisms that maintain genome integrity and are critical to prevent disease. The goal of the course is to develop a picture of the cell cycle by examining some of the key experiments and insights that have led to our current understanding. There is no textbook for the course. Readings from the primary literature will be assigned for each meeting and provided as pdf files. Presentations of these papers and class participation, including questions and critical evaluation, are an essential part of the course. Grading will be based on a final paper in the form of a research proposal (50%) and on class participation (50%). Taught by: Lampson, M. Course usually offered in spring term Prerequisites: The course section is limited to PhD students only. Activity: Seminar 1 Course Unit

CAMB 493 Epigenetics of Human Health and Disease

Epigenetic alterations encompass heritable, non-genetic changes to chromatin (the polymer of DNA plus histone proteins) that influence cellular and organismal processes. This course will examine epigenetic mechanisms in directing development from the earliest stages of growth, and in maintaining normal cellular homeostasis during life. We will also explore how diverse epigenetic processes are at the heart of numerous human disease states. We will review topics ranging from an historical perspective of the discovery of epigenetic mechanisms to the use of modern technology and drug development to target epigenetic mechanisms to increase healthy lifespan and combat human disease. The course will involve a combination of didactic lectures, primary scientific literature and research lectures, and student-led presentations. Taught by: Berger Course usually offered in spring term Prerequisites: BIOL 221 required, BIOL 483 recommended Activity: Seminar 1 Course Unit

CAMB 510 Immunology for CAMB

The purpose of this course is to provide a thorough grounding in immunology to Cell and Molecular Biology graduate students, with an emphasis on the role of the immune system in combating infectious diseases. This is a required course for CAMB students in the Microbiology, Virology and Parasitology program and the Vaccine and Gene Therapy program, replacing IMMU 506 (Immune Mechanisms). It may also be used as an elective by CAMB students in other programs such as those from the Cancer Biology program and Cell Biology, Physiology and Metabolism program. The course is divided into two parts. The first deals with innate immune response with a focus on pattern recognition and subsequent signaling in infection by bacteria, viruses, and parasites. The second half will focus on adaptive immune mechanisms, the structure, function, and molecular biology of antigen receptors and major histocompatibility complex molecules, and the development, activation, and differentiation of lymphocytes and other hematopoietic cells involved in immunity. The course is comprised of two 1.5-hour lectures per week, with Friday journal club on selected weeks. Taught by: G. Scott Worthen Course usually offered in spring term Prerequisite: BIOM 600 or instructor permit Activity: Lecture 1 Course Unit Notes: Priority given to students in the MVP GTV programs of CAMB. Second priority to CAMB students in other programs. If slots remain, then Ph.D. students from other graduate groups by permit only. Ph.D. students only.

CAMB 511 Principles of Development

This graduate course, which will include lectures and readings from the literature, is designed to provide a foundation in the principles of developmental biology. Topics covered will include: the germ line and piRNA, signaling pathways in development, pattern formation and cell specification, gastrulation, tissue differentiation, morphogenesis, cell polarity, epigenetics in development, organogenesis, stem cell biology, regeneration, and developmental evolution. The use of molecular biology, biochemistry, genomics and genetics, cell biology, and embryological manipulations will be discussed in the context of the analysis of developmental mechanisms. Taught by: M. Mullins & P. Seale Course usually offered in spring term Prerequisites: Undergrad background in cell biology and molecular biology required. Non-BGS students require permission from course directors to register Activity: Lecture 1 Course Unit
CAMB 512 Cancer Biology and Genetics
The course objective is to introduce the students to important and current concepts in Cancer Biology and Cancer Genetics. The lectures are organized into 4 broad thematic groups: A) Cell-Autonomous Mechanisms (e.g., tumor suppressor and oncogene function, DNA repair pathways, senescence, apoptosis); B) Non Cell-Autonomous Mechanisms (e.g., tumor microenvironment, hypoxia, angiogenesis); C) Organ Systems (e.g., pancreatic cancer, hematopoietic malignancies); and D) Therapeutic Approaches (e.g. protein kinase inhibitors, immunotherapy, radiation therapy). The organizers, along with faculty from the School of Medicine, the Wistar Institute and CHOR with expertise in the corresponding areas provide lectures for the course. The students are expected to present, and participate in discussions of one or more key recent papers at Journal Clubs that are held at the end of each thematic group. There will be midterm and final exams of short essays relevant to the lectures.
Taught by: k. Eisinger, T. Ridky, K. Hamilton
Two terms. student may enter either term.
Prerequisites: BIOM600 or course director permission.
Activity: Lecture
1 Course Unit
Notes: Non-CAMB students must contact the course director prior to registration. Students are not permitted to audit this course.

CAMB 518 Current Topics in Ion Channels
The course is a seminar format, specifically a journal club format, targeted to graduate students and MD/PhD students interested in ion channels. It meets for one hour, once a week for graduate students and once every other week for the entire group with formal presentation. On alternate weeks a faculty member meets with students to discuss and review the contents of each selected article for the subsequent week's presentation. This is an elective course meant to excite and intellectually enlighten students regarding the latest advances in ion channel research. It includes a wide range of ion channel topics from basic biophysics, structure, and physiology to cell biology and clinical applications. It is attended by faculty, students, and postdocs from the departments of Physiology, Pathology, Neuroscience, Pharmacology, Biochemistry & Biophysics, Psychiatry. We require a written critique of each paper presented by other participants during the semester, submitted prior to the formal presentation of the paper. This critique will be graded by a faculty member, as will the student's participation in both the preparatory sessions and formal presentation sessions. A final grade would be based on both of these components.
Taught by: Deutsch, C.
One-term course offered either term
Prerequisites: Basic knowledge of ion channels, BIOM 600 or equivalent.
Corequisite: Prerequisite must be confirmed before student can register
Activity: Seminar
1 Course Unit

CAMB 522 Human Evolutionary Genomics
Advanced seminar on current topics in human genomics and human evolution. Topics include the methods used for mapping and sequencing genomes; phylogenetic and population genetic analysis; and detecting variation in the human genome. This course is designed for graduate students but advanced undergraduates with a strong background in genetics are also welcome.
Taught by: S. Tishkoff
Course offered spring; even-numbered years
Prerequisite: Permission of director
Activity: Seminar
1 Course Unit

CAMB 530 The Cell Cycle, Genome Integrity and Cancer
This seminar course focuses on molecular and biochemical events that regulate cell cycle progression and genome maintenance, and explores how these processes influence cancer etiology and treatment. Specific topics will familiarize students with the key principles and recent developments within these areas. These topics include CDK-Cyclins and their inhibitors, regulation of G1-S and G2-M phase cell cycle transitions, DNA damage checkpoints and repair, the impact of chromatin regulation on DNA repair, and how each of these processes affects cancer etiology and treatment. In depth reading and evaluation of research literature will be primarily used to accomplish these aims, as well as provide instruction on rigorous experimental design and data interpretation.
Taught by: Asangani, Irfan and Greenberg, Roger
Course usually offered in fall term
Prerequisites: Completion of BIOM 600, BIOM 555 and/or equivalent graduate level course work. Anyone without such course work must obtain instructor permission.
Corequisites: Preferential registration of Cancer Biology and CAMB students up to the maximum of 12 students applies. Permission to register is required upon exceeding the 12 student limit.
Activity: Seminar
1 Course Unit

CAMB 532 Human Physiology
This course will present a survey of the physiology of most of the major organ systems. It will integrate knowledge of cellular and molecular mechanisms into an understanding of function at the tissue, organ, and organism levels. It will begin with a brief review of membrane physiology, followed by electrophysiology and signaling in nerve. Then, after a brief outline of neural control systems and their role in homeostasis, it will present motility and muscle, the cardiovascular system, respiration, the renal and gastrointestinal systems, and selected topics from the endocrine system, the reproductive systems, environmental and exercise physiology. As well as providing a basis of integrative physiology for students in fields such as physiology, bioengineering and pharmacology, it should be of interest to students of cellular and molecular biology and genetic engineering who will need to appreciate the roles of specific systems and molecules at higher levels of organization.
Taught by: Tejvir Khurana, Ben Prosser, and Paul Titchenell
Course usually offered in fall term
Prerequisites: Although not a formal prerequisite, a good foundation in cell biology at the level of BIOM/CAMB 600 (or an equivalent upper level undergraduate course) is strongly recommended. A general understanding of the chemistry and biochemistry of macromolecules, and of basic molecular biology will also be assumed. This course is primarily designed for 2nd year BGS students; 1st year students in BGS or other programs will require the permission of the instructor. This course is not open to undergraduates.
Corequisites: Students without BIOM 600 require the instructors permission.
Activity: Lecture
1 Course Unit
CAMB 534 Seminar on current genetic research: Modeling Human Disease in Diverse Genetic Systems
An advanced seminar course emphasizing genetic research in model organisms and how it informs modern medicine. Each week a student will present background on a specific human disease. This is followed by an intense discussion by the entire class of ~2 recent papers in which model organisms have been used to address the disease mechanism and/or treatment. As a final assignment, students will have the opportunity to write, edit, and publish a “News & Views” style article in the journal “Disease Models and Mechanisms”. Offered spring semester.
Taught by: T. Jongens
Course usually offered in spring term
Also Offered As: NGG 534
Prerequisites: CAMB 605 or CAMB 542 or permission of the instructor.
Activity: Seminar
1 Course Unit
Notes: Priority for enrollment will be given to CAMB graduate students. Class not open to Master or undergraduate students.

CAMB 542 Topics in Molecular Medicine
TiMM is planned as a once-weekly seminar course whose goal is to introduce students to the ways in which biomedical research can provide new insights into clinical medicine and, conversely, how knowledge of clinical disease impacts scientific discovery. There are two sections for the course – 401 and 402. Section 401 is for first year MD/PhD students only and section 402 is for VMD/PhD and PhD students.
Taught by: Section 401: Johnson, Kohli Section 402: Atchison, Mason
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Section 402: Open to combined degree and BGS students; capped at 12 students total; non-BGS students must receive permission from course instructors.

CAMB 547 Fundamental Virology
The course provides an introduction to virology aimed at graduate students in the biomedical sciences.
Taught by: Matthew Weitzman
Course usually offered in fall term
Prerequisites: Prior coursework in molecular or cellular biology. First Priority to MVP students, then CAMB students, then GCB students.
Activity: Lecture
0.5 Course Units

CAMB 548 Bacteriology
The format of this course will be two lectures and one student presentation/paper discussion per section. The course will begin by introducing molecular mechanisms in bacterial replication, then cover detailed studies of host-bacterial interactions. The course will cover the general concepts and recent advance of how bacterial pathogens prepare to infect the host, the successful strategies bacteria used to infect the host, and how they survive after the infection.
Taught by: Zhu, J. Bushman, R.
Course usually offered in fall term
Prerequisite: none
Activity: Lecture
0.5 Course Units
Notes: Priority given to MVP graduate students

CAMB 549 Parasites and Parasitism
Parasites infect over one quarter of the world's population and parasitic diseases are a leading cause of death globally. “Parasites and Parasitism” is to be offered to first and second year MVP students over a seven-week block in the fall semester. The course will begin with an introduction to the major protozoan and helminth pathogens of humans, their geographic distribution and the diseases they cause. Subsequent lectures will emphasize a variety of topics from the current research literature using specific parasitic pathogens as examples. These will include how various protozoans enter cells and adapt to different intracellular habitats or how helminths utilize different strategies to survive within the GI tract. Malaria and schistosomiasis will serve as examples for how parasites cause disease while trypanosomiasis and leishmaniasis will be discussed as models for how parasites survive or evade immune elimination. Finally, several helminth and protozoan systems will be used to demonstrate the intimate association between parasite and vector that leads to efficient transmission. In addition to lectures, weekly discussion sessions will provide an opportunity for students to review papers or research specific topics and present their findings to their colleagues.
Taught by: Hunter, C. & Lok, J.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: Permission needed from course director for non-CAMB students

CAMB 550 Genetic Principles
This is a required course of the Genetics and Epigenetics Program and is designed to provide students with a comprehensive overview of genetic concepts and methodology. The course is organized into three parts: I Fundamental genetic concepts and tools; II Genetics of model organisms (with focus on worms, flies, zebrafish and mice); III Human genetics and disease. Each week there will be two lectures and one associated discussion/problem-solving session. Discussions emphasize practical aspects of generating and interpreting genetic data. Offered spring semester.
Taught by: Sundaram, M. & Grant, S.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Open to all PhD students in BGS, or Biology, priority given to CAMB, GCB or Biology student. Students outside of BGS or Biology or in non-PhD programs, require permission from the course director to register.

CAMB 578 Advanced Topics in Behavioral Genetics
This course focuses on the use of genetic techniques to study the molecular and cellular bases of behavior. Particular emphasis will be given to the role of genetic approaches in understanding the biological processes underlying memory storage, circadian rhythms, and neurological and psychiatric disorders. Reverse genetic approaches utilizing gene knockout and transgenic technologies, as well as forward genetic approaches using mutagenesis and quantitative genetic techniques will be discussed.
Taught by: Abel/Bucan
Course offered in spring; even-numbered years
Prerequisite: Permission of Instructor
Activity: Lecture
1 Course Unit
CAMB 597 Neural Development, Regeneration and Repair

General Description: The goals of this course are to examine the principles underlying the nervous system development and to learn how understanding developmental mechanisms can inform strategies to promote regeneration and repair. This is not a survey course. Rather, the course will focus on selected topics, for which we will discuss the genetic, molecular and cellular strategies employed to study these problems in different model organisms. Emphasis is on how to interpret and critically evaluate experimental data. Fall 2017 Topics: Generation of Neuronal Diversity; Specification of Inhibitory Interneurons and Stem Cell replacement strategies; Axon Guidance at the Midline and Regeneration in the Spinal Cord; Wiring the Olfactory System; Synapse Formation; Mechanosensory Circuit Formation and Insights into Pain and Itch.

Taught by: Greg J. Bashaw and Wenqin Luo
Course usually offered in spring term
Also Offered As: NGG 597
Prerequisites: Cell 600 or equivalent. Students who are not in one of the BGS graduate programs need instructor permission
Activity: Lecture
1 Course Unit

CAMB 598 Immunology for Cancer Biologists

Themes: The contribution of both adaptive and innate immune cells to tumor progression and metastasis; Mechanisms of immune-mediated edition of tumors; Barriers to tumor immunity that contribute to tumor escape. Objective of course: To learn and analyze the major aspects of the inter-relationships between the immune system and tumors. By the end of the class students should be able to answer the question: why do current immunotherapeutic approaches for cancer fail in the majority of patients? Based on the topics covered in the course, students should be able to define research avenues that will increase the efficacy of immunotherapies for cancer.

Taught by: Sandra Ryeom
Course usually offered in fall term
Prerequisites: CAMB Students only, priority given to Cancer Biology students
Activity: Lecture
1 Course Unit

CAMB 601 Advanced Virology Seminar

This seminar course covers current topics and important concepts in virology. Students will read selected papers on various topics in virology. Each subject will be illustrated by ground-breaking classic papers and innovative recent articles. Students will present a seminar under the guidance of a faculty member. Grades will be based on the guidance of a faculty member. Grades will be based on the quality of the seminar(s) and participation in discussion.

Taught by: S. Weiss, C. Lopez
Course usually offered in spring term
Prerequisite: CAMB 706 (MVP Core Course)
Activity: Seminar
1 Course Unit
Notes: Non-CAMB students must obtain instructor approval.

CAMB 605 CAMB First Year Seminar

Topics are selected by course instructors and student participants. Course instructors vary yearly. The goal of this course is to provide students with an opportunity to analyze, present, and discuss significant research papers in the field of cell and molecular biology in small group settings. The sections are taught by faculty from the different programs within the Graduate Group. This is a required course for CAMB PhD students. Other BGS students are eligible, space permitting.

Taught by: John Seykora
Course usually offered in fall term
Prerequisite: None
Activity: Seminar
1 Course Unit
Notes: Preference to CAMB students is given. Students outside of CAMB may be accepted space permitting.

CAMB 608 Regulation of Eukaryotic Gene Transcription

An advanced seminar course emphasizing current topics in gene regulatory mechanisms in eukaryotes. Based on the current literature, presentations and in depth discussions will familiarize the student with recent innovations and developing principles of genome regulation.

Taught by: S. Liebhaber, D. Epstein, & E. Joyce
Course usually offered in fall term
Prerequisites: BIOM 555 or equivalent (exception=MD/PhD students).
Students are expected to bring their laptops to class. Non-CAMB students need approval from course directors.
Activity: Seminar
1 Course Unit
Notes: This course is limited to 14 participants. All interested students need permits from course directors before registering.

CAMB 609 Vaccines and Immune Therapeutics

Vaccination is perhaps the most successful medical technological intervention. The goal of this course is to expand on students’ general understanding of the immune system and to focus this understanding towards the application of vaccination and immune therapies for the 21 century. Furthermore, the course will give the student a sense of how these principles are applied to vaccine and immune therapeutic development. The course covers basic science as well as the clinical, regulatory, ethical, and political issues and implications of modern vaccines and world health. Initial lectures review immune mechanisms believed to be responsible for vaccine induced protection from disease. Subsequent lectures build on this background to explore the science of vaccines for diverse pathogens, including agents of bioterrorism as well as vaccines for cancer. An appreciation for the application of laboratory science to the clinical development and studies of vaccines is provided in the next section of the course along with lectures, which focus on the regulatory, safety, and ethical implications of vaccines in different world situations. The financial implications of specific vaccines on global health are one focus of the course.

Taught by: David Weiner, Ph.D., Paul Offit, M.D.
Course usually offered in fall term
Prerequisites: Biology, biochemistry at the advanced college level, college level immunology is recommended
Activity: Lecture
1 Course Unit
Notes: Not limited to CAMB students, however first options are to CAMB students
CAMB 610 Molecular Basis of Gene Therapy and Genome Editing
This is a team-taught, survey course that focuses on the basic science relevant to achieving efficient and effective gene transfer and genome editing in animal models and humans for the treatment of disease. The course includes units devoted to a variety of vectors useful for gene transfer, the fundamentals of genome editing, and current therapeutic approaches using specific diseases as models. Prior background in biochemistry, cell biology, and molecular biology is essential. Aspects of organ system anatomy and physiology, virology, and immunology that are relevant to the course material are included in the course. Because of rapid movement in this field, specific topics vary somewhat from year to year. Offered every fall.
Taught by: Jean Bennett and Kiran Musunuru
Course usually offered in fall term
Prerequisites: Background in biochemistry, cell biology and molecular biology. Students not enrolled in a BGS graduate program who wishes to take this course must get permission in advance from Dr. Musunuru. Students should send their undergraduat and graduate transcripts (including spring semester) along with their request to Dr. Musunuru via email: kmus@pennmedicine.upenn.edu. This class is not accepting Non-BGS masters students.
Activity: Lecture
1 Course Unit

CAMB 615 Protein Conformation Diseases
Protein misfolding and aggregation has been associated with over 40 human diseases, including Alzheimer’s disease, Parkinsons disease, amyotrophic lateral sclerosis, prion diseases, alpha (1)-antitrypsin deficiency, inclusion body myopathy, and systemic amyloidosis. This course will include lectures, directed readings and student presentations to cover seminal and current papers on the cell biology of protein conformational diseases including topics such as protein folding and misfolding, protein degradation pathways, effects of protein aggregation on cell function, model systems to study protein aggregation and novel approaches to prevent protein aggregation. Target audience is primarily 1st and 2nd year BGS graduate students. MD/PhDs and Postdoctoral fellows are welcome. Target audience is primarily 1st year CAMB, other BGS graduate students, or students interested in acquiring a cell biological perspective on the topic. MD/PhDs and Postdoc are welcome. MS and undergraduate students must obtain permission from course directors. Class size is limited to 14 students.
Taught by: Yair Argon; Harry Ischiropoulos
Course usually offered in fall term
Also Offered As: BMB 518, NGG 615
Prerequisite: BIOM 600 or equivalent
Activity: Lecture
1 Course Unit

CAMB 617 Emerging Infectious Diseases
A physician from just 25 years ago would not recognize two of today’s most pressing public health problems, AIDS and Hepatitis C, nor be familiar with many other infectious diseases or agents including MERS, Ebola virus, Hantaanvirus, HTLV-1, HHV-8 and Borrelia burgdorferi. Such a physician might also be dismayed to learn that old enemies such as tuberculosis, malaria, diphtheria, West Nile virus, meningococcal meningitis, Yellow fever, and Dengue have become more (or rather less) prevalent due to antibiotic resistance and other factors. In addition, bioterrorism, long a theoretical possibility, is now part of today’s reality and could result in the deliberate introduction of anthrax or other biological agents into the civilian population or the food supply. Thus, with the beginning of the new millennium, the medical profession, the veterinary profession, and the biomedical research establishment are faced with the triple-threat of emerging infectious diseases, reemerging infectious diseases, and bioterrorism. These topics are covered in this course, with an emphasis on student’s participation in the discussion. Emerging Infectious Diseases will cover emerging viral, bacterial and parasitic organisms, with lectures being given by faculty from the Schools of Medicine, Veterinary Medicine, Dental Medicine, and Arts and Sciences, and outside lecturers. Epidemiology, immune responses to infection, vaccine and antimicrobial agents, and pathogenesis all will be discussed. The course format will include short lectures by various faculty members to provide background information on each topic, followed by extensive discussion by students. Classes will run from 10am to 11:30AM on Mondays and Wednesdays in Johnson 207. Evaluation will be based on presentations of a research manuscript from the literature and participation in discussion sessions.
Taught by: S. Hensley, P. Bates
Prerequisites: BIOM 600 (CELL 600) and CAMB 706 (MVP Core Course) are required. Course open to graduate students only. Other students may petition the course directors for permission to enroll.
Activity: Lecture
1 Course Unit
CAMB 630 Topics in Human Genetics and Disease
Building on the foundations of the Human Genome and HapMap projects, as well as parallel efforts in model organisms, research in human genetics and genomics is progressing rapidly. Our understanding of basic concepts in genetics, and Mendelian and non-Mendelian human genetic disease is proceeding at an unprecedented pace. This course will provide students with an overview approaches to understanding current problems and techniques in human genetics. The format will be an advanced seminar course, with directed reading and student presentations. Every week, students are expected to participate in a 2-hour class session, and two students will present recent publications in human genetics and disease. After each session, instructors will meet with presenting students for 30 min. to provide individual feedback. Course directors will attend each class, and guest preceptor with relevant scientific expertise may also participate. Students will be assigned readings for the first half of the course, and then select their own papers for the second half of the course. Presentations will be prepared in consultation with course directors. Students must meet with instructors at least one to two weeks prior to the presentation date. In class, the student discussion leaders will i) present background information necessary to understand the assigned paper (10-15 min.), ii) lead discussion of the paper, focusing on critical evaluation of the methods and results, and iii) talk about the future directions for this research. Taught by: E. Shore, M. Devoto, S. Grant
Course offered fall; even-numbered years
Prerequisites: CAMB graduate students having taken CAMB550, or students in MD/PhD, veterinary, genetic counseling or nursing programs with equivalent courses. Must have directors permission to register.
Activity: Seminar
1 Course Unit

CAMB 632 Cell Control by Signal Transduction Pathways
This course, “Targeting the cancer cell: from mechanism to precision medicine”, will examine how various signal transduction mechanisms influence cell functions including replication, growth, transcription, translation and intracellular trafficking. We will also consider how non-cell autonomous mechanisms, such as the tumor microenvironment and the immune system influence cancer cell signaling. We will consider how important signaling pathways, such as Ras, Raf, Notch, Wnt, TGF beta, and various kinases/phosphatases become dysregulated in cancer, as well as delve into how the DNA damage response, immune system, and tumor microenvironment exert important influences on oncogenic signaling. In the first half of the course, invited faculty members will pick 2 relatively recent papers from their field that highlight important areas. Each paper will be assigned to a student, who will meet with the faculty mentor prior to the class to discuss the paper and their presentation. During the class, students will present each paper for approximately 45 minutes with time for discussion. Students will present the important background, break down the paper, look for strengths and weakness and come up with a plan of what the next set of experiments could or should be. In the second half of the course, students will independently pick a relevant paper for in class presentation and will also write a short “News and Views” style article based on the paper they have chosen. The goal of the course is to provide students with a view of the cancer cell that integrates both cell autonomous and non-cell autonomous signals and to use this information to consider how to successfully treat cancer. Taught by: X. Hua, J. Field, A. Resnick, and W. Pear
Course usually offered in spring term
Prerequisites: BIOM 600, Molecular and Cell Biology Courses
Activity: Seminar
1 Course Unit
Notes: Priority given to PhD students. Class is limited to CAMB, PHARM, IMUN and other graduate students, including engineering. Masters will go on waiting list.

CAMB 633 Advanced Seminar in Gene Therapy
This year’s Advanced Seminar in Gene Therapy will cover controversial topics in the field. It will meet on Wednesdays from 5:30 - 7:00pm. The goal of this seminar is to provide graduate students with an understanding of the challenges, both experimentally and practical, that face the gene delivery field. At least two sessions will deal with ethical issues. With the exception of the first class meeting, each of the weekly sessions will be devoted to a group discussion of recent papers. All students are required to read the papers and submit a written critique in advance of that week's class discussion. Evaluation will be based on attendance (required), active participation, and preparation of manuscript reviews. Students will be introduced to the process of reviewing manuscripts and will be asked to provide critical reviews each week. Students will also work together to write a scientific review for submission to a peer-reviewed journal. Students who are not in CAMB need to request permission from the course director, Dr. Wilson via email (wilsonjm@pennmedicine.upenn.edu) and copy Veronica Niblick (vniblick@pennmedicine.upenn.edu).
Taught by: Dr. James M. Wilson.
Course offered spring; odd-numbered years
Prerequisites: Background in biochemistry, cell biology, molecular biology, and immunology.
Activity: Seminar
1 Course Unit
CAMB 637 Gene Therapy: Vectors, Immunology, and Disease
This seminar course is designed to provide students with a cohesive understanding of virology and immunology of gene therapy. Three major themes will be covered: vectors, vector immunology and gene therapy of genetic and acquired diseases. The topics to be covered are viewed as an extension of topics covered in CAMB 610 (Molecular Basis of Gene Therapy), although CAMB 610 is not an absolute prerequisite for this seminar. Each class will consist of a brief introduction by an instructor, reviewing background information related to the theme discussion. The topics are explored through discussions, led by assigned students, of seminal research articles. Students are expected to have thoroughly reviewed the assigned articles and be able to present and discuss various aspects of the papers. Regular attendance and active participation in the discussions, which focus on critical evaluation of experimental design, data presentation and interpretation, is essential. Student evaluation will be based on attendance, in-class presentation (for 50% of the letter grade), and a take-home exam (for another 50% of the grade).
Taught by: J. Riley
Course offered spring; even-numbered years
Prerequisites: Background in molecular biology, virology and immunology. BGS Students only
Activity: Seminar
1 Course Unit
Notes: BGS Students only

CAMB 691 Advanced Topics in Cell Biology & Physiology
This course, together with its companion CAMB 692, offers an advanced, in-depth analysis of selected topics in cell biology and physiology. CAMB 691 and 692 are complementary courses that focus on different aspects of cell biology; these courses are offered on an alternating basis in the spring semester. The courses can be taken in either order, but require BIOM 600 or an equivalent background in basic cell biology. CAMB 691 will focus on key issues at the forefront of research in the areas of (1) Channels and transporters, (2) Vesicular and viral trafficking, (3) Tissue mechanics, (4) Heart and muscle physiology, (5) Cytoskeletal dynamics and cell division. The course format pairs faculty presentations with student-led discussion sessions highlighting important papers from the primary literature. Students will be evaluated on their presentations, their participation in class discussions, and weekly problem sets. Offered alternately in the spring semester with CAMB 692.
Taught by: E. Grishchuk, M. Marks, C. Deutsch
Course offered spring; even-numbered years
Prerequisites: BIOM 600 or a similar survey course in cell biology. Permission needed for all non-CAMB students. Advanced undergrads must contact instructor to confirm qualifications.
Activity: Seminar
1 Course Unit

CAMB 692 Advanced Topics in Cell Biology and Physiology II: Cell Signaling and Metabolism
Cells in complex organisms are required to adapt rapidly in a changing environment. Maintaining homeostasis while performing specialized functions requires that cells respond to extracellular signals as well as fluctuations in a host of intracellular metabolites. This course will cover selected topics and general principles related to signal transduction and the control of metabolic flux in living cells. The course format will include student-led discussion sessions both providing an overview of a topic as well as focusing on important papers from the primary literature. Students will be evaluated on their presentations and participation, as well as problem sets. Offered alternately in the spring semester with CAMB 691.
Taught by: J. Bauer & R. Lee
Course offered spring; odd-numbered years
Prerequisites: BIOM 600 or a similar survey course in cell biology, or the permission of the instructor.
Activity: Seminar
1 Course Unit
Notes: We encourage participation by non-CAMB students.

CAMB 695 Scientific Writing
This 7-week course is designed to introduce students to basic scientific writing skills and is based upon the premise that clear writing, giving feedback, and receiving feedback are all essential tools for professional development. While this is not strictly a prelim preparatory course, applying the principles of this course will help improve your prelim writing and your scientific writing in general. Structure: An initial introductory lecture for the entire class is followed by 6 weekly small group sessions. These sessions are conducted as workshops designed to enhance student and faculty engagement to improve scientific writing. During the course, participants review the principles of clear, persuasive writing, and apply these principles to writing for a scientific audience. Particular emphasis is placed on conveying the significance of your research, outlining your aims, and discussing your results. Classes are highly interactive, and the majority of class time will be spent discussing student scientific writing. In order to focus on the techniques of scientific writing, in-class discussion and critiques will not address scientific methodology or interpretations of results.
Taught by: J. Katz, J. Lok
Course usually offered in spring term
Prerequisites: BIOM 600, BIOM 555 and CAMB 605
Activity: Lecture
0.5 Course Units
Notes: Preference for enrollment in CAMB 695 is given to CAMB students with highest priority given to second-year students. Students from graduate groups other than CAMB may be enrolled if space permits.

CAMB 696 Contemporary Topics in Parasitology Research
This is a paper-based seminar course. Each week a student is assigned a recent seminal paper related to parasitology research. The papers are chosen by guest faculty. Students are required to provide concise but comprehensive background and present the paper in a journal club style format. A principal aim of the course is to develop the ability to think outside of the box and to cultivate the skills necessary for developing the ability to critically appraise one’s own research and that of others. The ability to present and review work will be tested.
Taught by: J. Lok and M. Povelones
Course usually offered in fall term
Prerequisites: CAMB 549-001, Parasites and Parasitism
Activity: Seminar
0.5 Course Units
CAMB 697 Biology of Stem Cells
The goal of this course is to introduce graduate students to the field of stem cell biology through lectures and reviews of important contributions from the literature. Topics include embryonic stem cells, epigenetics and reprogramming, tissue specific stem cells such as hematopoietic, neuronal and epithelial stem cells, tissue regeneration, and tissue engineering. The future potential and challenges in stem cell and regeneration biology will be discussed. Important aspects of stem cell identification and characterization utilizing multiple model systems will also be a focus. Offered Fall Semester.
Taught by: P. Gadue, P. Rompolas
Course usually offered in spring term
Prerequisites: BGS Core Courses.
Activity: Seminar
1 Course Unit
Notes: Graduate students only. NO undergraduates. Students other than CAMB will need permits. CAMB students receive priority seating.

CAMB 698 Elective Tutorials in Cell and Molecular Biology
This tutorial course is designed to provide students with an in-depth knowledge of a specific topic in cell biology. The tutorial can be used to enable students to become more deeply acquainted with the literature related to their field of interest or to expand on a topic that the student found interesting in one of their basic courses. Interested students can receive help choosing a faculty mentor and proposed topic or make arrangements with faculty on their own, but all arrangements must be approved by the course director. Students taking the course will attend an initial organizational meeting during the first week of classes. Students will meet weekly (1-2 hrs) with faculty mentors to discuss the literature (typically 2-3 papers per week), and in the end will write a brief review article and give an oral presentation. Students will receive advice and feedback from the course director and mentor on organizing the presentation and writing the review-style article. Grades will be determined by both the mentor and course director, based on effort and the final presentation/paper.
Taught by: Lee, Robert (Fall semester) and Wei Tong (Spring semester)
One-term course offered either term
Prerequisites: Cell 600 or an alternative senior undergraduate, graduate, or professional school course in Cell Biology
Corequisites: Interested students must contact Dr. Lee: Robert Lee, PhD, Assistant Professor of Otorhinolaryngology and Physiolgy, 1209 BRB, (215) 573-9766, rjl@pennmedicine.upenn.edu in the fall semester and Dr. Wei Tong tngw@email.chop.edu in the spring semester.
Activity: Seminar
1 Course Unit

CAMB 699 Lab Rotation
Two terms. student may enter either term.
Activity: Laboratory
0.5 Course Units

CAMB 700 Topics in Microbiology
This course is designed for second year students in the MVP program, and focuses on pathogen-host interactions. Students make a presentation designed for 30 minutes on a topic of their choice. The topic can be something that they are working on, or simply something that they are interested in. They are requested to provide sufficient background, discuss what is known and what is not known about the topic, and then frame two to three Specific Aims. The success of the course rests entirely upon the quality of the faculty and students involved. In past years, the class have been very interactive, with each of the 11 classes lasting about 1.5 hours. The discussions are deliberately wide-ranging, and review recent literature, techniques, and how to construct a grant. Generally, two faculty will be in attendance.
Taught by: M. Betts, J. Riley
Course usually offered in spring term
Prerequisites: Permission from instructor required. Student must have taken Immunology and 2 MVP pathogen classes.
Activity: Seminar
1 Course Unit

CAMB 701 Tumor Microenvironment
Course Content: This 15-week course is designed for second year (and up) graduate students interested in learning about the tumor microenvironment. The course will cover the cross-talk between the main players (tumor cells, stroma, vasculature and immune cells) of the local tumor microenvironment field as well as the systemic response/impact of primary tumors, disseminated tumor cells and metastases, and emphasize the connections between the basic biology of the tumor microenvironment to potential therapeutic intervention. The goals of this course are to enrich scientific culture, train for clear and concise oral presentations, improve grant-writing skills, and develop critical thinking, professional composure and discussion skills. The course will be divided into 3 broad topic areas. At the beginning of each block, faculty members will present a 1 hour didactic lecture and overview of the topic followed by questions and discussions by students. Each week's session will be led by one or two students depending on the class size and include a didactic primary research paper including specific technical background needed for the paper, presenting the data in the paper, leading discussion on the data and conclusions drawn from the paper. Required reading (including reviews and 1-2 primary papers) related to each week's class will be assigned for all participants in preparation for in-class discussion focused on the contribution and impact of the presented paper to the field. Students will be guided in choosing the appropriate depth of background and topic area and in giving formal presentations and constructive criticism of scientific data. Additionally each student will write a specific aim for a grant using data reviewed in one of his or her presentations as "preliminary data".
Taught by: Sandra Ryem, Ben Stanger, and Costas Koumenis
Course usually offered in fall term
Prerequisites: First year CAMB core courses must be completed. Course is for 2nd year graduate students and beyond.
Corequisites: CB students get first priority followed by other CAMB students.
Activity: Seminar
1 Course Unit
CAMB 702 Current Biochemical Topics
Participation in the "Dr. George W. Raiziss Biochemical Rounds", a weekly seminar program sponsored by the Department of Biochemistry and Biophysics. Program deals with a wide range of modern biochemical and biophysical topics presented by established investigators selected from our faculty, and by leading scientists from other institutions.
Taught by: Black, B. & Shorter, J.
Course usually offered in spring term
Also Offered As: BMB 650
Prerequisites: Course is limited to BGS graduate students and undergrads from the Vagelos Scholars Program.
Activity: Seminar
1 Course Unit

CAMB 703 The ECM, adhesion receptor signaling, and translational biomechanics
This course is geared towards first and second year graduate students in BGS/CAMB and SEAS/BE with an interest in the interface of extracellular matrix (ECM) cell biology and biomechanics. Students will learn about the ECM and adhesion receptors and their impact on the cytoskeleton and signaling, as well as fundamental concepts in biomechanics and engineered materials. We will discuss how these topics can inform the study of cell biology, physiology and disease. An additional objective of the course is to give students experience in leading critical discussions and writing manuscript reviews. Invited outside speakers will complement the strengths of the Penn faculty.
Taught by: R. Mauck, R. Wells.
Course offered spring; even-numbered years
Also Offered As: BE 640
Prerequisite: BIOM 600
Activity: Lecture
1 Course Unit

CAMB 704 Stress Responses in Metabolism and Cancer
The course meets once a week for student presentations and lectures. The first 2-3 weeks encompasses lectures on state-of-the-art metabolic labeling, metabolomics, and other related methodologies. Subsequently, both "historical" and more recent papers in the field of cancer metabolism are reviewed with individual faculty experts in each chosen area. The overall goal of the course is to give students a better understanding of the abrogation of normal cellular metabolism and stress during cancer, and how these interplay with each other to create/retain a malignant state. Grades are dependent on 2 presentations per semester, class participation, and weekly answers to 2-3 questions on the assigned papers.
Taught by: C. Simon, Z. Arany, and K. Wellen
Course usually offered in fall term
Prerequisites: Must have taken first year CAMB courses
Activity: Lecture
1 Course Unit
Notes: Permission to enroll is required from course directors. Preference is given to second year CAMB students in the Cancer Biology and Cell Biology, Physiology and Metabolism programs.

CAMB 705 Advanced Topics in Bacterial-Host Interactions
This course will delve into specific topics in general area of bacterial pathogenesis and bacteria-host interactions. We will be exploring key historical and current papers on topics related to bacterial invasion of and replication within host cells, bacterial interference with host cell signaling pathways, bacterial interactions with host mucosal tissues, and the role of bacterial colonization in shaping and instructing host immune responses. Each week, a student will lead the class in the discussion of published papers on a specific topic. The format of each class will be a 10-15 minute introduction of the key background and underlying questions to be presented by the student, followed by an in-depth analysis by all members of the class of one to two articles. Students will be graded based on their introductory presentation and active participation in the paper discussions.
Taught by: Igor Brodsky and Sunny Shin
Course usually offered in spring term
Prerequisites: Strong background in cell biology, immunology and/or bacteriology fulfilled by 1st year CAMB (previous BGS) courses. Course is limited to 2nd - 3rd year graduate students or advanced undergraduates with course directors permission.
Activity: Seminar
1 Course Unit

CAMB 706 MVP Core
This is a year-long course for the incoming CAMB-MVP students and others wishing to gain a broad overview of pathogens and their interactions with hosts. The course will provide students with key fundamental knowledge of Microbiology, Virology and Parasitology. The course starts with introductory lectures on Concepts of Host-Pathogen interactions. The rest of the course is divided into sections on Bacteriology, Virology and Parasitology. Each week there are three 1 hour class slots that are either lectures on a specific topic or discussions of a relevant paper presented by students. Classes are led by faculty from across the campus and are highly interactive. Evaluation is based on mid and final take home essay topics for each of the three sections. Regular attendance and active participation in the discussions is also part of the evaluation.
Taught by: M. Weitzman and S. Shin
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit
Notes: Required for all CAMB-MVP students. Non MVP students must obtain instructor permission to take this course.

CAMB 707 Cell & Gene Therapy
This course will provide students with a general overview of translational research in the area of gene and cell therapy. This includes technical considerations, translating preclinical investigation into therapeutics, the execution of gene and cell therapies clinical trials, and key regulatory issues. Entrepreneurial considerations will be discussed as well. By the end of this course, students will understand the basic technologies employed for gene and cell therapy along with approaches and pitfalls to translating these therapies into clinical applications including regulatory and commercial aspects of this emerging area.
Taught by: Michael Milone
Also Offered As: REG 621
Prerequisites: At least one course in immunology.
Activity: Lecture
1 Course Unit
CAMB 708 HIV Virology/Pathogenesis/Cure Seminar/Journal Club
This will be a year-long class, held every other week, that is paper-based utilizing the current literature in HIV virology, pathogenesis and cure research. The class will have a journal club format with attendance and participation open to the full Penn student & postdoc community (teach-your-peers). Enrolled students will be responsible for approximately 4-5 presentations over the duration of the course, as well as for bi-weekly paper selection in conjunction with the instructors and coordinating the presentations by other participants.
Taught by: Ronald Collman and Katharine Bar
Prerequisites: Open to BGS or Biology graduate student past their second year of emphasizing principles common to both. Modules include 1) Plant and Animal Cell Biology; 2) Solid, Fluid, and Transport Mechanics; and 3) Integrating Biology and Mechanics - Big Questions. Most lectures will be given by Penn faculty, although selected topics (particular in plant biology and mechanics) will be covered by faculty at other sites through lectures broadcast remotely. The Penn director will be present at all sessions of the class.
Taught by: Rebecca Wells
Two terms. student may enter either term.
Prerequisites: None
Corequisites: Course is limited to graduate students. Instructor permission required for non-CAMB graduate students.
Activity: Seminar
0.5 Course Units

CAMB 709 Quantitative Imaging and Analysis for Biologists (QIAB)
In many areas of biomedical research, light microscopy plays a key role in advancing our understanding of biological processes. Images are often used only to provide general qualitative support for data obtained using other methods. However, the digital images acquired using modern scientific microscopes can yield much more than pretty pictures. Accurate and quantitative analysis of image data can reveal important details invisible to other techniques; these details can, in turn, provide mechanistic insights into previously inscrutable phenomena. This course will provide an introduction to the fundamentals of modern light microscopy and image analysis. Topics include image acquisition methods, image data handling, object identification and tracking, simple modeling and macro programming, and single-molecule techniques. The goal is to provide students with the background and confidence required to pursue more advanced quantitative imaging methods as the need arises in their research. Grading: Students will be judged on active participation in class, completion of hands-on exercises during weekly recitation sessions, and a final presentation describing a "publication-quality" figure they have prepared from their own image data that applies at least one of the analysis methods covered in class.
Taught by: S. DiNardo, A. Stout
Prerequisites: Open to BGS or Biology graduate student past their qualifying exam. Enrollment capped at <20, with priority given to those with a demonstrated need.
Activity: Lecture
CAMB 710 Drug Discovery and Deve
This course usually offered in spring term
Also Offered As: BMB 605
Activity: Lecture
1 Course Unit

CAMB 712 Topics in Cancer Biology
This course is an elective course for 2nd year Cancer Biology Students on a range of cancer-related topics. The course is designed to expose students to a range of topics in cancer biology, improve writing skills, train students to give clear and concise oral presentations, develop active listening and critical thinking skills as well as discussion skills. The course will also teach students about rigor and reproducibility in experimental design. The course will interface with Cancer Biology WIP talks (which are only given by 3rd year and up students) and complement journal club and prelim preparation.
Taught by: Sandra Ryeom
Two terms. student may enter either term.
Prerequisites: Completion of 1st year CAMB Courses. Course is designed for 2nd year CB students.
Activity: Seminar
1 Course Unit

CAMB 752 Genomics
Recent advances in molecular biology, computer science, and engineering have opened up new possibilities for studying the biology of organisms. Biologists now have access to the complete genomic sequence and set of cellular instructions encoded in the DNA of specific organisms, including homo sapiens, dozens of bacterial species, the yeast Saccharomyces cerevisiae, the nematode C. elegans, and the fruit fly Drosophila melanogaster. The goals of the course include the following: 1) introduce the basic principles involved in sequencing genomes, 2) familiarize the students with new instrumentation, informative tools, and laboratory automation technologies related to genomics, 3) teach the students how to access the information and biological materials that are being developed in genomics, and 4) examine how these new tools and resources are being applied to basic and translational research. This will be accomplished through in depth discussion of classic and recent papers.
Taught by: S. Diskin
Activity: Lecture
CAMB 899 Pre-dissertation Research
Activity: Laboratory
1 Course Unit
CAMB 995 Dissertation
Activity: Dissertation
1 Course Unit
CHEMICAL & BIOMOLECULAR ENGINEERING (CBE)

CBE 099 Undergraduate Research and Independent Study
An opportunity for the student to work closely with a professor in a project to develop skills and technique in research and development. To register for this course, the student writes a one-page proposal that is approved by the professor supervising the research and submitted to the undergraduate curriculum chairman during the first week of the term. One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: A maximum of 2 c.u. of CBE 099 may be applied toward the B.S.E degree requirements

CBE 150 Introduction to Biotechnology
The goal of this course is to teach you the fundamentals of biotechnology and introduce you to concepts in Chemical Engineering along the way. Concepts in Biotechnology that will be covered include, DNA, RNA, the Central Dogma, proteins, recombinant technology, RNA silencing, electrophoresis, chromatography, synthetic biology, pull down assays, PCR, hybridization, array technology, DNA machines, DNA sequencing, and forensics. Concepts in Chemical Engineering that will be covered include the mass balance, scaling laws and the Buckingham-Pi theorem, kinetics of enzyme reactions, thermodynamics of molecular binding, the Langmuir isotherm, separations via chromatography.
Course usually offered in fall term
Prerequisite: Reserved for Freshmen only
Activity: Lecture
1 Course Unit

CBE 160 Introduction to Chemical Engineering
Students will learn to read and understand a process flow sheet. There is a focus on drawing a process flow sheet, and formulating and solving the material balances for the chemical processes involving chemical reactions (some with recycle streams, some with purge streams, and some with bypass streams). Additionally, students will understand the limits of the ideal gas law, and have a working knowledge of the cubic equations of state and the concept of a compressibility factor. The class will study the basic concepts of gas-liquid phase equilibrium and apply Raoult’s Law to solve phase equilibrium problems. A final objective is to design flow sheets and solve material balances for simple chemical processes using ASPEN (chemical engineering simulation program).
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CBE 230 Material and Energy Balances of Chemical Processes
This course introduces the principles of material and energy balances and their applications to the analysis of single- and multiple-phase processes used in the chemical, pharmaceutical, and environmental industries. The course focuses on the conceptual understanding of properties of pure fluids, equations of state, and heat effects accompanying phase changes and chemical reactions, and problemsolving skills needed to solve a wide range of realistic, process-related problems.
Course usually offered in fall term
Prerequisite: CBE 160
Activity: Lecture
1 Course Unit

CBE 231 Thermodynamics of Fluids
Students will understand, evaluate, and apply different equations of state relating pressure, temperature, and volume for both ideal and non-ideal systems. The course will focus on calculating and applying residual properties and departure functions for thermodynamic analysis of non-ideal gases. Students will apply and describe simple models of vapor-liquid equilibrium in multi-component systems (e.g. Raoult’s Law, modified Raoult’s Law, Henry’s Law). Additionally, the class will analyze and describe properties of non-ideal mixtures and their component species. We will also model and predict reaction equilibria (including non-ideal fluid systems), as well as solve problems related to complex phase equilibria of multi-component systems (find equilibrium compositions for non-ideal phases).
Taught by: Holleran
Course usually offered in spring term
Prerequisite: CBE 230
Activity: Lecture
1 Course Unit

CBE 297 Study Abroad
One-term course offered either term
Activity: Lecture
1 Course Unit

CBE 350 Fluid Mechanics
This course is designed for students to understand the fundamental characteristics of fluids. We will develop, starting from first principles, the basic equations for fluid statics, and use them to assess buoyancy forces and determine the pressure variations in fluids with rigid body rotation. Students will understand in detail the basic types of fluid flow line patterns (eg. streamlines and streamtubes) and the different types of interchangeable energy forms (eg. kinetic, potential, and pressure). It is also important to develop, starting from first principles, the formulations for inviscid and viscous flow problems. These include the discussion of a control system and system boundaries, the detailed construction of conservations equations of mass, energy, and momentum for Newtonian fluids, the derivation of the Navier-Stokes equations, and the determination of appropriate initial and boundary conditions. A final objective of the course is to solve various fluid mechanics problems using control systems, dimensional analysis, and developed equations. Such problems include, but are not limited to, the terminal velocity of a falling sphere, Stokes flow, the relation between the friction factor and the Reynolds number, and flow profiles in numerous geometries.
Taught by: Hollaran
Course usually offered in fall term
Prerequisite: CBE 231
Activity: Lecture
1 Course Unit

CBE 351 Heat and Mass Transport
Course usually offered in spring term
Prerequisite: CBE 350
Activity: Lecture
1 Course Unit
CBE 353 Advanced Chemical Engineering Science
Course usually offered in fall term
Prerequisite: CBE 231
Activity: Lecture
1 Course Unit

CBE 371 Separation Processes
The design of industrial methods for separating mixtures. Distillation; liquid-liquid extraction; membranes; absorption. Computer simulations of the processes.
Course usually offered in spring term
Prerequisite: CBE 231
Activity: Lecture
1 Course Unit

CBE 375 Engineering and the Environment
The course will introduce emerging environmental issues, relevant engineering solutions, and problem-solving techniques to students. The case study approach will be used to assist students to develop and apply the fundamental engineering skills and scientific insights needed to recognize a variety of environmental problems that have profound impacts on all aspects of modern society.
Course usually offered in spring term
Prerequisite: Sophomore Standing
Activity: Lecture
1 Course Unit

CBE 400 Introduction to Product and Process Design
Introduction to product design, process synthesis, steady-state and batch process simulation, synthesis of separation trains, second-law analysis, heat integration, heat-exchanger design, equipment sizing, and capital cost estimation.
Course usually offered in fall term
Prerequisites: CBE 351, 371
Corequisite: CBE 451
Activity: Lecture
1 Course Unit

CBE 410 Chemical Engineering Laboratory
Experimental studies in heat and mass transfer, separations and chemical reactors to verify theoretical concepts and learn laboratory techniques. Methods for analyzing and presenting data. Report preparation and the presentation of an oral technical report.
Course usually offered in fall term
Prerequisites: CBE 351, 371
Activity: Laboratory
1 Course Unit

CBE 430 Polymers and Biomaterials
Polymer is one of the most widely used materials in our daily life, from the rubber tires to clothes, from photoresists in chip manufacturing to flexible electronics and smart sensors, from Scotch tapes to artificial tissues. This course teaches entry-level knowledge in polymer synthesis, characterization, thermodynamics, and structure-property relationship. Emphasis will be on understanding both chemical and physical aspects of polymers, polymer chain size and molecular interactions that drive the microscopic and macroscopic structures and the resulting physical properties. We will discuss how to apply polymer designs to advance nanotechnology, electronics, energy and biotechnology. Case studies include thermodynamics of block copolymer thin films and their applications in nanolithography, shape memory polymers, hydrogels, and elastomeric deformation and applications.
Course usually offered in spring term
Also Offered As: CBE 510, MSE 430
Prerequisites: MSE 260 or equivalent course in Thermodynamics or Physical Chemistry (such as BE 223, CBE 231, CHEM 221, MEAM 203)
Activity: Lecture
1 Course Unit

CBE 451 Chemical Reactor Design
Course usually offered in fall term
Prerequisites: CBE 231 and CBE 351
Activity: Lecture
1 Course Unit

CBE 459 Product and Process Design Projects
Design of chemical, biochemical, and materials products and processes based on recent advances in chemical and bioengineering technology. Design group weekly meetings with faculty advisor and industrial consultants. Comprehensive design report and formal oral presentation. Heat exchanger design and profitability analysis.
Course usually offered in spring term
Prerequisite: CBE 400
Activity: Lecture
1 Course Unit

CBE 460 Chemical Process Control
Course usually offered in spring term
Prerequisite: CBE 230
Activity: Lecture
1 Course Unit
CBE 479 Biotechnology and Biochemical Engineering
An overview of biotechnology from a chemical engineering perspective: DNA, enzymes, proteins, molecular genetics, genetic engineering, cell growth kinetics, bioreactors, transport processes, protein recovery and protein separations. Group projects include a MATLAB kinetics project and a biotechnology company profile. Applications to current practices in biopharmaceuticals, biofuels, and bioremediation are discussed.
Course usually offered in fall term
Prerequisite: Junior/Senior Standing in Engineering and CBE 150 or Permission of the Instructor.
Activity: Lecture
1 Course Unit

CBE 480 Laboratory in Biotechnology and Genetic Engineering
The laboratory methods covered include molecular cloning techniques, cell transformation, DNA gel electrophoresis, ImageJ, PCR, DNA sequencing, SDS-PAGE, mammalian cell culture and enzyme assays. Culture techniques for bacteria, yeast and mammalian cells are taught and practiced. The students write several individual lab reports and keep a weekly lab notebook during the semester. A group presentation and report on a proposal for a new lab experiment is the final assignment for the lab.
Course usually offered in spring term
Prerequisite: CBE 479 or Permission of the Instructor.
Activity: Laboratory
1 Course Unit

CBE 508 Probability and Statistics for Biotechnology
The course covers topics in probability theories and statistical techniques, with emphasis placed on the practical problems relevant to the subject areas of biotechnology. The course provides a rigorous introduction to such topics as elements of probability, random variables and probability functions, random samples, parameter estimations, hypothesis testing, regression, analysis of variance, lifetime testing, and nonparametric tests.
Course usually offered summer term only
Activity: Lecture
1 Course Unit

CBE 511 Physical Chemistry of Polymers and Amphiphiles
This course deals with static and dynamic properties of two important classes of soft materials: polymers and amphiphiles. Examples of these materials include DNA, proteins, diblock copolymers, surfactants and phospholipids. The fundamental theories of these materials are critical of understanding polymer processing, nanotechnology, bioremediation and biophysics. Special emphasis will be placed on understanding the chain conformation of polymer chains, thermodynamics of polymer chains, thermodynamics of polymer solutions and melts, dynamics of polymer and statistical thermodynamic principles of self-assembly.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CBE 522 Polymer Rheology and Processing
This course focuses on applications of rheology to polymer processing technologies. It includes a general review of rheological concepts, including viscoelasticity and the influence of shear rate, temperature and pressure on polymer flow properties. The course covers the elementary processing steps common in various types of polymer manufacturing operations including handling of particulate solids, melting, pressurizing and pumping, mixing and devolatilization. Specific polymer processing operations including extrusion, injection molding, compression molding, fiber spinning and wire coating are covered. Emerging polymer processing applications in microelectronics, biomedical devices and recycling are also discussed.
One-term course offered either term
Prerequisites: ME 302 and 333 or CBE 350 and 351 or equivalent
Activity: Lecture
1 Course Unit

CBE 525 Molecular Modeling and Simulations
Students will explore current topics in thermodynamics through molecular simulations and molecular modeling. The requisite statistical mechanics will be conveyed as well as the essential simulation techniques (molecular dynamics, Monte Carlo, etc.). Various approaches for calculating experimentally measurable properties will be presented and used in student projects.
Course usually offered in fall term
Prerequisite: CBE 231 or 618 or equivalent background in physical chemistry
Activity: Lecture
1 Course Unit

CBE 535 Interfacial Phenomena
This course provides an overview of fundamental concepts in colloid and interface science. Topics include the thermodynamics of interfaces, interfacial interactions (e.g. van der Waals interactions, electrostatics, steric interactions), adsorption, the hydrodynamics and stability of interfacial systems, self assembly, etc. Connections to self-assembly and directed assembly of nanomaterials and emerging topics are explored.
Pre-requisites: undergraduate thermodynamics, some familiarity with concepts of transport phenomena (including fluid flow and mass transfer) and differential equations
One-term course offered either term
Activity: Lecture
1 Course Unit

CBE 510 Polymer Engineering
Polymer is one of the most widely used materials in our daily life, from the rubber tires to clothes, from photoresists in chip manufacturing to flexible electronics and smart sensors, from Scotch tapes to artificial tissues. This course teaches entry-level knowledge in polymer synthesis, characterization, thermodynamics, and structure-property relationship. Emphasis will be on understanding both chemical and physical aspects of polymers, polymer chain size and molecular interactions that drive the microscopic and macroscopic structures and the resulting physical properties. We will discuss how to apply polymer designs to advance nanotechnology, electronics, energy and biotechnology. Case studies include thermodynamics of block copolymer thin films and their applications in nanolithography, shape memory polymers, hydrogels, and elastomeric deformation and applications.
Course usually offered in spring term
Also Offered As: CBE 430, MSE 430
Prerequisites: MSE 260 or equivalent course in Thermodynamics or Physical Chemistry (such as BE 223, CBE 231, CHEM 221, MEAM 203)
Activity: Lecture
1 Course Unit
CBE 540 Biomolecular and Cellular Engineering
This course will introduce concepts and methods for the quantitative understanding of molecular and cellular phenomena. Topics include molecular recognition, receptor-ligand binding, viral infection, signal transduction, cell adhesion, motility, and cytoskeletal dynamics. The course requires mathematics at the level of differential equations, and some knowledge of Matlab programming. A basic knowledge of cell biology is suggested, although not required.
One-term course offered either term
Also Offered As: BE 540
Activity: Lecture
1 Course Unit

CBE 541 Engineering and Biological Principles in Cancer
This course provides an integrative framework and provides a quantitative foundation for understanding molecular and cellular mechanisms in cancer. The topics are divided into three classes: (1) the biological basis of cancer; (2) cancer systems biology; and (3) multiscale cancer modeling. Emphasis is placed on quantitative models and paradigms and on integrating bioengineering principles with cancer biology.
Course usually offered in spring term
Also Offered As: BE 541
Prerequisite: Senior standing or permission of the instructor
Activity: Lecture
1 Course Unit

CBE 543 Sust Dev/Water Res Sys
The evaluation of technical, social and economic constraints on the design of water supply and sanitation projects. The focus on sustainable design emphasizes how technical solutions fit within the appropriate social context. Case studies are used to demonstrate these principles across a range of examples from developed and developing countries including detailed studies from rural communities with limited resources.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CBE 544 Computational Science of Energy and Chemical Transformations
Our theoretical and computational capabilities have reached a point where we can do predictions of materials on the computer. This course will introduce students to fundamental concepts and techniques of atomic scale computational modeling. The material will cover electronic structure theory and chemical kinetics. Several well-chosen applications in energy and chemical transformations including study and prediction of properties of chemical systems (heterogeneous, molecular, and biological catalysts) and physical properties of materials will be considered.
This course will have modules that will include hands-on computer lab experience and teach the student how to perform electronic structure calculations of energetics which form the basis for the development of a kinetic model for a particular problem, which will be part of a project at the end of the course.
One-term course offered either term
Prerequisites: Thermodynamics, Kinetics, Physical Chemistry, Quantum Mechanics. Undergraduates should consult and be given permission by the instructor.
Activity: Lecture
1 Course Unit

CBE 545 Electrochemical Energy Conversion and Storage.
Fuel cells, electrolysis cells, and batteries are all electrochemical devices for the interconversion between chemical and electrical energy. These devices have inherently high efficiencies and are playing increasingly important roles in both large and small scale electrical power generation, transportation (e.g. hybrid and electric vehicles), and energy storage (e.g. production of H2 via electrolysis). This course will cover the basic electrochemistry and materials science that is needed in order to understand the operation of these devices, their principles of operation, and how they are used in modern applications.
One-term course offered either term
Prerequisites: Introductory chemistry and an undergraduate course in thermodynamics (e.g. CBE 231, MEAM 203)
Activity: Lecture
1 Course Unit

CBE 546 Fundamentals of Industrial Catalytic Processes
A survey of heterogeneous catalysis as applied to some of the most important industrial processes. The tools used to synthesize and characterize practical catalysts will be discussed, along with the industrial processes that use them.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CBE 554 Engineering Biotechnology
Advanced study of re DNA techniques; bioreactor design for bacteria, mammalian and insect culture; separation methods; chromatography; drug and cell delivery systems; gene therapy; and diagnostics.
Course usually offered in spring term
Also Offered As: BE 554
Activity: Lecture
1 Course Unit
CBE 555 Nanoscale Systems Biology
Nanoscience and engineering approaches to systems in biology are of growing importance. They extend from novel methods, especially microscopies that invite innovation to mathematical and/or computational modeling which incorporates the physics and chemistry of small scale biology. Proteins and DNA, for example, are highly specialized polymers that interact, catalyze, stretch and bend, move, and/or store information. Membranes are also used extensively by cells to isolate, adhere, deform, and regulate reactions. In this course, students will become familiar with cell & molecular biology and nanobiotechnology through an emphasis on nano-methods, membranes, molecular machines, and ‘polymers’ - from the quantitative perspectives of thermodynamics, statistical physics, and mechanics. We specifically elaborate ideas of energetics, fluctuations and noise, force, kinetics, diffusion, etc. on the nano-thru micro-scale, drawing from very recent examples in the literature. Laboratory experiments will provide hands-on exposure to microscopies in a biological context (eg. fluorescence down to nano-scale, AFM), physical methods (eg. micromanipulation, tracking virus-scale particles or quantum dots), and numerical problems in applied biophysics, chemistry, and engineering. A key goal of the course is to familiarize students with the concepts and technology (plus their limitations) as being employed in current research problems in nanoscale systems biology, extending to nanobiotechnology.

Taught by: Discher
Course usually offered in fall term
Also Offered As: BE 555
Prerequisites: Background in Biology, Physics, Chemistry or Engineering with coursework in Thermodynamics or permission of the instructor.
Activity: Lecture
1 Course Unit

CBE 557 Stem Cells, Proteomics and Drug Delivery - Soft Matter Fundamentals
Lectures on modern topics and methods in cell and molecular biology and biomedicine from the perspective of soft matter science and engineering. Discussions and homeworks will cover soft matter related tools and concepts used to 1) isolate, grow, and physically characterize stem cells, 2) quantify biomolecular profiles, 3) deliver drugs to these cells and other sites (such as tumors with cancer stem cells) will be discussed. Skills in analytical and professional presentations, papers and laboratory work will be developed.
Course usually offered in spring term
Prerequisites: Background in Biology, Physics, Chemistry or Engineering
Activity: Lecture
1 Course Unit

CBE 559 Multiscale Modeling of Biological Systems
This course provides theoretical, conceptual, and hands-on modeling experience on three different length and time scales - (1) electronic structure (Å, ps); (2) molecular mechanics (100A, ns); and (3) deterministic and stochastic approaches for microscale systems (um, sec). Students will gain hands-on experience, i.e., running codes on real applications together with the following theoretical formalisms: molecular dynamics, Monte Carlo, free energy methods, deterministic and stochastic modeling.
Course not offered every year
Also Offered As: BE 559
Prerequisites: Undergraduate courses in numeral analysis and statistical mechanics.
Activity: Lecture
1 Course Unit
CBE 602 Statistical Mechanics of Liquids
The course will focus on advanced concepts and methods in statistical mechanics with a particular emphasis on the liquid state, e.g. aqueous solutions, capillarity, polymers, colloids, glasses, amphiphilic self-assembly, etc. Principles of both equilibrium and non-equilibrium statistical mechanics will be discussed and connections to experimentally measurable quantities will be made wherever possible.
One-term course offered either term
Prerequisites: Graduate level course in statistical mechanics (e.g. CBE 618, MSE 575, BE 619, BMB 604, PHYS 581, CHEM 521). An advanced statistical mechanics course (e.g., PHYS 611, CHEM 522) is recommended, but not required.
Activity: Lecture
1 Course Unit

CBE 617 Control of Nonlinear Systems
PID control of nonlinear systems; steady-state, periodic and chaotic attractors. Multiple-input, multiple-output systems; decoupling methods and decentralized control structures. Digital control; z-transforms, implicit model control, impact of uncertainties. Constrained optimization; quadratic dynamic matrix control. Nonlinear predictive control. Transformations for input/output linearized controllers.
Course usually offered in fall term
Also Offered As: ESE 617
Activity: Lecture
1 Course Unit

CBE 618 Advanced Molecular Thermodynamics
This course begins with a brief review of classical thermodynamics, including the development of Maxwell relationships and stability analysis. The remainder of the course develops the fundamental framework of statistical mechanics, then reviews various related topics including ideal and interacting gases, Einstein and Debye models of crystals, lattice models of liquids, and the basis of distribution function theory.
Course usually offered in fall term
Also Offered As: BE 662
Activity: Lecture
1 Course Unit

CBE 621 Advanced Chemical Kinetics and Reactor Design
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CBE 640 Transport Processes I
This course provides a unified introduction to momentum, energy (heat), and mass transport processes. The basic mechanisms and constitutive laws for the various transport processes will be delineated, and the conservation equations will be derived and applied to internal and external flows. Examples from mechanical, chemical, and biological systems will be used to illustrate fundamental concepts and mathematical methods.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CBE 641 Transport Processes II (Nanoscale Transport)
A continuation of CBE 640, with additional emphasis on heat and mass transport. This course aims to teach transport concepts and methods useful in many current CBE laboratory settings. The emphasis will be on microscopic dynamics and transport in both hard and soft systems (e.g. colloids and polymers), of relevance to a variety of biological and biomolecular systems. Wherever possible, will make connections between classical, macroscopic transport, and what is happening microscopically. Will make use of a comination of analytic and algorithmic/numerical methods to facilitate understanding of the material. Physical topics will include stochastic, "single-molecule", non-ideal, hard sphere and frustrated systems, phase transitions, non-equilibrium statistical mechanics and optics. Concepts will include properties of stochastic functions (Gaussian statistics, correlation functions and power spectra), Fourier methods, Convolution, the Central Limit theorem, anomalous diffusion, percolation, and the Fluctuation/Dissipation theorem. Computational methods will concentrate on Monte Carlo simulations of "toy" models.
Course usually offered in spring term
Activity Lecture
1 Course Unit

CBE 700 Special Topics
Lectures on current research problems or applications in chemical engineering. Recent topics have included heat transfer, polymer science, statistical mechanics, and heterogeneous catalysis.
Course not offered every year
Activity: Lecture
1 Course Unit

CBE 899 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

CBE 990 Masters Thesis
For Master's students who have completed the course requirements for the Master's degree and are strictly working to complete the Master's Thesis leading to the completion of a Master's degree. Permission Required.
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

CBE 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit

CBE 999 Thesis/Dissertation Research
For students working on an advanced research program leading to the completion of master's thesis or Ph.D. dissertation requirements. One-term course offered either term
Activity: Independent Study
1 Course Unit
CHEMISTRY (CHEM)

CHEM 010 Academic Based Community Service-Chemistry Outreach
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CHEM 012 Environmental Chemistry
The course aims to teach chemical content and principles in the context of significant environmental issues. Topics to be covered include: composition of the atmosphere; protecting the ozone layer; chemistry of global warming; traditional hydrocarbon fuels and energy utilization; water supply, its contaminants, and waste water treatment; acid rain; nuclear energy; and new energy sources. Students will develop critical thinking ability, competence to better assess risks and benefits, and skills that will lead them to be able to make informed decisions about technology-based matters.
For BA Students: Physical World Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: The course requires math literacy at the high school algebra level (2 years) and a willingness to learn Excel. Students must also have taken one year of high school chemistry.

CHEM 022 Structural Biology
This course will explain in non-mathematical terms how essentially all biological properties are determined by the microscopic chemical properties of proteins. It will also explain how research results, especially those of structural biology, are presented to its various audiences.
For BA Students: Natural Science and Math Sector
One-term course offered either term
Activity: Seminar
0.5 Course Units
Notes: Freshman Seminar

CHEM 025 Freshman Seminar: From Alchemy to Nanoscience
The imperative to transform matter, find its roots in alchemy and the search for the Philosopher's Stone, which was thought to contain the secret of turning base metals into gold and also the secret of immortality. We will examine the evolution of the way in which people have thought about matter and its transformations; from the manufacturing of explosives to dyestuffs to pharmaceuticals and perfumes. We will do some simple experiments that demonstrate some of these principles. We will follow the development of the chemical sciences from the works of early alchemists to Renaissance (Newton and Boyle) scientists and modern thinkers (Priestly, Lavoisier, Dalton, Mendeleev and others). This class, which is designed for non-science as well as potential science majors, will involve discussions on readings, as well as field trips to some Philadelphia locations that are notable in the history of chemistry.
Taught by: Jeffrey Winkler
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CHEM 053 General Chemistry Laboratory I
A general laboratory course covering aspects of qualitative and quantitative analysis, determination of chemical and physical properties, and chemical synthesis.
One-term course offered either term
Activity: Laboratory
0.5 Course Units
Notes: Lab fee $150.

CHEM 054 General Chemistry Laboratory II
Continuation of CHEM 053.
One-term course offered either term
Activity: Laboratory
0.5 Course Units
Notes: Lab fee $150.

CHEM 100 Introduction to General Chemistry
This course is equivalent to Chemistry 101 but is intended for students with less preparation in high school chemistry and mathematics, and moves more methodically through the introductory chapters. The course covers most of the same topics as Chem101 and is designed to provide students with the skills needed to succeed in Chem102. In Chem100 there is a strong emphasis on problem-solving that is fundamental to all physical science. Topics will include: introduction to fundamental chemical ideas and their application to chemical reactions, stoichiometry and ideal gases. Also provided is an overview of the periodic table and classical ideas of chemical bonding using Lewis structures. Quantum theory will be introduced - focusing on its role in understanding atomic structure, the periodic table, and chemical bonding. Topics from mathematics and physics that are necessary to chemical problem-solving will be included as needed.
For BA Students: Physical World Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CHEM 101 General Chemistry I
Basic concepts and principles of chemistry and their applications in chemistry and closely-related fields. The first term emphasizes the understanding of chemical reactions through atomic and molecular structure. This is a university level course, treating the material in sufficient depth so that students can solve chemical problems and can understand the principles involved in their solution. It includes an introduction to condensed matter. This course is suitable for majors or non-majors and is recommended to satisfy either major or preprofessional requirements for general chemistry. This course is presented for students with high school chemistry and calculus. Students with a lesser background than this should take Chemistry 001.
For BA Students: Physical World Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

CHEM 102 General Chemistry II
Continuation of Chemistry 101. The second term stresses the thermodynamic approach to chemical reactions, electrochemical processes, and reaction rates and mechanisms. It includes special topics in chemistry.
For BA Students: Physical World Sector
One-term course offered either term
Prerequisite: CHEM 101
Activity: Lecture
1 Course Unit
CHEM 115 Honors Chemistry I
This course will focus on introducing students to the following topics: the nature of the chemical bond (forces, potentials, and quantum mechanics), covalent and non-covalent interactions, properties of gasses, liquids, and solids. Students in section 001 will be introduced to modern computational chemistry methods and section 002 introduces students to modern experimental techniques.
For BA Students: Physical World Sector
Course usually offered in fall term
Prerequisites: AP Chemistry exam score of 5.
Corequisites: MATH 114 or higher.
Activity: Lecture
1 Course Unit
Notes: Freshman only.

CHEM 116 Honors Chemistry II
An advanced course for students who have had very strong background in Chemistry in High School (AP, IB, or equivalent). Advanced material from the general chemistry curriculum will be covered in the context topics selected from current research areas. A continuation of CHEM 114/115, CHEM 116 will focus on topics in biochemistry and biophysical chemistry relating to thermodynamics, equilibrium, kinetics, and electrochemistry.
For BA Students: Physical World Sector
Course usually offered in spring term
Prerequisites: Advanced High School Chemistry (AP or equivalent).
Activity: Lecture
1 Course Unit

CHEM 221 Physical Chemistry I
Introductory quantum mechanics, atomic and molecular structure, chemical bonding, and microscopic understanding of physical and chemical properties of molecules.
Course usually offered in fall term
Prerequisites: CHEM 102, MATH 114, PHYS 150
Activity: Lecture
1 Course Unit

CHEM 222 Physical Chemistry II
Continuation of CHEM 221. Principles and applications of thermodynamics, and a molecular-based understanding of macroscopic properties.
Course usually offered in spring term
Prerequisites: CHEM 221, PHYS 151
Activity: Lecture
1 Course Unit

CHEM 223 Experimental Physical Chemistry I
Important methods, skills, and apparatus used for the acquisition and interpretation of quantitative information about chemical systems will be discussed in principle and used in the laboratory.
Course usually offered in spring term
Prerequisite: CHEM 221
Activity: Laboratory
1 Course Unit
Notes: Lab fee $300.

CHEM 241 Principles of Organic Chemistry
Fundamental course in organic chemistry based upon the modern concepts of structure and mechanism of reactions.
One-term course offered either term
Prerequisite: CHEM 102
Activity: Lecture
1 Course Unit

CHEM 242 Principles of Organic Chemistry II
Continuation of CHEM 241.
One-term course offered either term
Prerequisite: CHEM 241
Activity: Lecture
1 Course Unit

CHEM 243 Organic Chemistry II: Principles of Organic Chemistry with applications in Chemical Biology
This course is functionally equivalent to Chem 242 as the second term of introductory Organic Chemistry, placing the content in the context of biology and medicine. Topics include: 1) alkyl compounds, ethers, epoxides and sulfides in lipids; 2) carboxylic acids and amines in amino acids; 3) aromatic compounds and heterocycles in nucleic acids; and 4) ketones and aldehydes in carbohydrates. The synthesis and mechanism of action of pharmaceuticals that feature these functional groups will also be discussed. Additionally, Chem 243 makes use of 3D structure tutorials, recitation sections and visits from biomedical scientists who make use of chemistry in their work.
Taught by: Dr. David Chenoweth & Dr. E. James Petersson
Course usually offered in spring term
Prerequisite: CHEM 241
Activity: Lecture
1 Course Unit

CHEM 245 Experimental Organic Chemistry
A basic laboratory course in which both the theoretical and practical aspects of a variety of organic reactions and multistep syntheses are emphasized. Modern chromatographic, instrumental, and spectroscopic techniques are applied to experimental organic chemistry. Course should be taken concurrently with CHEM 242 or 243 or in the semester immediately following. PLEASE NOTE THE FOLLOWING: For the Summer and LPS offering of CHEM 245, it is a 2-semester course. Part 1 is taken in the first term for 0.0 CU and then Part 2 is taken in the second term immediately following the first for 1.0 CU.
One-term course offered either term
Prerequisite: CHEM 241
Corequisite: CHEM 242 or 243
Activity: Laboratory
1 Course Unit
Notes: Lab fee $300.

CHEM 246 Advanced Synthesis and Spectroscopy Laboratory
Advanced laboratory work on the synthesis, structure, and properties of organic and inorganic compounds. Infrared, ultraviolet, and nuclear magnetic resonance spectroscopy. Lectures cover the theoretical basis and applications of modern spectroscopic methods.
Course usually offered in fall term
Prerequisites: CHEM 242 or 243 and 245
Corequisite: CHEM 261 should be taken concurrently or previously completed successfully
Activity: Laboratory
1 Course Unit
Notes: Lab fee $300.
CHEM 251 Principles of Biological Chemistry
Fundamentals of biological chemistry, including the structure of biological macromolecules and their mechanism of action, intermediary metabolism, and the chemical basis of information transfer. Course can be taken concurrently with CHEM 242 or CHEM 243.
One-term course offered either term
Prerequisites: CHEM 102 and 241
Corequisites: CHEM 242 or 243.
Activity: Lecture
1 Course Unit

CHEM 261 Inorganic Chemistry I
An introductory survey of the bonding, structure, and reactions of important metal and nonmetal compounds.
Course usually offered in fall term
Prerequisites: CHEM 241 and 242 or 243.
Activity: Lecture
1 Course Unit

CHEM 299 Directed Study and Seminar
Independent project under the direction of a faculty member conducting chemistry research.
One-term course offered either term
Prerequisites: Permission of undergraduate chairman.
Activity: Independent Study
1 Course Unit

CHEM 399 Independent Research
Independent project under the direction of a faculty member conducting chemistry research.
One-term course offered either term
Prerequisites: Permission of undergraduate chairman; a B average in Chemistry, Mathematics, and Physics.
Activity: Independent Study
1 Course Unit

CHEM 441 Organic Reaction Mechanisms
Study of important types of reactions and functional groups, with emphasis on synthetic usefulness, mechanisms, and stereoelectronic principles.
Course usually offered in fall term
Prerequisite: CHEM 242
Activity: Lecture
1 Course Unit

CHEM 443 Modern Organic Synthesis
Introduction to advanced organic synthesis. Study of important synthetic reactions including: oxidations, reductions, and methods for the formation of carbon-carbon bonds, with an emphasis in chemoselectivity, stereoselectivity and asymmetric synthesis. Survey of modern methods for the synthesis of small, medium and large ring systems. Analysis of modern synthetic strategies, with illustrative examples from total synthesis of natural and unnatural products.
Course usually offered in fall term
Prerequisites: CHEM 241 and 242 or 243
Activity: Lecture
1 Course Unit

CHEM 451 Biological Chemistry I
Structure, dynamics, and function of biological macromolecules. Properties of macromolecular assemblies, membranes and their compartments. (Formerly, CHEM 450-I).
Course usually offered in fall term
Prerequisites: CHEM 242 or 243, 221 (may be concurrent), and 251 or permission of instructor
Activity: Lecture
1 Course Unit

CHEM 452 Biological Chemistry II
Physical and chemical description of macromolecular information transfer. Gene organization, replication, recombination, regulation and expression. (Formerly, CHEM 450-II).
Course usually offered in spring term
Prerequisites: CHEM 242 or 243, 221, and 251 or permission of instructor
Activity: Lecture
1 Course Unit

CHEM 462 Inorganic Chemistry II
A detailed treatment of the theory and application of modern physical methods for the elucidation of structure and mechanism in inorganic and organometallic chemistry. An introduction to symmetry and group theory is followed by the application of these concepts to vibrational and electronic spectroscopy of inorganic complexes. Magnetic resonance is discussed in detail, including topics such as EPR, fourier transform methods, dynamic systems, and 2-dimensional NMR.
One-term course offered either term
Prerequisites: CHEM 261 or its equivalent and permission of instructor
Activity: Lecture
1 Course Unit
**CHEM 495 High Throughput Discovery: A Multidisciplinary Approach to Cancer.**
The newly developed massively parallel technologies have enabled the simultaneous analysis of many pathways. There are several large scale international efforts to probe the genetics and drug sensitivity of cancer cell lines. However, there are some rare cancers that have not been analyzed in depth. One of these rare cancers is malignant peripheral nerve sheet tumors (MPNST). MPNST, although a rare cancer, are common in patients with neurofibromatosis type. In the course, students will take part in a high throughput discovery effort in two phases. Phase 1 is a training phase, which will consist of quantitative profiling the sensitivity of MPNST cell lines to a library of >120 common and experimental cancer drugs. These will be conducted in the UPenn High Throughput Screening Core. (http://www.med.upenn.edu/cores/High-ThroughputScreeningCore.shtml). While we call this a training phase, the data from this will be subject to rigorous quality control for eventual publication and development of a public database for rare tumors. Phase 2 is an independent research project. Examples of projects include, but are not limited to: Combinatorial screens (synthetic lethal); siRNA screens; novel compound screens; determining mechanisms of cell death; developing tools for data analysis and database development. During phase 2, students will also modify compounds of interest using the Penn Chemistry: Upenn/Merck High Throughput Experimentation Laboratory (https://www.chem.upenn.edu/content/penn-chemistry-upennmerck-high-throughput-experimentation-laboratory), and then retest them for activity to determine structure activity relationships. We will sponsor phase 2 projects relevant to neurofibromatosis. However, in phase two students can also research other areas if they develop sponsorships from professors. We expect the course to be a hypothesis engine that generates ideas for further research. Prerequisites include a strong foundation in biology and chemistry. Students will prepare an abstract proposal by week three on their phase 2 project, and a report, in scientific paper style, due on the last day of the semester. Taught by: Dr.’s Jeffrey Field, David Schultz, and Simon Berritt
Course usually offered in spring term
Activity: Laboratory
1 Course Unit

**CHEM 524 Quantum Chemistry II**
Approximate methods in quantum theory and applications to molecular systems.
Course usually offered in spring term
Prerequisite: CHEM 523
Activity: Lecture
0.5 Course Units

**CHEM 525 Molecular Spectroscopy**
This course is broken into two sections: (1) optics, and (2) theory of spectroscopy including the discussion of techniques and examples. In the first section you will be introduced to both linear and nonlinear optics, through thinking about how to design optical components in the laboratory setting. The second part of the course is a more traditional spectroscopy course, where different spectroscopies in the visible and infrared spectral region will be discussed. This part of the course will focus on understanding what we can learn from using spectroscopy and what sort of dynamical processes can be observed with different spectroscopic techniques. Topics to be covered include, but are not limited to: optics, time-dependent perturbation theory, lineshapes, density matrix, group theory, selection rules.
One-term course offered either term
Activity: Lecture
0.5 Course Units

**CHEM 526 Chemical Dynamics**
Theoretical and experimental aspects of important rate processes in chemistry.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**CHEM 541 Physical Organic Chemistry**
Undergraduate organic chemistry is a prerequisite. Overview of the principles governing organic bonding, structure, and properties. Quantum calculations as well as laboratory thermodynamic and kinetic measurements used in understanding organic chemical reactions will be surveyed. Mechanisms will be discussed but will not be covered in detail. As such, registration in Chem 441 (Mechanisms) or the completion of it’s equivalent is strongly recommended (see instructor).
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**CHEM 551 Methods for in vivo biochemical discovery**
One-term course offered either term
Activity: Lecture
0.5 Course Units

**CHEM 555 Macromolecular Crystallography: Methods and Applications**
The course is broken up into three parts: (1) Principles of macromolecular X-ray crystallography (2) Workshop on macromolecular structure determination (3) Student presentations on X-ray crystal structures from the recent literature.
Course usually offered in fall term
Also Offered As: BMB 554
Activity: Lecture
1 Course Unit
CHEM 557 Mechanisms of Biological Catalysis
Reaction mechanisms in biological (enzymes, abzymes, ribozymes) and biomimetic systems with emphasis on principles of catalysis, role of coenzymes, kinetics, and allosteric control.
One-term course offered either term
Prerequisites: One year of organic chemistry and a biochemistry course, or permission of instructor
Activity: Lecture
1 Course Unit

CHEM 558 Biomolecular Spectroscopy and Microscopy
One-term course offered either term
Activity: Lecture
0.5 Course Units

CHEM 564 Organometallics
This course is focused on molecular species that contain metal-carbon bonds, and the role of these compounds in catalytic processes and organic synthesis. Aspects of the synthesis, structure and reactivity of important classes of organometallic compounds such as metallo alkyl, aryl, alken, alkyldiene and alkylidyne complexes are surveyed for the d- and f-block metals. Emphasis is placed on general patterns of reactivity and recurring themes for reaction mechanisms.
One-term course offered either term
Activity: Lecture
1 Course Unit

CHEM 565 Main Group Chemistry
This course encompasses a comprehensive survey of the chemistry and properties of the p-block elements of the periodic table. Topics include syntheses, structures and reactivities of important compounds. In addition, alternative bonding theories which have been used to explain the unique properties of these compounds are critically examined.
One-term course offered either term
Activity: Lecture
1 Course Unit

CHEM 566 Bio-inorganic Chemistry
The course covers selected topics in bioinorganic chemistry; special emphasis is placed on dioxygen chemistry and electron transfer processes. Course topics include: (i) oxygen uptake and utilization; (ii) diatomic oxygen trans port; (iii) diatomic and monatomic oxygen incorporation into substrates; (iv) metalloenzyme-catalyzed C-C bond formation; (v) the metallobiochemistry of DNA; (vi) metal-sulfide proteins; (vii) manganese-containing metalloproteins; (viii) Photosystem II: light-driven electron transfer and the biological water-splitting reaction; (ix) biological electron transfer; (x) electron transfer theory; (xi) mechanisms of energy storage and release; and (xii) long-distance electron transfer reactions.
One-term course offered either term
Also Offered As: BMB 567
Activity: Lecture
1 Course Unit

CHEM 601 Chemical Information
This course examines the structure and organization of the chemical literature and introduces techniques of searching this literature, focusing on the logic and thought processes necessary for effective information retrieval. Each technique is illustrated using information tools available at the University of Pennsylvania, and we take an "under the hood" look at the organization and functionality of each tool introduced. Students should choose a course section based on their preferred area of chemistry research: organic, inorganic, biological, and physical chemistry; all four sections are taught at a level appropriate for graduate students and advanced undergraduates. Topics vary by section, but all students learn the basics of subject, author, structure, and reaction searching, and a unit on ethics in publication and scholarly communication completes the course.
One-term course offered either term
Activity: Lecture
0.5 Course Units

CHEM 652 Proposal Writing for Biological and Physical Chemists
Students will learn the key components in proposal writing and develop the skills needed to prepare a compelling and original graduate research proposal. The course involves significant writing, in-class discussions and presentations.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 653 Proposal Writing for Inorganic and Organic Chemists
The ability to communicate original, written research proposals is essential to the modern chemist. This course, for graduate students in the organic and inorganic divisions, will promote development of proposal writing skills. Students will develop original ideas, practice written work, graphic design and peer review. Outcomes of the course will include writing (and submission, when eligible) of an NSF GRFP application and a 'proposed work' section of a candidacy exam report.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 656 Mathematics for Chemistry
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 658 Biomolecular Spectroscopy and Microscopy
One-term course offered either term
Activity: Lecture
0.5 Course Units

CHEM 659 Proposal Writing for Biological and Physical Chemists
Students will learn the key components in proposal writing and develop the skills needed to prepare a compelling and original graduate research proposal. The course involves significant writing, in-class discussions and presentations.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 662 Proposal Writing for Inorganic and Organic Chemists
The ability to communicate original, written research proposals is essential to the modern chemist. This course, for graduate students in the organic and inorganic divisions, will promote development of proposal writing skills. Students will develop original ideas, practice written work, graphic design and peer review. Outcomes of the course will include writing (and submission, when eligible) of an NSF GRFP application and a 'proposed work' section of a candidacy exam report.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 663 Proposal Writing for Biological and Physical Chemists
Students will learn the key components in proposal writing and develop the skills needed to prepare a compelling and original graduate research proposal. The course involves significant writing, in-class discussions and presentations.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 721 Mathematics for Chemistry
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 723 Dynamics of Polymers
This course discussed the structure of polymers from a statistical physics point of view as well as dynamical response of polymeric systems such as mechanical response of polymer melts, polymer glass transition, properties of polymers in solutions, and properties of block copolymers and ionomers.
One-term course offered either term
Activity: Lecture
0.5 Course Units

CHEM 724 Mathematics for Chemistry
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 725 Mathematics for Chemistry
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 726 Mathematics for Chemistry
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

CHEM 727 Mathematics for Chemistry
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
CHEM 741 Spectroscopy
The course will provide a continuation of material covered in Chemistry 441 and Chemistry 541, as well as spectroscopy of organic compounds focused mainly on NMR. Topics will include advanced organic mechanisms, electronic structure calculations of organic molecules related to their structure, reactivity, and spectroscopic properties, and Organic Spectroscopic methods for the determination of structure using NMR.
One-term course offered either term
Prerequisites: CHEM 441 and CHEM 541
Activity: Lecture
0.5 Course Units

CHEM 742 Medicinal Chemistry and Drug Design
This course focuses on concepts and strategies in medicinal chemistry, and how it is applied to modern drug discovery and development. Topics include the drug discovery process, drug targets (GRCR?s, enzymes, channels etc.), physical chemistry of molecular interactions between drug and target, drug design, methods for hit and lead identification, lead optimization, chemical biology, natural products chemistry and combinatorial and diversity oriented synthesis. This course is geared to upper level undergraduate students in chemistry or biochemistry, and first year chemistry graduate students. A strong understanding of organic chemistry is required.
Taught by: Donna Huryn
One-term course offered either term
Activity: Lecture
1 Course Unit

CHEM 743 Heterocyclic Chemistry
The course deals with topics in Heterocyclic Chemistry. It covers nitrogen-containing monocyclic hetero rings, examining the most recent syntheses, the reactions and their mechanisms. The course will focus on recent variations and improvements of known heterocycles as well as their synthetic utility. Students will be expected to read critically a recent article on heterocyclic chemistry and do a presentation to the class.
Taught by: M. Joullie
One-term course offered either term
Activity: Lecture
0.5 Course Units

This class will discuss selected topics related to Bioinspired synthesis, methods, tactics and strategies. Target molecules, methods and strategies are designed by using biological systems as models.
Taught by: Virgil Percec
One-term course offered either term
Activity: Lecture
0.5 Course Units

CHEM 745 Total Synthesis
The focus of this course comprise the development of two synthetic strategies to access architecturally complex natural products of biological significance exploiting innovative chemistry. Lectures towards this end are given. As a project, each student is given a different complex natural product and expected at the end of the course to develop two strategies, one based on asymmetric induction to provide the absolute stereochemical structure, the second where the absolute stereochemistry derives from commercially available starting materials.
Taught by: Amos B. Smith III
One-term course offered either term
Activity: Lecture
0.5 Course Units

CHEM 746 Intermediate Organic Chemistry
This course will include a review of basic reaction mechanisms, stereoelectronic effects, functional groups and acid-base chemistry. The course will emphasize the writing of mechanisms using the curved-arrow notation and organic reactions. Bonding and electronic structure theories and more involved mechanisms will be discussed. Students are expected to have a good working knowledge of reactions, functional groups, stereochemistry and mechanisms from undergraduate organic chemistry. Students will be expected to review basic concepts in Organic Chemistry and spectroscopy. The course will include lectures and recitations, and students are expected to attend and participate.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: MCS and PhD students only.

CHEM 751 Chemical Biology
This course focuses on current topics in Chemical Biology, particularly experiments in which 1) chemical synthesis enables one to probe or control biological systems, or 2) manipulation of biological systems facilitates novel chemical syntheses. The course is broadly divided into two sections, one dealing with the study of individual proteins and nucleic acids, and one dealing with complex cellular systems. As the goal of the course is to familiarize students with innovative recent experimental approaches and to stimulate them to conceive of their own new methodology, students will be responsible for delivering presentations on topics selected from the literature, designing experiments to address currently unsolved problems in Chemical Biology (in take-home examinations), and generating several novel research proposal ideas, one of which will be elaborated into a full proposal.
Taught by: EJ Petersson
One-term course offered either term
Also Offered As: BMB 751
Activity: Lecture
1 Course Unit

CHEM 761 Coordination Chemistry
Ligands have a remarkable ability to alter the properties of metal ions, and the study of this coordination chemistry underlies many modern advances in science, including energy harvesting and storage, chemical catalysis, and sustainability. This course explores the relationships between the identities of ligands and the physical manifestations that result from their binding to metal centers. Topics to be covered include: symmetry and chirality in molecular complexes, variations in coordination number, ligand field effects, recent advanced in bonding theory, and inorganic reaction mechanisms.
Taught by: Neil Tomson
One-term course offered either term
Activity: Lecture
0.5 Course Units

CHEM 762 X-ray I
An introduction to the theory and practice of structure determination by X-ray crystallography. Topics discussed include point group and space group symmetry, structure factor theory, data collection methods and a survey of solution methods. The course culminates with a series of real-world structure determinations worked through in-class using the XSeed program package.
Taught by: PCarroll
One-term course offered either term
Activity: Lecture
0.5 Course Units
CHEM 763 X-ray II
Continuation of X-ray I course, CHEM 741
Taught by: P.Carroll
One-term course offered either term
Prerequisite: CHEM 762
Activity: Lecture
0.5 Course Units

CHEM 764 Materials Chemistry
This course will focus on the structure-property relationships in materials chemistry on length scales from atomic dimension up to the microscale and then core concepts to Chemical design that underpins future, "Energy and Environmental Sustainability." We will introduce the "12 Principles of Green Chemistry" and "12 Principles of Green Engineering" as a guide to modern materials chemistry design and then follow a trajectory that proceeds with increasing length scales of ordering in the solid state. We will introduce techniques of x-ray, neutron, electron, and ion beam based scattering, real space imaging and spectroscopies and use these to explore non-crystalline materials (amorphous, glasses, and time permitting quasicrystals and aperiodic systems) and crystalline solids. Studies will proceed from atomic scales through nanoscale, mesoscale, and micro-scale discussing the emergence of band structure and delocalized electronic and optical properties that emerge due to the finite scale of ordering and influence of the surface. We will then focus on how these foundations of materials chemistry are shaping advances in solar energy utilization with photochemistry and photoelectrochemistry and materials for photovoltaic and enabling advances electrochemical energy conversion and storage.
Taught by: C.Murray
One-term course offered either term
Activity: Lecture
1 Course Unit

CHEM 765 Chemistry of the f-Block Elements
The course encompasses the descriptive chemistry, and topics related to, the f-block including the rare earth metals and actinides. Coverage includes coordination chemistry and periodic trends, electronic structure and magnetism, and modern applications of f-block chemistry including lanthanide ions as spectroscopic probes, separations chemistry, materials chemistry and applications, organo-f-element chemistry, the chemistry of the actinides and transactinides, and reactivity/catalysis with f-block compounds.
Taught by: E.Schelter
One-term course offered either term
Activity: Lecture
0.5 Course Units

CHEM 999 Independent Study and Research
(1) Advanced study and research in various branches of chemistry. (2) Seminar in current chemical research. (3) Individual tutorial in advanced selected topics.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: May be taken for multiple course unit credit
CHINESE (CHIN)

CHIN 001 First Year Spoken Chinese I
This course is designed for students who have little or no previous exposure to Chinese. The main objective of the course is to help students develop their listening and speaking skills. The emphasis is on correct pronunciation, accurate tones and mastery of basic grammatical structures. By the end of the semester, students will be able to manage many situations that have immediate concern to them, such as relating one’s personal life and experiences, expressing preferences and feelings, ordering meals, purchasing goods, asking for directions. Chinese characters will not be taught.
For BA Students: Language Course
Taught by: Dietrich
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: See LPS Course Guide. ** This course fulfills LPS language requirement only. It does not fulfill the language requirement for other colleges.

CHIN 002 First Year Spoken Chinese II
A continuation of CHIN001. This course is to help students develop their listening and speaking skills. The emphasis is on correct pronunciation, accurate tones and mastery of basic grammatical structures. By the end of the semester, students will be able to manage many situations that have immediate concern to them, such as relating one’s personal life and experiences, expressing preferences and feelings, ordering meals, purchasing goods, asking for directions. To achieve this goal, the class is to be conducted in Chinese as much as possible. Chinese characters will also be introduced, but will not be the focus of the class.
For BA Students: Language Course
Taught by: Dietrich
Course usually offered in spring term
Prerequisites: CHIN001 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: See LPS Course Guide. ** This course fulfills LPS language requirement only. It does not fulfill the language requirement for other colleges.

CHIN 003 Second Year Spoken Chinese I
This course is designed for students who have completed one year of college level Chinese classes or equivalent. The main objective of the course is to improve students’ conversational ability in Chinese. By the end of the second semester, students will reach the survival level, namely, they can accomplish the basic day to day tasks encountered by visitors as well as the local people. These tasks include relating one’s personal life and experiences, expressing preference, feeling and opinion, ordering a meal, purchasing goods, asking directions, making travel plans, visiting a doctor, attending a social function and so forth. Short Chinese movies or television shows will be integrated into the course curriculum. Chinese character will not be taught.
For BA Students: Language Course
Taught by: Dietrich
Course usually offered in fall term
Prerequisites: CHIN002 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: See LPS Course Guide. ** This course fulfills LPS language requirement only. It does not fulfill the language requirement for other colleges.

CHIN 004 2nd Year Spoken Chinese II
This course is the continuation of CHIN003. The primary goal of the course is to improve students’ conversational ability in Chinese. By the end of the semester, students will reach the survival level, namely, they can accomplish the basic day to day tasks encountered by visitors as well as the local people. These tasks include relating one’s personal life and experiences, expressing preference, feeling and opinion, ordering a meal, purchasing goods, asking directions, making travel plans, visiting a doctor, attending a social function and so forth. Short Chinese movies or television shows will be integrated into the course curriculum. Chinese character will not be taught.
Taught by: Dietrich
Course usually offered in spring term
Prerequisites: CHIN003 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: See LPS Course Guide. ** This course fulfills LPS language requirement only. It does not fulfill the language requirement for other colleges.

CHIN 011 Beginning Modern Chinese I
Along with CHIN012, CHIN111 and CHIN112, this is the first course of a four-semester sequence. By completing all four semesters, students fulfill the College language requirement. The sequence starts each fall. Students cannot begin their study in the spring. This course is designed primarily for students who have little or no prior exposure to Chinese. The objective of the course is to help students build a solid foundation of the four basic skills—listening, speaking, reading, and writing in an interactive and communicative learning environment. The emphasis is on correct pronunciation, accurate tones and mastery of basic grammatical structures. By the end of the second semester, students will be able to manage many situations that have immediate concern to them, such as relating one’s personal life and experiences, expressing preferences and feelings, ordering meals, purchasing goods and asking for directions. This course is designed primarily for students who have little or no prior exposure to Chinese. The objective of the course is to help students build a solid foundation of the four basic skills—listening, speaking, reading, and writing in an interactive and communicative learning environment. The emphasis is on correct pronunciation, accurate tones and mastery of basic grammatical structures. By the end of the second semester, students will be able to manage many situations that have immediate concern to them, such as relating one’s personal life and experiences, expressing preferences and feelings, ordering meals, purchasing goods and asking for directions. In order to achieve these goals, students are expected to thoroughly preview and review the materials according to the weekly lesson plan (on course website) prior to attending class. Regular attendance is mandatory and strictly monitored.
For BA Students: Language Course
Taught by: Dietrich
Course usually offered in fall term
Activity: Lecture
1 Course Unit

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CHIN 012 Beginning Modern Chinese II
This course is the continuation of CHIN 011. The objective of the course is to help students build a solid foundation of the four basic skills—listening, speaking, reading, and writing in an interactive and communicative learning environment. The emphasis is on correct pronunciation, accurate tones and mastery of basic grammatical structures. By the end of the second semester, students will be able to manage many situations that have immediate concern to them, such as relating one’s personal life and experiences, expressing preferences and feelings, ordering meals, purchasing goods and asking for directions.
For BA Students: Language Course
Taught by: Dietrich
Course usually offered in spring term
Prerequisites: CHIN011 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Along with CHIN011, CHIN111 and CHIN112, this is the second course in a four-semester sequence. By completing all four semesters, students fulfill the College language requirement.

CHIN 021 Intensive Beginning Modern Chinese I & II
This is a two-semester course covering the same material as CHIN011, CHIN012, CHIN111 and CHIN112. The main objective of the course is to help students build a solid foundation of the four basic skills—listening, speaking, reading, and writing Chinese. By the end of this course and CHIN022, students should achieve the following goals: 1) pronounce all the sounds in Mandarin Chinese accurately and comfortably with a good command of the 4 tones; 2) carry out basic conversations in daily activities; 3) recognize and reproduce approximately 600-650 characters; and 4) read edited simple stories and write short notes or letters. Grammatical and cultural related issues are discussed during lecture hours. Oral communication tasks are given every week.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
2 Course Units
Notes: Designed for students who have had limited prior exposure to some form of Chinese (Mandarin or other dialects), but inadequate to advance to the intermediate level.

CHIN 022 Intensive Beginning Modern Chinese III & IV
Designed for students who have had limited prior exposure to some form of Chinese (Mandarin or other dialects), but inadequate to advance to the intermediate level. The language practiced in Chin 022 will be more formal and written style than that of Chin 021, including more authentic materials reading, listening and viewing.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisites: CHIN021 or permission of the instructor.
Activity: Lecture
2 Course Units
Notes: Designed for students who have had limited prior exposure to some form of Chinese (Mandarin or other dialects), but inadequate to advance to the intermediate level.

CHIN 031 Beginning Reading and Writing in Chinese I (for Fluent Speakers)
The course is designed for students who can speak Chinese but cannot read and write in Chinese characters. The major purpose of this course is to help students develop the ability to use written Mandarin Chinese in linguistically and socially appropriate ways. The literacy goal is to master 350 to 1000 Chinese characters for the beginning phase (CHIN 031); to reach an intermediate-low level of ACTFL literacy proficiency. The key teaching approach is to holistically read a prodigious amount of materials. Students’ reading abilities will be developed through reading short stories under instructions, and eventually through reading long stories and news independently.
For BA Students: Language Course
Taught by: Wu
Course usually offered in fall term
Prerequisites: Restricted to students who can speak Chinese but cannot read or write the language.
Activity: Lecture
1 Course Unit

CHIN 032 Beginning Reading and Writing in Chinese II (for Fluent Speakers)
CHIN 032 is designed for students who can speak Chinese and have reading ability of about 1000 Chinese characters. This Chinese reading and writing course is specifically designed for students at the ACTFL intermediate-low reading and writing level. The literacy goal is to master 1000 to 2000 Chinese words and reach the intermediate-mid proficiency level. Reading material covers topics that are meaningful to students not only to increase engagement and confidence in their Chinese reading skills, but also foster students’ apprehension and understanding of the Chinese deep culture.
For BA Students: Last Language Course
Taught by: Wu
Course usually offered in spring term
Prerequisites: CHIN 031 or permission of the instructor.
Activity: Lecture
1 Course Unit

CHIN 041 Beginning Cantonese I
Beginning Cantonese is a preliminary course for spoken Cantonese. The course provides fundamental aspects of the dialect as experienced in daily life situations and will enable students to communicate in Cantonese for daily life needs, such as making phone calls, making purchases, getting around by various means of transportation, seeing a doctor, being a guest or a host at dinner, talking about the weather, talking about sports and entertainment, etc. The course will be completed in two semesters.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center. This course does not fulfill the College of Arts Sciences’ language requirement.
CHIN 042 Beginning Cantonese II
Begining Cantonese is a preliminary course for spoken Cantonese. The course provides fundamental aspects of the dialect as experienced in daily life situations and will enable students to communicate in Cantonese for daily life needs, such as making phone calls, making purchases, getting around by various means of transportation, seeing a doctor, being a guest or a host at dinner, talking about the weather, talking about sports and entertainment, etc. The course will be completed in two semesters.
Course usually offered in spring term
Prerequisites: CHIN041 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center. This course does not count toward the language requirement in the College of Arts and Sciences.

CHIN 051 Beginning Taiwanese I
Beginning Taiwanese CHIN 051 is designed to help students learn enough daily use Taiwanese to enable students to handle the needs when one travels to Taiwan. At this beginning level, learners will learn to greet others, introduce yourself and handle basic social situations. You will also require the understanding of oral language typically heard in location such as grocery store, train station, and bus stop, restaurant and night market.
Taught by: Wu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

CHIN 052 Beginning Taiwanese II
Beginning Taiwanese II is a continuation of CHIN 051. This course will cover language training as well as cultural topics including history and political aspects of Taiwan. Conversation topics range from daily conversation to professional and formal situations.
For BA Students: Language Course
Taught by: Wu
Course usually offered in spring term
Prerequisites: CHIN 051 or permission of the instructor.
Activity: Lecture
1 Course Unit

CHIN 081 Beginning Business Chinese I
The course is designed for juniors and seniors, and Penn working professionals who have no prior exposure to Chinese, and are interested in learning basic Chinese language and culture for the preparation of a business trip to China. The objective of this course is to build an understanding of foundation of basic Chinese in the business context, with a main focus on speaking and listening and minimal reading. Upon completion, students are expected to be able to converse and interact with people in a variety of traveling settings and in company visits. Topics in the course units include meeting people, talking about family, introducing companies, making inquiries and appointments, visiting company, introducing products, initiating dining invitations and practicing dining etiquette.
For BA Students: Language Course
Course not offered every year
Prerequisites: This course does not fulfill the language requirement in the College. First meeting mandatory.
Activity: Lecture
1 Course Unit

CHIN 082 Online Beg Bus Chin II
As a continuation of CHIN081, this course is to help students develop their listening and speaking skills as well as understanding of Chinese business development, correct pronunciation, accurate tones and mastery of basic grammatical structures.
Course usually offered in spring term
Prerequisite: CHIN 081
Activity: Lecture
0 Course Units

CHIN 111 Beginning Chinese III (Non-Intensive)
Along with CHIN011, CHIN012 and CHIN112, this is the third course in a four-semester sequence. The objective of the course is to continue building a solid foundation of the four basic skills—listening, speaking, reading and writing. By the end of this course, students should achieve the following goals: 1) pronounce all the sounds in Mandarin accurately and comfortably with a good command of the four tones; 2) carry out simple dialogues of familiar topics; 3) recognize and reproduce approximately 450-500 characters; and 4) read short textbook stories and write simple notes. In order to develop students’ listening and speaking ability, oral communication tasks are given on each lesson.
For BA Students: Language Course
Course usually offered in fall term
Prerequisites: Completion of CHIN012 or the equivalent or permission of the instructor.
Activity: Lecture
1 Course Unit

CHIN 112 Beginning Chinese IV
Along with CHIN011, CHIN012 and CHIN111, this is the fourth course in a four-semester sequence. The objective of the course is to continue building a solid foundation of the four basic skills—listening, speaking, reading and writing. By the end of this course, students should achieve the following goals: 1) pronounce all the sounds in Mandarin accurately and comfortably with a good command of the four tones; 2) carry out simple dialogues of familiar topics; 3) recognize and reproduce approximately 600-650 characters; and 4) read short textbook stories and write simple notes. In order to develop students’ listening and speaking ability, oral communication tasks are given every other week.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisite: CHIN 111
Activity: Lecture
1 Course Unit

CHIN 141 Intermediate Cantonese I
Intermediate Cantonese is a course for students who are able to communicate in the dialect in basic survival situations. Through this course the students will acquire a better understanding of Cantonese and its related culture, and can confidently cope with a wide range of situations. Classes will be conducted through Cantonese textbooks, discussions of various topics, and composition and presentation of students’ own dialogues so that in time they may express more complex ideas and feelings. The course will be completed in two semesters.
Course usually offered in fall term
Prerequisites: CHIN042 or equivalent or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.
CHIN 142 Intermediate Cantonese II
Intermediate Cantonese is a course for students who are able to communicate in the dialect in basic survival situations. Through this course the students will acquire a better understanding of Cantonese and its related culture, and can confidently cope with a wide range of situations. Classes will be conducted through Cantonese textbooks, discussions of various topics, and composition and presentation of students’ own dialogues so that in time they may express more complex ideas and feelings. The course will be completed in two semesters.
Course usually offered in spring term
Prerequisite: CHIN 141
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

CHIN 151 Intermediate Taiwanese I
In Chin 151, the students will be able to communicate with ease and confidence when dealing with everyday routine tasks. Students will also gain skills to process and seek information in Taiwanese. Conversation topics include New Year, folk songs, and Tang poetry. Authentic materials are used for enhancing reading, listening, and speaking practices.
Taught by: Wu
Course usually offered in fall term
Prerequisite: CHIN052
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

CHIN 152 Intermediate Taiwanese II
Course usually offered in spring term
Prerequisite: CHIN 151
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

CHIN 211 Intermediate Modern Chinese I
This is an intermediate language course. It aims to develop students’ overall linguistic skills in listening, speaking, reading, and writing Chinese. The specially designed textbook gives introduction to various topics on Chinese culture. Students can expect to gain knowledge about China while they are learning the language. By completion of the course, students are expected to be able to master 1200 most frequently used characters in common reading materials, and to communicate with Chinese on
Taught by: Lee
Course usually offered in fall term
Prerequisites: CHIN112 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Restricted to fluent speakers who have only limited reading and writing abilities.

CHIN 212 Intermediate Modern Chinese II
This course is the continuation of CHIN 211. It aims to further develop students’ overall language skills. The textbook will introduce various topics related to Chinese culture, society, economy, people and their everyday life as well as China’s development since Deng Xiaoping’s reform and opening-up policies in 1978. In class, current issues in China will be integrated to provide a new perspective for discussion. The emphasis is not only to consolidate students’ foundation, but also enhance their understanding and distinguish different levels of language. Over the semester, students will have many opportunities to express and share their opinions on various topics related to China via communicative activities, presentations, and written assignments.
Taught by: Lee
Course usually offered in spring term
Prerequisites: CHIN 211 or permission of the instructor.
Activity: Lecture
1 Course Unit

CHIN 231 Intermediate Reading and Writing Chinese I (for Fluent Speakers)
CHIN 231 is an intermediate reading and writing course designed for students at the ACTFL intermediate-mid reading and writing proficiency. The goal of this course is to reach the intermediate-high level of proficiency. This course concentrates on writing of multi-paragraph essays through the use of conventional rhetorical modes and standard grammatical structures. Students will be given ample time to think and to discuss (the crucial “brainstorming” phase) before writing. The course stresses content, culture and comparison and draws its content from assigned readings and evidence-based argument from texts and other stimuli such as Internet, newspapers and films.
Taught by: Wu
Course usually offered in fall term
Prerequisites: CHIN 032 or the equivalent or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

CHIN 232 Intermediate Reading and Writing Chinese II (for Fluent Speakers)
This is an intermediate language class presuming basic fluency in speaking and listening and focusing on reading and writing abilities. By the end of the semester students are expected to have mastered the 1200 most commonly used characters and to have the ability to read basic Chinese texts. Students will be prepared for Advanced Modern Chinese, Media Chinese and Business Chinese.
Taught by: Wu
Course usually offered in spring term
Prerequisites: CHIN 231 or permission of the instructor.
Activity: Lecture
1 Course Unit
**CHIN 311 Advanced Modern Chinese I**
Students learn to work on materials which were written or produced for native speakers, instead of the classroom materials that were written for the non-native speakers. The reading materials include a larger vocabulary with more idioms. Students will also learn how to understand and use certain oral expressions in conversation. They will learn ways to narrate, to describe, and to comment in native Chinese ways. Reading and audio materials are provided and discussed in the classes. Writing and oral presentations in Chinese are required in classroom under instruction. Students will be encouraged to practice oral communication with each other. 
For BA Students: Advanced Language Course 
Course usually offered in fall term 
Prerequisites: CHIN 212 or permission of the instructor. 
Activity: Lecture 
1 Course Unit 

**CHIN 312 Advanced Modern Chinese II**
Chin 312 is a continuation of Chinese 311, training speaking, listening, reading and writing skills so to reach the advanced-low or advanced-mid level of proficiency. Major topics of the course include Chinese food culture, Chinese architecture, Confucianism in modern China, "educated youth", democracy, and cross-Taiwan Strait relations. 
For BA Students: Advanced Language Course 
Taught by: Jiao 
Course usually offered in spring term 
Prerequisites: CHIN 311 or permission of the instructor. 
Activity: Lecture 
1 Course Unit 

**CHIN 331 CHINESE SHORT STORIES**
Designed for students with advanced level Chinese language training but who need some further refinements on pronunciation, grammar, and vocabulary usage, this course stresses oral discussion, composition, and accuracy of language performance. By reading texts written by contemporary writers, students will also gain knowledge of China from an analytical and comparative perspective. 
Taught by: Chiang 
One-term course offered either term 
Prerequisites: CHIN 312 or permission of the instructor. 
Activity: Lecture 
1 Course Unit 

**CHIN 361 Media Chinese**
Chin 361 will help students improving their language skills, and enlarge vocabulary through reading online news on Chinese internet. The students will learn formal vocabulary and enhance their grammatical accuracy in the semester. Students are encouraged to explore Chinese government and company websites and Baidu Baike, so to conduct their own online search for both professional and academic purposes. Linguistic features in news headlines, accuracy of online translation tools, media censorship, social media usage will also be discussed in this class. The course goal is to help students gain Chinese media literacy by reading, browsing, and viewing online materials. 
Taught by: Chiang 
One-term course offered either term 
Prerequisites: Completion of CHIN 232, 311, 331 or permission of the instructor. 
Activity: Lecture 
1 Course Unit 

**CHIN 371 Advanced Spoken Mandarin I**
This course is designed for students who have completed at least the intermediate level Chinese language course, or have studied the language for at least three years. The objective of this course is to consolidate the knowledge and skills students have acquired from their previous Mandarin Chinese classes and to enhance their oral expressive skills. By the end of the semester, students are expected to be able to carry on a conversation with a native Mandarin speaker on various common topics, including the current issues in China about its education, society, politics, culture, and history. Students will also learn how to gather information necessary for conducting oral presentations and speeches. 
For BA Students: Advanced Language Course 
Taught by: Lee 
Course usually offered in fall term 
Prerequisites: CHIN 212 or permission of the instructor. 
Activity: Lecture 
1 Course Unit 

**CHIN 372 Advanced Spoken Mandarin II**
Following the format of Advanced Spoken Mandarin I with more discussions on current issues in both China and the US, including topics ranging from race, religion, gender issues to internet, cinema and pop cultures. The objective of this course is to consolidate the knowledge and skills students have acquired from their previous Mandarin Chinese classes and to enhance their oral expressive skills. By the end of the semester, students are expected to be able to carry on a conversation with a native Mandarin speaker on various common topics, and to gather information necessary for conducting oral presentations and speeches. 
For BA Students: Advanced Language Course 
Taught by: Lee 
Course usually offered in spring term 
Prerequisites: CHIN 212 or permission of the instructor. 
Activity: Lecture 
1 Course Unit 

**CHIN 381 Business Chinese I**
This course is aimed to enhance students' language skills in a business context and to promote their understanding about business environment and culture in contemporary China. The text is developed from real business cases from real multinational companies that have successfully embarked on the Chinese market. The forms of classes include lectures, drills on vocabulary and sentence patterns, and discussions. Class will be conducted in Chinese. In addition to the course textbook, students will learn to read business news in Chinese selected from Wall Street Journal. 
For BA Students: Advanced Language Course 
Taught by: Wang 
Course usually offered in fall term 
Prerequisites: CHIN 232, 312 or permission of the instructor. 
Activity: Lecture 
1 Course Unit
CHIN 382 Business Chinese II
This course is the second half of a one-year course for business oriented subjects. This course will provide an overview of China's changing macro-environment, while real business cases let us look into individual Chinese companies and their development in the new millennium. By the end of the semester, students are expected to 1) enhance the cultural awareness of contemporary China and the Chinese business world; 2) gain vocabulary and fluency in Chinese to function more confidently and comfortably in real business settings; 3) access business news and information in Chinese; 4) give business presentation in Chinese.
For BA Students: Advanced Language Course
Taught by: Dietrich
Course usually offered in spring term
Prerequisites: CHIN 312, 361, 381 or permission from the instructor.
Activity: Lecture
1 Course Unit

CHIN 411 Readings in Modern Chinese: Literature
This course is designed for students who have completed three years of college level Mandarin classes or equivalent. This course may be used to fulfill language or elective requirement for Chinese major or minor. The objectives of the course are 1) to help students gain an in-depth, multi-faceted and critical understanding of Chinese people, Chinese society and Chinese culture; 2) to facilitate students' acquisition of formal or written language; and 3) to develop students' analytical and critical thinking skills. These objectives are achieved primarily through 1) close reading and discussion of original literary texts by 20th-century Chinese writers; and 2) regular writing exercises. Students will also view several Chinese films that are related to the topics of the reading text. The class is to be conducted exclusively in Chinese.
Taught by: Dietrich
Course usually offered in fall term
Prerequisites: CHIN 331, 361, 382 or permission of the instructor.
Activity: Lecture
1 Course Unit

CHIN 412 Readings Modern Chinese II: Literature
The main difference between this course and CHIN 411 is the reading materials and topics. This course is designed for students who have completed a minimum of three years of college level Mandarin classes or equivalent. This course may be used to fulfill language or elective requirement for Chinese major or minor. The objectives of the course are 1) to help students gain an in-depth, multi-faceted and critical understanding of Chinese people, Chinese society and Chinese culture; 2) to facilitate students' acquisition of formal or written language; and 3) to develop students' analytical and critical thinking skills. These objectives are achieved primarily through 1) close reading and discussion of original literary texts by 20th-century Chinese writers; and 2) regular writing exercises. Students will also view several Chinese films that are related to the topics of the reading text. The class is to be conducted exclusively in Chinese.
Taught by: Dietrich
Course usually offered in spring term
Prerequisites: CHIN 331, 361, 382 or permission of the instructor.
Activity: Lecture
1 Course Unit

CHIN 415 Readings Modern Chinese Documents
The main purpose of this content-based course is to promote advance-level language proficiency in reading, writing, speaking and listening. Through the use of modern Chinese documents, the secondary purpose of this course is to facilitate your understanding of the changes of Chinese society in the 20th century. Topics will include the Constitution of China, China's legal system, speeches by Mao Zedong, Deng Xiaoping, Sun Yet-sen and Qiu Jin.
Taught by: Chiang
Course not offered every year
Prerequisites: CHIN 361, 381 or permission of the instructor
Activity: Lecture
1 Course Unit

CHIN 481 Advanced Business Chinese I
This content-based course provides students with the conceptual framework to understand issues China has been facing since its economic reform in 1978. Topics include WTO principles, the change of China's state-owned enterprises, China's economy in Mao's period, and the pros and cons of globalization. Students will be trained in reading financial articles, discussing international trades, conducting online research and giving business presentations. After the course, students will become more sophisticated in their understanding of China's economic development and in using Chinese business terminology at professional settings. The course assumes basic background in business and advanced level proficiency in Chinese language. The course is NOT open to freshman with no undergraduate business course.
For BA Students: Advanced Language Course
Taught by: Chiang
Course usually offered in fall term
Prerequisites: CHIN 382 or equivalent or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: May be offered through Penn Language Center.

CHIN 482 Advanced Business Chinese II
Chin 482 is a continuation of Chin 481. Following the format of Chin 481, Advanced Business Chinese I, this course covers topics on Eastern and Western management styles, the global financial market, China's financial market reforms, and mergers and acquisitions in China. At the end of the semester, students will submit a business proposal for the final project.
For BA Students: Advanced Language Course
Taught by: Chiang
Course usually offered in spring term
Prerequisites: CHIN 481 or permission of the instructor.
Activity: Lecture
1 Course Unit

CHIN 491 First Year Classical Chinese I
Introduction to the classical written language, beginning with Shadick, First Course in Literary Chinese. Students with a background in Japanese, Korean, Cantonese, Taiwanese, and other East Asian languages are welcome; it is not necessary to know Mandarin. The course begins from scratch, and swiftly but rigorously develops the ability to read a wide variety of classical and semi-classical styles. Original texts from the 6th century BC to the 20th century AD are studied. This course is taught in English and there are no prerequisites.
Taught by: Mair
Course usually offered in fall term
Activity: Lecture
1 Course Unit
**CHIN 492 1st Year Classical Chin II**
Continuation of CHIN491 EALC221/621, which is the only prerequisite for this course. Upon completion of Shadick, readings in a wide selection of texts with Chinese commentaries may be taken up. These readings are in part chosen to reflect student interest. This is the second half of a year-long course. Those who enroll must take both semesters.
Taught by: Mair
Course usually offered in spring term
Prerequisite: CHIN491
Activity: Lecture
1 Course Unit

**CHIN 510 Topics in Chinese Culture**
The objective of this superior level content-based course is to extend and refine students’ language and analytical skills while enhancing the appreciation of Chinese culture. The course is for students with native-like competence in Mandarin. Each class will proceed from reading, reflection, and interpretation, to the exchange of ideas. All reading materials are in Chinese with no glossary and all are written by scholars whose expertise are wither in contemporary and traditional culture of China, or in comparative study of Chinese and Western thoughts. Topics include: (1) the shared beliefs and behaviors of Chinese people; (2) traditional values and new values in the technological and business society; (3) how affection and love are manifested in Chinese culture; (4) what influenced the surge of popularity of Chinese wuxia fiction; (5) what it meant to be descendants of Chinese (huayi) living outside China. The class is conducted exclusively in Mandarin Chinese.
Taught by: Chiang
Course usually offered in spring term
Prerequisites: CHIN 411, 481 or permission of the instructor
Activity: Lecture
1 Course Unit

**CHIN 515 Topics in Chinese Literature**
This course surveys the literary movements of the post-Cultural Revolution era (1978-present). The reading consists of fictional works representative of each literary movement. Students will write four short (1-2 pages, double space) “responding” papers and two longer critical essays (5-7 pages double spaced). Each student will also give one oral presentation to the class on an assigned story. This course is designed for students who have achieved native or near native level of reading and writing proficiency in Chinese. The class is conducted exclusively in Chinese.
Taught by: Dietrich
Course not offered every year
Prerequisites: CHIN 411, CHIN 412, CHIN 415, 481, 482 or permission of the instructor.
Activity: Lecture
1 Course Unit

**CHIN 722 Adv Classical Chinese II**
Course usually offered in spring term
Activity: Seminar
1 Course Unit
CINEMA AND MEDIA STUDIES (CIMS)

CIMS 014 Adaptations: From Paper To Screen
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 015 Freshman Seminar in Cinema and Media Studies
This topic course explores aspects of Cinema and Media Studies intensively. Specific course topics vary from year to year. See the Cinema Studies website <cinemastudies.sas.upenn.edu/> for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 016 Freshman Seminar in Cinema and Media Studies
This topic course explores aspects of Cinema and Media Studies intensively. Specific course topics vary from year to year. See the Cinema Studies website <cinemastudies.sas.upenn.edu/> for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 024 Introduction to American and British Film and Media
This topic course explores multiple and different aspects of Cinema Studies. Specific course topics vary from year to year. See the Cinema Studies website at cinemastudies.sas.upenn.edu/courses for a description of the current offerings.
Taught by: Decherney
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 036 The Middle East through Many Lenses
This freshman seminar introduces the contemporary Middle East by drawing upon cutting-edge studies written from a variety of disciplinary perspectives. These include history, political science, and anthropology, as well as studies of mass media, sexuality, religion, urban life, and the environment. We will spend the first few weeks of the semester surveying major trends in modern Middle Eastern history. We will spend subsequent weeks intensively discussing assigned readings along with documentary films that we will watch in class. The semester will leave students with both a foundation in Middle Eastern studies and a sense of current directions in the field.
Taught by: Sharkey H
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 039 Perspectives on International Cinema (Cannes Film Festival)
Penn-in-Cannes is designed for students interested in the film industry and international cinema. Using the Cannes Film Festival as its focal point, the program examines the ways in which international film functions in the context of celebrity, marketing, and festivals. The scope and substance of the festival provide a unique opportunity, not only for students of cinema, but also for liberal arts students studying cultural diversity and international relations. In preparation for fieldwork at the Cannes Film Festival in May, two three-hours introductory lectures will be held in late March and April on Penn's campus to enable students to establish a critical vocabulary for film study. The lectures and subsequent discussions will examine: a) The Business and Art of the Film Festival; b) Contemporary International Cinema. Those introductory lectures will be coordinated with the Philadelphia Film Festival, which is held on April 5-18, 2007. During both the Philadelphia Film Festival and the Cannes Film Festival, students attend screenings of current international films, applying the critical tools and knowledge of the film industry gained from their earlier work. Students research and critique both the artistic aspects and the commercial p
Course usually offered summer term only
Activity: Seminar
1 Course Unit

CIMS 061 Video I
This course provides students with the introductory skills and concepts related to producing short works that explore the language of the moving image. Students will learn the basics of cinematography and editing through a series of assignments designed to facilitate the use of the medium for artistic inquiry, cultural expression and narrative storytelling, through both individual and group projects.
For BA Students: Humanities and Social Science S
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 062 Video II
Video II offers opportunities to further explore the role of cinematic narrative technique, non-narrative forms, digital video cinematography, editing, and screen aesthetics. Through a series of several video projects and a variety of technical exercises, students will refine their ability to articulate technically and conceptually complex creative projects in digital cinema. In addition, one presentation on a contemporary issue related to the application of cinematic storytelling and/or the cultural context of digital video is required.
Taught by: Reynolds/Novack
One-term course offered either term
Prerequisite: CINE 061 / FNAR 061
Activity: Seminar
1 Course Unit
CIMS 063 Documentary Video
Documentary Video is an intensive production course involving the exploration of concepts, techniques, concerns, and aesthetics of the short form documentary. Building on camera, sound, and editing skills acquired in Video I, students will produce a portfolio of short videos and one longer project over the course of the semester using advanced level camera and sound equipment. One short presentation on a genre, technique, maker, or contemporary concern selected by the student is required.
Taught by: Reynolds
One-term course offered either term
Prerequisite: CINE 061 / FNAR 061
Activity: Seminar
1 Course Unit

CIMS 065 Cinema Production
This course focuses on the practices and theory of producing narrative based cinema. Members of the course will become the film crew and produce a short digital film. Workshops on producing, directing, lighting, camera, sound and editing will build skills necessary for the hands-on production shoots. Visiting lecturers will critically discuss the individual roles of production in the context of the history of films.
Taught by: Mosley
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 070 Film Sound: History, Aesthetics & Subversion
Sound and Image as experienced in the cinema, are not divisible. One perception influences the other, and transforms it. While a preexisting harmony between these two senses may exist, its conventions are subject to manipulation and the whims of subversion. Film Sound tracks the technological and aesthetic history of sound for film including psychoacoustics, dialogue, music, sound fx and audio s gradual and triumphant march towards fidelity, stereo and surround sound. This course, through an historical and pedagogical romp loaded with examples throughout film history and visits by lauded audio professionals from the film world, seeks to instruct students to engage in the process of sound perception, gaining an appreciation for the art of sound as it relates to the varied phenomenological dimensions of that unique audio-visual encounter we call movies.
Taught by: Novack
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 073 Radical Arts: Literature, Visual Arts, Theater and Cinema in the Americas
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 074 Contemp American Lit: Cont American Lit & Film
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 075 Image and Sound Editing
This course presents an in-depth look at the storytelling power of image and sound in both narrative and documentary motion pictures. Students apply a theoretical framework in ongoing workshops, exploring practical approaches to picture editing and sound design. Students edit scenes with a variety of aesthetic approaches, and create story-driven soundtracks with the use of sound FX, dialogue replacement, foleys, music and mixing. Students not only learn critical skills that expand creative possibilities, but also broaden their understanding of the critical relationship between image and sound.
Taught by: Novack/Novack
One-term course offered either term
Prerequisite: CINE 061/FNAR 061
Activity: Seminar
1 Course Unit

CIMS 081 Film Musc Post 1950 Italy
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 093 Intro Postcolonial Lit: South African Lit/Film
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 101 World Film History to 1945
This course surveys the history of world film from cinema’s precursors to 1945. We will develop methods for analyzing film while examining the growth of film as an art, an industry, a technology, and a political instrument. Topics include the emergence of film technology and early film audiences, the rise of narrative film and birth of Hollywood, national film industries and movements, African-American independent film, the emergence of the genre film (the western, film noir, and romantic comedies), ethnographic and documentary film, animated films, censorship, the MPPDA and Hays Code, and the introduction of sound. We will conclude with the transformation of several film industries into propaganda tools during World War II (including the Nazi, Soviet, and US film industries). In addition to contemporary theories that investigate the development of cinema and visual culture during the first half of the 20th century, we will read key texts that contributed to the emergence of film theory. There are no prerequisites. Students are required to attend screenings or watch films on their own.
For BA Students: Arts and Letters Sector
Taught by: Decherney
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Fulfills the Arts and Letters Sector (All Classes)
CIMS 102 World Film History, 1945-present
Focusing on movies made after 1945, this course allows students to learn and to sharpen methods, terminologies, and tools needed for the critical analysis of film. Beginning with the cinematic revolution signaled by the Italian Neo-Realism (of Rossellini and De Sica), we will follow the evolution of postwar cinema through the French New Wave (of Godard, Resnais, and Varda), American movies of the 1950s and 1960s (including the New Hollywood cinema of Coppola and Scorsese), and the various other new wave movements of the 1960s, 1970s and 1980s (such as the New German Cinema). We will then selectively examine some of the most important films of the last two decades, including those of U.S. independent film movement and movies from Iran, China, and elsewhere in an expanding global cinema culture. There will be precise attention paid to formal and stylistic techniques in editing, mise-en-scene, and sound, as well as to the narrative, non-narrative, and generic organizations of film. At the same time, those formal features will be closely linked to historical and cultural distinctions and changes, ranging from the Paramount Decision of 1948 to the digital convergences that are defining screen culture today. There are no prequisites. Requirements will include readings in film history and film analysis, an analytical essay, a research paper, a final exam, and active participation.
For BA Students: Arts and Letters Sector
Taught by: Corrigan
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Fulfills the Arts and Letters Sector (All Classes)

CIMS 103 Television and New Media
How and when do media become digital? What does digitization afford and what is lost as television and cinema become digitized? As lots of things around us turn digital, have we started telling stories, sharing experiences, and replaying memories differently? What has happened to television and life after New Media? How have television audiences been transformed by algorithmic cultures of Netflix and Hulu? How have (social) media transformed socialities as ephemeral snaps and swiped intimacies become part of the "new" digital/phone cultures? This is an introductory survey course and we discuss a wide variety of media technologies and phenomena that include: cloud computing, Internet of Things, trolls, distribution platforms, optical fiber cables, surveillance tactics, social media, and race in cyberspace. We also examine emerging mobile phone cultures in the Global South and the environmental impact of digitization. Course activities include Tumblr blog posts and Instagram curations. The final project could take the form of either a critical essay (of 2000 words) or a media project.
Taught by: Mukherjee
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CIMS 104 Study of A Period
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

CIMS 104 Study of A Period
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

CIMS 111 Poetics of Screenwriting
This course studies scriptwriting in a historical, theoretical and artistic perspective. We discuss the rules of drama and dialogue, character development, stage vs. screen-writing, adaptation of nondramatic works, remaking of plots, author vs. genre theory of cinema, storytelling in silent and sound films, the evolvement of a script in the production process, script doctoring, as well as screenwriting techniques and tools. Coursework involves both analytical and creative tasks.
Taught by: Todorov
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 112 Study of a Theme
This topic course explores multiple and different aspects of Cinema Studies. Specific course topics vary from year to year. See the Cinema Studies website at cinemastudies.sas.upenn.edu/courses for a description of the current offerings.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

CIMS 116 Screenwriting Workshop
This is a workshop-style course for those who have thought they had a terrific idea for a movie but didn't know where to begin. The class will focus on learning the basic tenets of classical dramatic structure and how this (ideally) will serve as the backbone for the screenplay of the aforementioned terrific idea. Each student should, by the end of the semester, have at least thirty pages of a screenplay completed. Classic and not-so-classic screenplays will be required reading for every class, and students will also become acquainted with how the business of selling and producing one's screenplay actually happens. Students will be admitted on the basis of an application by email briefly describing their interest in the course to the instructor.
Taught by: Kathy DeMarco Van Cleve
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 118 Iranian Cinema: Gender, Politics, Religion
This seminar explores Iranian culture, art, history and politics through film in the contemporary era. We will examine a variety of works that represent the social, political, economic and cultural circumstances of post-revolutionary Iran. Along the way, we will discuss issues pertaining to gender, religion, nationalism, ethnicity, and the function of cinema in present day Iranian society. Films to be discussed will be by internationally acclaimed filmmakers, such as Abbas Kiarostami, Mohsen Makhmalbaf, Rakhshan Bani-Etemad, Tahmineh Milani, Jafar Panahi, Bahman Ghobadi, among others.
Taught by: Entezari
Course not offered every year
Activity: Seminar
1 Course Unit
CIMS 125 Adultery Novel
The object of this course is to analyze narratives of adultery from Shakespeare to the present and to develop a vocabulary for thinking critically about the literary conventions and social values that inform them. Many of the themes (of desire, transgression, suspicion, discovery) at the heart of these stories also lie at the core of many modern narratives. Is there anything special, we will ask, about the case of adultery—once called "a crime which contains within itself all others"? What might these stories teach us about the way we read in general? By supplementing classic literary accounts by Shakespeare, Pushkin, Flaubert, Chekhov, and Proust with films and with critical analyses, we will analyze the possibilities and limitations of the different genres and forms under discussion, including novels, films, short stories, and theatre. What can these forms show us (or not show us) about desire, gender, family and social obligation? Through supplementary readings and class discussions, we will apply a range of critical approaches to place these narratives of adultery in a social and literary context, including formal analyses of narrative and style, feminist criticism, Marxist and sociological analyses of the family, and psychoanalytic understandings of desire and family life.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: All readings and discussions in English.

CIMS 130 Advanced Screenwriting
This is a workshop style course for students who have completed a screenwriting class, or have a draft of a screenplay they wish to improve or want to learn everything in one shot and are ready to do a lot of writing, and even more rewriting.
Taught by: Kathleen DeMarco Van Cleve
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 132 Chinese Cinema
One-term course offered either term
Activity: Lecture
1 Course Unit

CIMS 151 Contemporary Fiction & Film in Japan
This course will explore fiction and film in contemporary Japan, from 1945 to the present. Topics will include literary and cinematic representation of Japan's war experience and post-war reconstruction, negotiation with Japanese classics, confrontation with the state, and changing ideas of gender and sexuality. We will explore these and other questions by analyzing texts of various genres, including film and film scripts, novels, short stories, manga, and academic essays. Class sessions will combine lectures, discussion, audio-visual materials, and creative as well as analytical writing exercises. The course is taught in English, although Japanese materials will be made available upon request. No prior coursework in Japanese literature, culture, or film is required or expected; additional secondary materials will be available for students taking the course at the 600 level. Writers and film directors examined may include: Kawabata Yasunari, Hayashi Fumiko, Abe Kobo, Mishima Yukio, Oe Kenzaburo, Yoshimoto Banana, Ozu Yasujirō, Naruse Mikio, Kurosawa Akira, Imamura Shôhei, Koreeda Hirokazu, and Beat Takeshi.
For BA Students: Arts and Letters Sector
Taught by: Kano
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 159 Modern Hebrew Literature and Culture in Translation
This topic course explores aspects of Hebrew Literature, Film, and Culture. Specific course topics vary from semester to semester. See the Cinema and Media Studies website for a description of the current offerings
For BA Students: Arts and Letters Sector
Taught by: Gold
One-term course offered either term
Activity: Lecture
1 Course Unit

CIMS 164 Russian Film 1900-1945
This course presents the Russian contribution to world cinema before WWII - nationalization of the film industry in post revolutionary Russia, the creation of institutions of higher education in filmmaking, film theory, experimentation with the cinematic language, and the social and political reflex of cinema. Major themes and issues involve: the invention of montage, Kuleshov effect, the means of visual propaganda and the cinematic component to the communist cultural revolutions, party ideology and practices of social-engineering, cinematic response to the emergence of the totalitarian state. Great filmmaker and theorist in discussion include Vertov, Kuleshov, Eisenstein, Pudovkin, Medvedkin and others.
Taught by: Todorov
Course not offered every year
Activity: Lecture
1 Course Unit
CIMS 165 Russian and East European Film after World War II
This course examines the Russian and East European contribution to world cinema after WWII - Stalinist aesthetics and desalinization, WWII in film, the installation of totalitarianism in Eastern Europe and the Cold War in film, the fall of the Berlin Wall, the collapse of the Soviet Union and the post-soviet condition, cinematic representations of Yugoslavia's violent breakup; the new Romanian waive. Major filmmakers in discussion include Kalatozov, Tarkovsky, Wajda, Polanski, Forman, Mentzel, Sabo, Kusturitsa, Konchalovsky, Mikhalkov and others.
Taught by: Todorov
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 166 Arab-Israeli Conflict Through Literature and Film
This course will explore the origins, the history and, most importantly, the literary and cinematic art of the struggle that has endured for a century over the region that some call the Holy Land, some call Eretz Israel and others call Palestine. We will also consider religious motivations and interpretations that have inspired many involved in this conflict as well as the political consequences of world wars that contributed so greatly to the reconfiguration of the Middle East after the fall of the Ottoman Empire, and after the revelations of the Holocaust in Western Europe. While we will rely on a textbook for historical grounding, the most significant material we will use to learn this history will be films, novels, and short stories. Can the arts lead us to a different understanding of the lives lived through what seems like unending crisis?
Taught by: Troutt-Powell
One-term course offered either term
Activity: Recitation
1 Course Unit

CIMS 180 Film Culture in Residence
Taught by: Gentili, Donovan
Two terms. student must enter first term.
Activity: Seminar
0.5 Course Units

CIMS 201 Topics in Film History
This topic course explores aspects of Film History intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 202 Topics in Film Studies
This topic course explores aspects of Film Practice intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 205 Topics in Chinese Cinema
This course is an introduction to Chinese cinema in mainland China, Taiwan, and Hong Kong, with emphasis on the way it represents or negotiates notions of China and Chineseness, as well as national and cultural indentity. We will examine Chinese cinematic traditions in light of significant topics such as: the foundation of Chinese cinema and the rise of nationalism; film’s relationship to literary and popular cultural discourses; the pursuit of modernization; aesthetic responses to political and historical upheavals and transformations; the aesthetics of revolution, diaspora and transnationalism; visualized sexualities, violence, and youth subculture; collective desires to imagine and reinvent the cultural past; the politics of memory, mourning and amnesia, among others.
Taught by: Wang, X
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 206 Italian History on Screen
How has our image of Italy arrived to us? Where does the story begin and who has recounted, rewritten, and rearranged it over the centuries? In this course, we will study Italy’s rich and complex past and present. We will carefully read literary and historical texts and thoughtfully watch films in order to attain an understanding of Italy that is as varied and multifacted as the country itself. Group work, discussions and readings will allow us to examine the problems and trends in the political, cultural and social history from ancient Rome to today. We will focus on: the Roman Empire, Middle Ages, Renaissance, Unification, Turn of the Century, Fascist era, World War II, post-war and contemporary Italy.
For BA Students: Arts and Letters Sector
Taught by: Veneziano
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 210 Topics in Narrative Cinema
This topic course explores aspects of Film Narrative intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Met
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 223 Post War Japanese Cinema
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 225 Topics Theatre & Cinema
This topic course explores aspects of Film and Theater intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 232 Topics in Brazilian Culture
Taught by: Flannery
Course not offered every year
Activity: Seminar
1 Course Unit
CIMS 240 Modern Italian Culture
This topic course explores multiple and different aspects of Cinema Studies. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 244 Metropolis: Cult of City
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 245 French Cinema
This topic course explores aspects of French Cinema. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Met
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CIMS 250 German Cinema
This topic course explores aspects of German Cinema. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Richter, MacLeod
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 257 Fascist Cinemas
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 258 German Cinema
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 259 Reading German Film 2: the Divided Screen
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 261 Topics In 20th-Century Literature
This topic course explores multiple and different aspects of Cinema Studies. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 262 Documentary Media and Ecological Advocacy
Students will learn the history of ecology in media and create works that inform the public about ecological policy questions, considering different institutions that must be navigated along the way: information sources to funding, production, and reception. We’ll consider the grant proposals to fund a documentary film and placing op-eds in magazines and newspapers and experiments in online media. We will consider works such as Pare Lorentz’s 1938 film The River to Silent Spring and Al Gore’s various endeavors. We will talk with filmmakers such as Josh Fox, director of Gasland. We will take a specific issue, such as plastic waste, and look at examples of advocacy across different media platforms, from photography showing the carcasses of albatross chicks with stomachs burst full of plastic scraps to documentaries about the plastic zone in the Pacific—analyzing the rhetorical strategies and aesthetic and practical effects of different approaches.
Taught by: Zuzga J.
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 266 Topics Law & Literature
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 267 Computer Animation
Through a series of studio projects this course introduces techniques of 2D and 3D computer animation. Emphasis is placed on time-based design and storytelling through animation performance and montage. Students will develop new sensitivities to movement, composition, cinematography, editing, sound, color and lighting.
One-term course offered either term
Prerequisite: FNAR 264
Activity: Studio
1 Course Unit

CIMS 271 American Musical Theatre
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 272 Asian-American Literature and Film
This topic course explores aspects of Asian-American Literature and Cinema intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 273 American Theatre and Performance
This course examines the development of the modern American theatre from the turn of the century to the present day. Progressing decade by decade the course investigates the work of playwrights such as Eugene O’Neil, Arthur Miller, Tennessee Williams, Edward Albee, David Mamet, August Wilson and Tony Kushner, theatre companies such as the Provincetown Players and the Group Theatre, directors, actors, and designers. Some focus will also be given to major theatrical movements such as the Federal Theatre Project, Off-Broadway, regional theatre, experimental theatre of the Sixties, and feminist theatre.
Taught by: Schlatter and Malague
Course not offered every year
Activity: Lecture
1 Course Unit
CIMS 275 Russian History in Film
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 282 A History of Films By and About Native Americans
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 285 Art and Business of Film
The course will explore how a screenplay is conceptualized and developed, the role of agency relationships in the film business, and - casting as wide a net as possible - the financing, production, direction, distribution, exhibition and marketing of both independent and studio films. A combination of lectures by instructors and practitioners, case studies, film screenings, and consulting projects with independent and Hollywood creators, packagers, financiers, exhibitors, distributors and publicists will illustrate the relationship between the art of film and the business of film. Guests will include screenwriters, agents, producers, directors, distributors, film festival curators and film critics. In short, we will try to cover all aspects of making a film, and explore that often-tricky intersection of art and commerce.
Taught by: DeMarco & Van Cleve
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 289 Mixed Media Animation
Mixed Media Animation is a contemporary survey of stop-motion animation concepts and techniques. Students use digital SLR cameras, scanners and digital compositing software to produce works in hand-drawn animation, puppet and clay animation, sand animation, and multiplane collage animation. Screenings and discussions in the course introduce key historical examples of animation demonstrating how these techniques have been used in meaningful ways. Students then learn how to composite two or more of these methods with matte painting, computer animation or video.
Course usually offered in spring term
Prerequisite: FNAR 264
Activity: Studio
1 Course Unit

CIMS 293 Facing America
This course explores the visual history of race in the United States as both self-fashioning and cultural mythology by examining the ways that conceptions of Native American, Latino, and Asian identity, alongside ideas of Blackness and Whiteness, have combined to create the various cultural ideologies of class, gender, and sexuality that remain evident in historical visual and material culture. We will also investigate the ways that these creations have subsequently helped to launch new visual entertainments, including museum spectacles, blackface minstrelsy, and early film, from the colonial period through the 1940s.
Taught by: Shaw
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 295 Topics in Cultural Studies
This topic course explores aspects of Film Cultural Studies intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Decherney
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 300 Topics in Italian History, Literature, and Culture
This topic course explores aspects of Film in others arts intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 301 Women, Film & Society Since 1944
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 303 Queer Cinema: Queer Cinema, in Theory
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 305 Cinema and Media
This course will provide an introduction to some of the most important film theory debates, and allow us to explore how writers and filmmakers from different countries and historical periods have attempted to make sense of the changing phenomenon known as “cinema,” to think cinematically. Topics under consideration may include: spectatorship, authorship, the apparatus, sound, editing, realism, race, gender and sexuality, stardom, the culture industry, the nation and decolonization, what counts as film theory and what counts as cinema, and the challenges of considering film theory in a global context, including the challenge of working across languages. There will be no screenings for this course. No knowledge of film theory is presumed. Course requirements: attendance at lecture and participation in lecture and section discussions; canvas postings; 1 in-class mideterm; 1 take-home final.
Taught by: Redrobe
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 320 Topics in Animation
This topic course explores multiple and different aspects of Animation. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
CIMS 340 Italian Cinema
This topic course explores multiple and different aspects of Italian Cinema. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Trentin
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 365 Russian Cinema and Culture
This topic course explores aspects of Russian Culture and Film. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 370 Blacks in American Film and Television
An examination and analysis of the changing images and achievements of African Americans in motion pictures and television. The first half of the course focuses on African-American film images from the early years of D.W. Griffith's "renegade bucks" in The Birth of a Nation (1915); to the comic servants played by Steppin Fetchit, Hattie McDaniel, and others during the Depression era; to the post-World War II New Negro heroes and heroines of Pinky (1949) and The Defiant Ones (1958); to the rise of the new movement of African American directors such as Spike Lee (Do the Right Thing), Julie Dash (Daughters of the Dust), Charles Burnett, (To Sleep With Anger) and John Singleton (Boyz N the Hood). The second half explores television images from the early sitcoms "Amos 'n Andy" and "Beulah" to the "Cosby Show," "Fresh Prince of Bel Air" and "Martin." Foremost this course will examine Black stereotypes in American films and television—and the manner in which those stereotypes have reflected national attitudes and outlooks during various historical periods. This course will also explore the unique "personal statements" and the sometimes controversial "star personas" of such screen artists as Sidney Poitier, Dorothy Dandridge, Paul Robeson, Richard Pryor, Oscar Micheaux, Spike Lee, Bill Cosby, Eddie Murphy, and Whoopi Goldberg. The in-class screenings and discussions will include such films as Show Boat (1936), the independently produced "race movies" of the 1930s and 1940s, Cabin in the Sky (1943), The Defiant Ones (1958), Imitation of Life (the 1934 remake), Super Fly (1972), and She's Gotta Have It (1986) and such television series as "I Spy," "Julia," "Good Times," "The Jeffersons," "Roots," "A Different World," "I'll Fly Away," "LA Law," and "Hangin' With Mr. Cooper.
Taught by: Bogle
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: The course will be taught in English. French credit by arrangement with Instructor.

CIMS 380 Contemp Spanish Lit
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 382 Horror Cinema
The purpose of this course is to provide an introduction to the history and main themes of the supernatural/horror film from a comparative perspective. Films considered will include: the German expressionists masterworks of the silent era, the Universal classics of the 30's and the low-budget horror films produced by Val Lewton in the 40's for RKO in the US, the 1950's color films of sex and violence by Hammer studios in England, Italian Gothic horror or giallo (Mario Brava) and French lyrical macabre (Georges Franju) in the 60's, and on to contemporary gore. In an effort to better understand how the horror film makes us confront our worst fears and our most secret desires alike, we will look at the genre's main iconic figures (Frankenstein, Dracula, Dr. Jekyll and Mr. Hyde, etc.) as well as issues of ethics, gender, sexuality, violence, spectatorship through a variety of critical lenses (psychoanalysis, socio-historial and cultural context, aesthetics,...).
Taught by: Met
One-term course offered either term
Activity: Lecture
1 Course Unit

CIMS 385 Studies in Spanish Culture
This topic course explores multiple and different aspects of Cinema Studies. Specific course topics vary from year to year. See the Cinema Studies website at cinemastudies.sas.upenn.edu/courses for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 386 Paris in Film
Course not offered every year
Activity: Lecture
1 Course Unit

CIMS 387 Holocst Ital Lit & Film
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 389 Intro Span Amer Lit
Course offered spring; odd-numbered years
Activity: Seminar
1 Course Unit

CIMS 392 Topics in Cinema & Media
Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Corrigan
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 393 Topics in Cinema Studies
This topic course explores aspects of Cinema Studies intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Redrobe
Course not offered every year
Activity: Seminar
1 Course Unit
CIMS 396 Studies in Spanish American Culture
Course not offered every year
Prerequisite: SPAN 219 or SPAN 223
Activity: Seminar
1 Course Unit

CIMS 397 Labor in Contemporary Latin American Literature and Film
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 416 Screenwriting
One-term course offered either term
Activity: Online Course
1 Course Unit

CIMS 430 Nationalism and Ethnic Conflict in Film
Course not offered every year
Activity: Online Course
1 Course Unit

CIMS 432 Fate/Chance in Lit&Film
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 498 Cinema Studies Honor Thesis
Two terms. student must enter first term.
Prerequisites: Completion of 13 Cinema Studies courses, a GPA of 3.5 or higher in the major, and a grade of A- or above for the senior thesis.
Activity: Independent Study
0.5 Course Units
Notes: This is a year-long course. 1 c.u. will be awarded upon completion.

CIMS 500 MLA Seminars in Cinema
This topic course explores multiple and different aspects of Cinema Studies. Specific course topics vary from year to year. See the Cinema Studies website at cinemastudies.sas.upenn.edu/courses for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 502 MLA Seminars in Cinema
This topic course explores multiple and different aspects of Cinema Studies. Specific course topics vary from year to year. See the Cinema Studies website at cinemastudies.sas.upenn.edu/courses for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 505 Electronic Lit Seminar: Copyright and Culture
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 506 Religion & Cinema
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CIMS 515 Topics in Criticism and Theory
This graduate topic course explores aspects of Cinema Studies intensively. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 539 Penn-In-Kenya
Course usually offered summer term only
Activity: Seminar
1 Course Unit

CIMS 572 Colonial/Postcolonial Fiction and Film
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 584 Rome and the Margins of Modernism
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 590 Topics in Cinema & Media
This topic course explores multiple and different aspects of Cinema and Media. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 592 20th Century Lit & Theory
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 595 Copyright and Culture
This graduate topic course explores aspects of copyright in Cinema Studies. Specific course topics vary from year to year. See the Cinema Studies website at <http://cinemastudies.sas.upenn.edu/> for a description of the current offerings.
Taught by: Decherney
Course not offered every year
Activity: Seminar
1 Course Unit
CIMS 596 Topics in Contemporary Art
Topic varies. An experimental class for artists and scholars. Organized around a series of case studies of artists, collectives, infrastructures, and curatorial projects, the course includes: in-class discussion and viewing; workshops with class visitors; site visits; participation in small reading groups. In the first half of the class, students will complete some short assignments. In addition, students will complete a final project that is intentionally open in terms of form. The project, which can be collective or individual in nature, will enable an in-depth material investigation of one of the threads of the class.
One-term course offered either term
Activity: Seminar
1 Course Unit

CIMS 599 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

CIMS 612 Film Noir
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 682 Topics: Lit and Film
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 694 Mexican Cinema
This seminar will address the specificity and uniqueness of Spanish America's cultural production, that is, those elements that make the Spanish American case differ from the paradigmatic postcolonial situation, and which make recent developments in postcolonial studies not fully applicable to it. We will explore these issues in the context of the literary production of the twentieth century in Spanish America from roughly the twenties to the present, that is, the epoch encompassing the larger metropolitan cultural phenomena of Modernism and Postmodernism.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 793 Topics in Cinema and Media
Topic varies.
Course not offered every year
Activity: Seminar
1 Course Unit

CIMS 899 Independent Study
Course not offered every year
Activity: Independent Study
1 Course Unit
CITY AND REGIONAL PLANNING (CPLN)

CPLN 300 The Making of Modern Paris
Paris, Ville-Lumiere, has long been renowned for its urbanity, architecture, and city design. This class will trace the people, ideas, and projects that contributed to this reputation, through an exploration of the city's built environment as expressed in literature and urban planning projects of the 19th and 20th centuries. Literary readings, including texts by Hugo, Baudelaire, Zola, and Breton, will be studied in conjunction with historical writings and projects ranging from works by Napoleon III and Haussmann to Mitterrand and Sarkozy. The course includes a field trip to France's capital city during Penn's Spring Break. Co-taught by Professors Eugenie Birch (Department of City and Regional Planning) and Andrea Goulet (Department of Romance Languages). Student travel expenses will be subsidized by the Mellon Foundation-sponsored Humanities + Urbanism + Design Project.

Taught by: Birch
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CPLN 500 Introduction to City Planning: Past, Present and Future
Orientation to the profession, tracing the evolution of city and regional planning from its late nineteenth century roots to its twentieth century expression. Field trips included.

Taught by: Vitiello or Ammon
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 501 Quantitative Planning Analysis Methods
Introduction of methods in analyzing demographic conditions, land use and housing trends, employment and business changes, community and neighborhood development. Focus on using spreadsheet models and data analysis for local and neighborhood planning.

Taught by: Guerra
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

CPLN 502 Urban Redevelopment and Infrastructure Finance
Introduces students to the economic principles and vocabularies that city and regional planners rely on (those of welfare and public sector economics, land economics, and the economics of housing and neighborhoods), and familiarizes them with local government taxation, budgeting and borrowing practice.

Taught by: Angelides
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 503 Modeling Geographical Objects
This course offers a broad and practical introduction to the acquisition, storage, retrieval, maintenance, use, and presentation of digital cartographic data with vector-oriented (i.e. drawing-based) geographic information systems (GIS) for a variety of environmental science, planning, and management applications. Previous experience in GIS is not required.

Taught by: Tomlin or Hillier
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 504 Site Planning
This course introduces students to the practice of site planning.
Skills and methods examined in the course include observation of the physical and community environment, physical and environmental site inventorying and analysis, analysis of alternative site programming and uses; site design processes and strategy; and the creation of site plans and development standards. Methods of community participation and collaboration with other disciplines will be explored. The spring version of this course differs from the fall version in its orientation toward urban designers and/or those with prior design backgrounds and skills.

Taught by: Page
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 505 Planning by Numbers
This class emphasizes the theory, practice, and use of statistics as applied to planning and policy problems and data. Starting with a review of basic descriptive statistics and measures of association, this course will introduce students to the regression techniques, including multiple regression analysis and logistical and probabilistic models for categorical data; data mining techniques, measures of spatial autocorrelation, and time-series modeling; and causal inference techniques, including structural equation modeling(SEM). A basic familiarity with descriptive and inferential statistics at the upper-division undergraduate level is expected at the beginning of the class. This course uses the popular, free, and open source statistical software R. Meets methods breadth requirement.

Taught by: Ryerson
Course usually offered in spring term
Activity: Lecture
1 Course Unit
CPLN 506 Negotiation and Conflict Resolution
This course is designed to introduce graduate students to the theory and practice of negotiation, conflict resolution and community engagement. We will start by looking at basic approaches to interpersonal negotiation and then move to considering contemporary approaches to understanding and addressing public disputes using negotiation, facilitation and public involvement. Design professionals - architects, construction managers, planners and others - face a variety of kinds of problems and challenges in their work. Some problems and challenges, whether simple or complex, are amenable to technical solutions based solely on the expertise of planners, managers, architects and others. There are, however, other problems and challenges that require adaptive work, primarily because technical expertise alone is insufficient to address the problems or challenges being faced. In this course, we'll focus on perspectives and methods for working through those later sorts of problems and challenges. Meets methods breadth requirement.
Taught by: Sokoloff
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 507 Urban Design Research Methods
This seminar focuses on professional and research techniques in the practice of urban design. Seminar topics in the first half will examine research methods associated with measuring, analyzing and guiding design in urban contexts, including: environmental behavior & psychology, cognition, mapping, morphology, design regulation and policy. The second half of the course includes professional techniques in: communication, self-representation, design roles, processes, and ethics.
Taught by: Al
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 508 Urban Research Methods
This new course will introduce students to the practice of conducting original social, policy, and planning research in an urban context, and through a series of applied exercises, cover the following topics: research conceptualization and design, logic models, survey and ethnographic research, urban policy analysis and evaluation.
Activity: Lecture
1 Course Unit

CPLN 509 Law of Planning and Urban Development
The central focus will be on selected aspects of the field of the law of planning and development, a field that embraces a range of legal doctrines that are particularly relevant to cities and suburbs. We will study the principles that govern the regulation of land use and management of urban growth (through land use controls and other techniques for regulating new development) and, to a limited extent, environmental planning laws.
Taught by: Keene
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 510 Urban and Planning Theory
Exploration of the representational tasks related to planning cities and regions. Review of the construction, management and reconciliation of contesting images.
Taught by: Landis
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 520 Introduction to Community and Economic Development
Introduction to the theories and practices of urban economic and community development with a focus on improving opportunity and quality of life in low-income communities. Provides foundation for advanced courses in real estate and economic development finance, housing policy, downtown and neighborhood revitalization, workforce development and metropolitan regional development.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 528 Research Seminar 21st Century Urbanism
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CPLN 530 Introduction to Land Use Planning
Exploration of the methods and tools for managing land use and shaping the built environment. Presents how to create a successful Comprehensive Plan, Zoning Ordinance, Subdivision Regulations, Capital Improvements Program, and design guidelines. Also, presents functional area, regional, and state-level plans.
Taught by: Daniels
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 531 Introduction to Environmental Planning & Policy
Overview of federal programs for protecting air quality, water quality, and endangered species along with managing climate change, solid waste, toxics, energy, transportation, and remediating brownfields in an overall sustainability framework. State-level, local government, and NGO efforts to protect the environment are also explored as are green infrastructure and green cities.
Taught by: Daniels
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 535 Topics in Energy Policy
This research seminar focuses on changing energy policy topics that provide students with a deep examination of an aspect of energy technology, markets, or regulation and an opportunity for research on an emerging issue related to the topic. The seminar meets weekly to discuss the relevant literature and workshop student research projects.
Taught by: Staff.
Activity: Seminar
1 Course Unit

CPLN 540 Introduction to Property Development
This course is designed to acquaint students with the fundamental skills and techniques of real estate property development. It is designed as a first course for anyone interested in how to be a developer, and as a foundation for further courses in urban development and real estate.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
CPLN 550 Introduction to Transportation Planning
Survey of the technological and design aspects of urban transportation systems and land use patterns. Covers facilities operations, congestion, environmental concerns and policy debates revolving around mobility issues at the federal, state, and metropolitan levels.
Taught by: Guerra
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 560 Introduction to Graphics for Urban Design
This course introduces students to visual literacy and the use of a variety of software packages. Through a series of assignments and in class discussions participants develop a visual vocabulary and skills to function in and between AutoCAD, Adobe Creative Suite, and 3D modeling software.
Taught by: Steif
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CPLN 571 Sensing the City
This course will teach students how to design, implement, and utilize environmental and built environment sensor and web-based data acquisition systems; how to use those systems to build and populate analytical databases; and how to analyze the resulting data to identify spatial and temporal patterns.
Taught by: Lassiter
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 590 Spatial Analysis for Urban and Environmental Planning
This course builds on prior knowledge of GIS and basic statistics to help students to develop GIS and spatial analysis applications for use in urban and environmental planning and management. Each weekly session will focus on a particular analytical approach (e.g., buffering, geo-processing, map algebra, network analysis) as applied to a particular urban or environmental planning tasks (e.g., identification of development opportunities, prioritizing conservation lands, urban growth modeling, housing price modeling). The format of the class includes weekly lectures/in-class demos; and weekly homework assignments. The course will make extensive use of ArcGIS and associate Extensions, especially Spatial Analyst, Network Analyst, and Business Analyst. One-year student versions of ArcGIS and ArcGIS extensions will be available free of charge at the City Planning Office. ArcGIS runs best on Windows machines; those with Macs will need to install a Windows emulator.
Taught by: Steif
Course usually offered in fall term
Prerequisite: MUSA 501 or CPLN 503 or equivalent
Activity: Lecture
1 Course Unit

CPLN 600 Planning Workshop
Application of planning skills (including community inventorying and reconnaissance, goal articulation; alternatives creation and analysis, and plan development and implementation) to community plan creation. Students work in groups of seven to eight students each. Juried presentation required.
Taught by: Landis
Course usually offered in spring term
Activity: Studio
2 Course Units

CPLN 620 Techniques of Urban Economic Development
This course is about how planners act to catalyze and support economic well-being in cities and regions. Students in the course examine the effectiveness of alternative strategies and approaches to economic development and practice a variety of specific economic development policy and finance techniques. The semester is divided into three modules. In part one, students build knowledge about how theories of growth, specialization, agglomeration and innovation inform (and fail to inform) economic development strategies. In part two, they develop a working understanding of economic development finance, completing exercises on tax increment finance, tax-credit financed development and “double bottom line” lending and equity investment. In part three, they review best practices in the formulation and negotiation of location incentives and subsidies, examine “growth with equity” policies, and explore the technical and political details of economic impact analysis.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 621 Metropolitan Food System
This course introduces students to the planning and development of metropolitan food systems. Major topics include regional planning and policy, sustainable agriculture; food access and distribution; and markets. The class includes a mix of lectures, discussion, and field trips; and students will work on real-world projects in Philadelphia. Ultimately, the course aims to develop students’ broad knowledge of food systems planning in the global North and South, with an emphasis on community and economic development strategies for sustainable food systems and food security.
Taught by: Vitiello
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 622 Community Development and Public Health
This course will focus on the intersection of city planning and public health by looking closely at the role of the built environment in health. We will cover such topics as food access, physical activity, walkability, bike-ability, air quality, water quality, community engagement, outdoor media and health communication. We will learn how to conduct Health Impact Assessments (HIA) - screening, scoping, assessments, recommendations, reporting, and monitoring - and to use various environmental audit tools to measure the built environment. Our final projects will involve working with local government and nonprofit agencies to conduct applied health research projects.
Taught by: Hillier
Course usually offered in spring term
Activity: Lecture
1 Course Unit
CPLN 624 Race, Poverty and Place
In recent years, long-disinvested cities have become the site of renewed investment, population growth, and economic development in a phenomenon often described as gentrification. Nonetheless, socioeconomic inequality between races, ethnicities, genders, and places within the larger metropolitan area continue to persist, suggesting that a rising tide does not raise all boats. Planners must grapple with these issues of inequality and inequity, particularly the implementation of plans and policies that may in theory provide benefits to all, but in practice continue to accumulate benefits for a select few. This course examines the construction of race, the making of a place, and the persistence of poverty in racialized places in the city. This course will engage in a critical discussion of the aforementioned themes, such that the normative notions of race, capitalism, urbanism, gender, power, and space are upended to privilege more marginalized perspectives of these processes.
Taught by: Drake-Rodriguez
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CPLN 625 Politics of Housing & Community Development
This course offers an exploration of how legislative action, government policy making, and citizen advocacy influence plans for the investment of public capital in distressed urban neighborhoods. Course topics this semester will include an evaluation of the results of City of Philadelphia development policies under the administration of former Mayor Michael A. Nutter, as well as consideration of plans being undertaken by the administration of Mayor James F. Kenney, who took office in January. The course will also include an assessment of a large-scale property acquisition and development strategy being implemented by the Philadelphia Housing Authority in North Philadelphia and a review of recent and current reinvestment proposals for Camden's waterfront and downtown-area neighborhoods.
Taught by: Kromer
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 627 Social Impact in Practice
The course will be an opportunity for students across PennDesign (and other schools) to meaningfully engage with community partners and practitioners working in Philadelphia and the surrounding region, and to grapple with the complex issues necessary for understanding community perspective, thereby influencing the approach when planning and designing as professionals. The course intends to reverse common perceptions and practices of community engagement ("beyond the theater of engagement") and discuss how to productively and sensitively work with communities of all types, on projects of all scales, to work towards common goals and high aspirations. The organization of the course, will be a combination of readings and discussions, guest lecturers, and tours in the immediate community. The primary assignments will be reflection pieces, case studies, a collaborative group project, and a implementation project proposal. The group project(s) would partner students with a current, ongoing, or new community project that is funded and actionable. Students will work together, with the partner, and with community members to complete a project (could be built, a printed deliverable, evaluation, or other). The final assignment would ask students to brainstorm and present a potential "Phase II" implementation project, thinking through the mechanics of funding partnerships, academic research, etc, that could carry forward the work.
Taught by: Donofrio, Julie / Gould, David
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CPLN 630 Innovations in Growth Management
The US population is expected to grow by more than 85 million from now to 2050. This course evaluates the tools and techniques for managing growth in America, especially to control sprawl in metropolitan regions. The course analyzes the form and functions of the central cities, suburbs, edge cities, ex-urbs, and megaregions. Federal, state, and local programs that influence metro change are evaluated. Regional planning approaches are analyzed in case studies.
Course usually offered in spring term
Prerequisite: CPLN 530 or CPLN 531
Activity: Lecture
1 Course Unit

CPLN 631 Planning for Land Conservation
Land preservation is one of the most powerful, yet least understood planning tools for managing growth and protecting the environment. This course provides an introduction to the tools and methods for preserving private lands by government agencies and private non-profit organizations (e.g., land trusts). Topics include purchase and donation of development rights (also known as conservation easements), transfer of development rights, land acquisition, limited development, and the preservation of urban greenways, trails, and parks. Preservation examples analyzed: open space and scenic areas, farmland, forestland, battlefields, and natural areas.
Taught by: Daniels
Course usually offered in spring term
Activity: Lecture
1 Course Unit
CPLN 632 Modeling Geographic Space
The major objective of this course is to explore the nature and use of image-based (as opposed to drawing-based) geographic information systems (GIS) for the analysis and synthesis of spatial patterns and processes. This course is open to all. Previous experience in GIS is not required.
Taught by: Tomlin
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 635 Water Policy
Aging infrastructure, urbanization, climate change, and limited public funds are contributing to urban water management crises in cities around the globe. This course examines the systems and policies that comprise urban water. We begin with the infrastructures that underlie drinking water, wastewater, and stormwater services. Then, we review innovative management technologies and strategies, focusing on case studies of infrastructure shifts in Philadelphia and Melbourne. Finally, we undertake a global investigation of water management challenges and opportunities.
Taught by: Lassiter
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 641 Progressive Development
Using a lecture/guest lecture/case study approach, this course will teach students how to plan, develop, and finance a variety of progressive real estate development forms including affordable housing; infill, mixed-use and brownfield development transit-oriented development; green and LEED-certified office and housing development; historic preservation projects; public-private partnerships; and suburban retrofit and master-planned-community development. In each case, we will consider site acquisition, entitlement, market and marketing conditions, financing options, ownership and deal structures, ongoing operation and asset management issues; and connections to the community. Sessions will include lectures as well as case study presentations by guest developers and students.
Taught by: Landis
Course usually offered in spring term
Prerequisite: CPLN 540 or REAL 821
Activity: Lecture
1 Course Unit

CPLN 642 Downtown Development
The course will provide an overview of the changing role of downtowns and commercial centers, how and why they have evolved, diversified and been redeveloped and who are the various public and private actors that are helping them reposition themselves in a new regional and global context. There will be a strong focus on implementation, on how things get done, on the role of business improvement districts, not-for-profit development corporations and local government in the United States, Canada and a few international cities.
Taught by: Levy
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 643 Design and Development
This newly reconstituted course will introduce designers and planners to practical methods of design and development for major real estate product types. Topics will include product archetypes, site selection and obtaining entitlements, basic site planning, programming, and conceptual and basic design principles. Project types will include, among others; infill and suburban office parks, all retail forms, campus and institutional projects. Two-person teams of developers and architects will present and discuss actual development projects.
Taught by: Sehnert
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 644 Housing Policy
The government intervenes in housing markets in different ways and for different reasons. This course is designed to explore why the federal and local government in the U.S. intervene in housing markets and what forms these interventions take. Specifically, students will learn about: the mechanisms that drive both the supply and demand for housing; how U.S. housing policy has changed over time; factors that affect the production, distribution, and location of housing; the social and economic impact of housing on households and neighborhoods; the equity implications of housing policies. This course will place particular emphasis on low-income rental housing. By the end of this class students will have a firm understanding of U.S. housing policy and be able to engage in a meaningful debate about future challenges and opportunities in the U.S. housing market and the implications of different policy interventions. Ultimately, this course will provide students the conceptual tools necessary to evaluate, formulate, and implement housing policy.
Taught by: Reina
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CPLN 650 Transportation Planning Methods
This course introduces students to the development and uses of the 4-step urban transportation model (trip generation-trip distribution-mode choice-traffic assignment) for community and metropolitan mobility planning. Using the VISUM transportation desktop planning package, students will learn how to build and test their own models, apply them to real projects, and critique the results.
Taught by: Ryerson
Course usually offered in spring term
Also Offered As: ESE 548
Prerequisites: CPLN 505 or other planning statistics course.
Activity: Lecture
1 Course Unit

CPLN 652 Topics in Infrastructure
Course examines current trends and topics pertaining to the nation’s infrastructure.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
CPLN 653 Global Challenges in International Development
An investigation of how international organizations, national, subnational government and non-governmental groups are responding to recent global agreements addressing major economic, social and environmental issues, this course will focus on the Sendai Framework, Addis Ababa Action Agenda, 2030 Framework for Sustainable Development, Paris Agreement and New Urban Agenda. It will cover selected topics related to poverty reduction, health, food security, disaster risk reduction, climate change, and urbanization. Course objectives: 1. to provide a sophisticated understanding of the fundamental assumptions, definitions, current state, and proposed paths toward a global sustainable development to students of city and regional planning; 2. to outline the role of city and regional planners as members of multi-disciplinary teams in participating in these agreements at the global, national, regional and local levels; 3. to highlight innovations in the models, tools and approaches to the field. Requirements: team project, midterm examination and final paper.
Taught by: Eugenie Birch
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CPLN 655 Multimodal Transport
The purpose of this course is to explore contemporary multimodal transportation systems, policy, planning, and practice through a series of comparative international case studies. Topics include innovative parking management in San Francisco, congestion charging in London, Metro investments in Mexico City, informal transportation in Indonesia, Bus Rapid Transit in Bogota, and bicycle infrastructure investments in Copenhagen. The course will also include one or more site visits to innovative multimodal transportation projects in the Philadelphia or New York City regions. By analyzing contemporary planning challenges and best practices, students will develop a better understanding of how the transportation system works and how to design and employ specific multimodal interventions and policies effectively.
Taught by: Guerra
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CPLN 660 Fundamentals of Urban Design
This course is a requirement for students enrolled in Certificate in Urban Design and for Master of City Planning students enrolled in the Urban Design concentration. How should urban designers give shape to the city? What urban design methods could they apply? This course helps students acquire the principles that can inform urban design practice. It has three major pedagogical objectives. First, it helps students understand the contemporary city through a series urban design tools. Second, it covers both historical and modern urban design principles. Finally, it includes all the scales in which urban designers operate, ranging from the fundamentals of social interaction in public space, to the sustainability of the region.” This course is open to other interested PennDesign students if there is space and with permission of the instructor.
Taught by: Al
Course usually offered in spring term
Activity: Studio
2 Course Units

CPLN 662 Design and the City
"The rumor of a great city goes out beyond its borders to all the latitudes of the known earth.” Metropolis and her Children, the Federal Writers; Project Guide, 1938. Great cities are both real and legendary. They have economies and cultures, identity and brand, pattern and chaos, inclusion and exclusion. They are made by men (and women) who either reap the benefits of their labors or are excluded from them. They are dynamic, or they are dead. Constant change is essential to the city. This seminar will explore the ways in which design - including architecture, urban design, and landscape design - is a constructive force in the creation of cities. What are the various scales of the operation of design? What are its elements? With whom do urban designers collaborate? How does design make "place”? How is the city experienced? How does it cultivate identity, inclusion and equity? Each class will be a wide-ranging discussion about a series of open questions regarding the city and design. Each student will be expected to bring examples, quotes, readings, and news clips to support his/her answers. In alternating weeks, we will introduce a design problem to be addressed by teams of two or three students.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CPLN 670 Geospatial Software Design
The purpose of this course is to equip students with a selected set of advanced tools and techniques for the development and customization of geospatial data-processing capabilities. It is open to any student with experience equivalent to that of an entry-level class on GIS.
Taught by: Tomlin
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CPLN 671 Big Urban Data Analysis
This course, co-listed with MUSA 501, will introduce graduate planning students to the use of large, spatially-explicit datasets for addressing urban planning and management problems. Among the topics to be included: (1) Real-time data acquisition using web-based and sensing technologies; (2) Data cleaning and organization using the R programming language; (3) Data visualization and exploratory analysis in R; (3) Predictive and causal modeling techniques using large datasets in R; (4) Use of statistical data reduction and machine learning techniques with big data; (5) Derivation and use spatial autocorrelation and other spatial patterning metrics in urban planning applications of big data; (6) Heuristic visualization of analytical and modeling results.
Taught by: Brusilovsky
Course usually offered in fall term
Activity: Lecture
1 Course Unit
CPLN 673 Contemporary Urbanism
This course will expose students to a wide array of case studies in Planning, Urban Design, and Landscape Architecture. They include: notions of sustainable development, the interplay between open space and built form, the rehabilitation of existing areas as historic districts, commercial corridors, and the improvement of squatter settlements. Also, it will focus on city expansions and new towns, housing, mixed-use developments, and areas of new centrality. The program will address as well territorial planning, the improvement of open space systems, and site specific interventions of parks, plazas, streetscape and gardens. Cases will provide the proper ground for analysis and interpretation of issues related to the design and implementation of "good" landscape and urban form. Class discussions will be complemented with short design exercises. We will also enjoy the presence of outstanding visiting lecturers, who will share with us cutting-edge information, derived from their professional practice and research. Registration limited to students in the MLA 602 level; students in the Certificate in Urban Design program and a limited number of MLA students needing to fulfill the Theory III requirement; other PennDesign graduate students must seek permission of the instructor. Taught by: Gouverneur Course usually offered in spring term Activity: Lecture 1 Course Unit

CPLN 675 Land Use and Environmental Modeling
Planners at every scale and of every type are increasingly using spatial data and models to analyze existing patterns, identify and parameterize key trends and urban processes, visualize alternative futures, and evaluate development impacts. This course will introduce students to various GIS-based land use and environmental planning models, including, among others: TR55 for analyzing parcel-level stormwater runoff; BASINS for analyzing watershed-level stream volumes, runoff, and water quality; HAZUS for analyzing the potential damage impacts of floods, earthquakes, and hurricanes; UPlan and CUF/CURBA for developing detailed urban growth projections; CommunityViz for analyzing, simulating, and visualizing the impacts of proposed development projects; and other packages as available. A basic familiarity with ArcGIS is required. Taught by: Landis Course usually offered in spring term Prerequisites: Some knowledge of GIS and statistics. Activity: Laboratory 1 Course Unit

CPLN 676 The Immigrant City
Immigration is among the most important phenomena shaping neighborhoods, cities, and regions. Understanding migration is fundamental to understanding urbanization, community development, and urban society today. This course examines the development of immigrant communities in United States cities and suburbs. Class readings, discussions, and visits to a variety of Philadelphia immigrant neighborhoods explore themes including labor markets, commerce, housing, civil society, racial and ethnic relations, integration, and the public sphere. We study the diverse dynamics and impacts of immigration through foundational readings and close observation of various newcomer and receiving communities. The first part of the course surveys migration and community formation among a broad range of ethnic groups in different sorts of city and suburban neighborhoods, mainly through history, sociology, and geography. The second part focuses on public policy and community and economic development practices related to migration at the local, regional, national, and trans-national scales. Taught by: Vitiello Course usually offered in spring term Activity: Seminar 1 Course Unit

CPLN 680 Advanced Topics in GIS
The primary objective of this course is to equip students with a selected set of sophisticated and specialized tools for the practical use of geographic information systems in a variety of application settings. Participants will have the opportunity to focus on particular topics in each of four major areas including: data acquisition - e.g. remote sensing, LiDAR imagery, global positioning systems, mobile GIS, applied geocoding, geodatabases, ArcSketch, and/or CAD interaction; communication - e.g. web mapping, animation, and/or professional cartographic techniques; problem solving - e.g. cartographic pattern recognition, geospatial allocation, agent-based modeling, geostatistics, network analysis, and/or spatio-temporal simulation; and tool building - e.g. Python scripting, GoogleMap mashups, and/or open source GIS. The course is conducted in a seminar format with weekly sessions devoted to lectures, demonstrations, and discussions conducted by the instructor, students and invited guests. Offered in the spring annually. Taught by: Tomlin Course usually offered in fall term Activity: Seminar 1 Course Unit
CPLN 685 Environmental Readings
In this seminar, we will explore this green thread and analyze its influence on how we shape our environments through design and planning. The course has three parts. Throughout, the influence of literature on design and planning theory will be explored. The first part will focus on three most important theorists in environmental planning and landscape architecture: Frederick Law Olmstead Sr., Charles Eliot and Ian McHarg. The second part of the course will critically explore current theories in environmental planning and landscape architecture. The topics include: frameworks for cultural landscape studies, the future of the vernacular, ecological design and planning, sustainable and regenerative design, the languages of landscapes, and evolving views of landscape aesthetics and ethics. In the third part of the course, students will build on the readings to develop their own theory for ecological planning or, alternatively, landscape architecture. While literacy and critical inquiry are addressed throughout the course, critical thinking is especially important for this final section.
Taught by: Steiner
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CPLN 690 Java and Javascript Programming for Planning Applications
This course will introduce city planning, MUSA and design graduate students to Java and Javascript. Students will learn the logic and syntax of the Java programming language for use in simple web applications (Weeks 1 to 7); as well as how to program database and map-oriented web and desktop applications using Javascript (Weeks 8 to 14). The "hands-on" uses of Java and Javascript in urban planning applications will be emphasized. Students will hone their programming and applications development skills through a series of bi-weekly assignments.
Taught by: Faculty
Course usually offered in fall term
Activity: Laboratory
1 Course Unit

CPLN 691 Data Wrangling and Visualization
The purpose of this course is to familiarize students with the "pipeline" approach to data science. This involves the process of gathering data; sorting the data; analyzing the data and visualizing the data such that non-technical managers can make use of it for decision making. The first part of the course teaches students how to gather data by way of scraping, APIs, Google Big Query, Twitter and other unstructured sources. The second part of this course, teaches students how to store and retrieve these data in a database. The third part of the class teaches some more esoteric machine driven analytics. The fourth and final component of the class is data visualization both in static and dynamic (web-based) form. The students will be expected to replicate this pipeline on a dataset of their own choosing for their final project.
Course usually offered in spring term
Prerequisites: Prerequisites include a working knowledge of R and ArcGIS.
Activity: Seminar
1 Course Unit

CPLN 692 Java Script Programming for Planners and Designers
This course will introduce City Planning, MUSA and design graduate students to Javascript. Students will learn the logic and syntax of the Java programming language for use in a simple web application (weeks 1 to 7); as well as how to program database and map-oriented web and desktop applications using Javascript (weeks 8 to 14). The "hands-on" uses of Javascript in urban planning applications will be emphasized. Students will hone their programming and applications development skills through a series of bi-weekly assignments.
Taught by: Faculty
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CPLN 701 Planning Studio
Intensive study of a selected planning topic. Teams of students work with clients to develop alternative scenarios and produce plan and implementation strategies. Multiple presentations required.
Taught by: Yaro
Course usually offered in spring term
Activity: Studio
2 Course Units

CPLN 702 Planning Studio
Intensive study of a selected planning topic. Teams of students work with clients to develop alternative scenarios and produce plan and implementation strategies. Multiple presentations required.
Taught by: Al
Course usually offered in spring term
Activity: Studio
2 Course Units

CPLN 703 Planning Studio
Intensive study of a selected planning topic. Teams of students work with clients to develop alternative scenarios and produce plan and implementation strategies. Multiple presentations required.
Course usually offered in spring term
Activity: Studio
2 Course Units

CPLN 704 Planning Studio
Course usually offered in spring term
Activity: Studio
2 Course Units

CPLN 705 Planning Studio
Taught by: Landis
Course usually offered in spring term
Activity: Studio
2 Course Units

CPLN 707 Planning Studio
Course usually offered in spring term
Activity: Studio
2 Course Units

CPLN 708 Planning Studio
Taught by: Landis
Course usually offered in spring term
Activity: Studio
2 Course Units
CPLN 720 Community and Economic Development Practicum
This practicum involves a weekly mixture of lecture and seminar course-time with applied problem solving for real-world clients. It will be a second-year course focused on organizational development, business planning, and other strategic planning techniques that complement the physical planning focus on PennPlanning Workshop and Studio. Required of students in the CED concentration.
Taught by: Servon
One-term course offered either term
Activity: Lecture
1 Course Unit

CPLN 730 Sustainable Cities
Sustainability as a concept has been around for almost thirty years, but only recently has become a major factor in planning practice. This seminar course will explore the following sustainability topics and practices: (i) Goals and organization of urban sustainability initiatives; (ii) Transportation, water and air quality, solid waste reduction; (iii) Climate change and energy efficiency initiatives; and (iv) Green building policies. We will thoroughly examine case studies drawn from sustainability planning initiatives from major American cities, with selected international comparisons.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CPLN 750 Advance Transportation Seminar, Air Transportation Systems Planning
Air transportation is a fascinating multi-disciplinary area of transportation bringing together business, planning, engineering, and policy. In this course, we explore the air transportation system from multiple perspectives through a series of lessons and case studies. Topics will include airport and intercity multimodal environmental planning, network design and reliability, air traffic management and recovery from irregular operations, airline operations, economics, and fuel, air transportation sustainability, and land use issues related to air transportation systems. This course will introduce concepts in economics and behavioral modeling, operations research, statistics, environmental planning, and human factors that are used in aviation and are applicable to other transportation systems. The course will emphasize learning through lessons, guest lecturers, case studies of airport development, and an individual group and research project.
Taught by: Ryerson
Course usually offered in spring term
Also Offered As: ESE 550
Prerequisite: CPLN 550 or equivalent
Activity: Seminar
1 Course Unit

CPLN 760 Public Realm Studio
This intensive foundation studio focuses on the physical planning and design skills necessary in shaping the public realm. Students will undertake a series of targeted exercises that introduce them to project conceptualization, context analysis, programming, site planning, technical issues, and detailed design of public space in cities. Focusing on issues pertinent to local municipalities, students will work collaboratively and individually over the semester on design elements that cover a range of scales. Intellectual objectives within the studio include: the links between theory and practice, the development of principles to guide design, understanding associations between design and stakeholder-user interests, and exploring larger issues of sustainability and participation in design practice. Emphasis on the pragmatics of problem solving and implementation will be balanced with essential skills in visioning, critical thinking and design leadership.
Taught by: Al
Course usually offered in fall term
Activity: Studio
2 Course Units
CPLN 790 Smart Cities Seminar
The purpose of this course is to have students to work with city and non-profit clients on analytical projects that convert client data into actionable intelligence. Groups of 3-4 students will work with the client to understand the business process, wrangle data, develop spatial and statistical analytics and serve these outputs to non-technical decision makers through the medium of data visualization. Students will be mentored by MUSA Faculty and advised by someone from the partnering agency. Prerequisites: students must have a working knowledge of R and experience building both spatial and statistical models including machine-learning models. In order to be eligible for this course, students must have taken the following courses - 1) MUSA-507/CPLN-590 and either CPLN-505 or MUSA-500. Students must have taken or be enrolled concurrently in MUSA-601 or MUSA-800. Students without these specific prerequisites are asked to contact the instructor. Admission into the course: for spring 2018, there are initially 16 open seats with the possibility of another 4 opening up. To be admitted into the course, students are asked to pick one of the practicum projects and write no more than 300 words about why the use case is of interest, how they might go about solving the problem, and its usefulness to city Please also discuss which data-drive skills are your sharpest. The essay should be turned into the City Planning Office in Meyerson Hall. Projects (subject to change): Louisville, Kentucky-Traffic Flows and Smart Signal Modeling: students will work have access to high-resolution traffic data from Waze and historical traffic signal information from the City. The goal is understand the traffic pattern that might result from a given traffic signal configuration. Can discover a configuration that is amenable to mode choice like walking or biking? Minneapolis, Minnesota-Code Enforcement: Minneapolis has a problem where too many construction projects are happening illegally. Unpermitted construction work may result in unsafe living conditions and worse. This project is to help the city predict where illegal work may be happening and how inspectors can better enforce existing permit regulations. Philadelphia, PA-Equitable Bike Share Planning: one of the policy goals of Philadelphia’s bike share system is to expand into neighborhoods where bike share demand may not be profitable but where the subsidies might induce more sustainable mode choice in the future. Working with the Bicycle Coalition of Greater Philadelphia, the goal of this project is for students to build and algorithm, which can predict bike share demand for any location Citywide,
Taught by: Ken Steif
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CPLN 791 CPLN Summer Institute: Spreadsheet Review
Excel for Planners: use of Excel to develop simple planning indicators (e.g., location quotients), simple planning models (e.g., fiscal impact models), and database operations. Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.
Taught by: Faculty
Course usually offered summer term only
Activity: Lecture
0 Course Units

CPLN 792 CPLN Summer Institute: Statistics
Basic Statistics for Planners: review of descriptive and basic inferential statistics, including z-scores, confidence intervals, t-tests, and chi-squared. Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.
Taught by: Faculty
Course usually offered summer term only
Activity: Lecture
0 Course Units

CPLN 793 CPLN Summer Institute: Computer Methods Computer Graphics
Introduction to Presentation and Report Graphics for Planners: including one day each on Photoshop, Illustrator, Sketchup, and InDesign Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.
Taught by: Faculty
Course usually offered summer term only
Activity: Lecture
0 Course Units

CPLN 794 CPLN Summer Institute: Microeconomics Review
Micro-econ Review: review of principles of supply and demand, elasticities, equilibrium prices and quantities. Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.
Taught by: Faculty
Course usually offered summer term only
Activity: Lecture
0 Course Units

CPLN 795 Cpln Summer Institute: Introduction To Gis
The summer GIS Bootcamp prepares students for the intermediate GIS classes that begin in the fall semester. It begins with a discussion of GIS in planning and the social sciences and then moves on to topics related to spatial data, geocoding, projection, vector and raster-based geoprocessing, 3D visualization and more. Each class includes a brief lecture and a walk through involving actual planning related data. Course enrollment is by permit only. Please contact Roslynne Carter (CPLN Dept.) at at roslynne@design.upenn.edu.
Taught by: Faculty
Course usually offered summer term only
Activity: Lecture
0 Course Units

CPLN 797 CPLN Summer Institute: Writing Lab
Course usually offered summer term only
Activity: Lecture
0 Course Units

CPLN 798 CPLN Summer Institute: Success Stratgies
Course usually offered summer term only
Activity: Lecture
0 Course Units

CPLN 799 CPLN Summer Institute: Introduction to the R Statistical System
This one-week short course will introduce students to the basics of the R statistical programming language, including importing and setting up data, using the R interface to conduct descriptive data analysis, and basic model-building procedures. Course usually offered summer term only
Activity: Lecture
0 Course Units
CPLN 800 Doctoral Seminar
Open to PhD students, this scholar-oriented seminar explores how academic researchers from different disciplines define researchable questions, craft research designs, and contribute to knowledge through an examination of important and/or recently published books and monographs with an urban focus. Required of all first- and second- year CPLN doctoral students and those doctoral students enrolled in the Urban Studies Graduate Certificate Program, enrollment is limited to 15 students. Other doctoral students may enroll on a space available basis. Course requirements include completion of a major research paper on a topic selected in consultation with the instructor. Taught by: Birch
One-term course offered either term
Activity: Seminar
1 Course Unit

CPLN 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit

CPLN 999 Independent Study and Research
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Ph.D. candidates. Independent study and research under faculty supervision.
CLASSICAL STUDIES (CLST)

CLST 010 Archaeology & Technology
This seminar explores how humans apply and modify technologies in contexts as diverse as everyday life, major politico-economic undertakings, or scholarly research. We investigate this through a comparison of technologies of the past with technologies of the present used to study the past. We will dig into the details of topics like building pyramids and tombs, the function of ancient astronomical devices, pre-telegraph long-distance communication, tools for cutting and carving stone, and kilns for firing pottery. Archaeologists study these issues by examining the material remains of past societies: the cut-marks on stone blocks, extant tomb structures, the debris of manufacturing activities, and much more. Today’s technologies enable the detailed scientific examination of the evidence, improving our understanding of the past. Thus, in parallel with our investigation of past technologies, we will also study the history of the application of present technologies to research on the archaeological record. We will dig into topics like the first uses of computers and databases, the development of statistical methods, early digital 3d modeling of objects and architecture, the adoption of geophysical prospection and geographic information systems, and the emerging uses of machine learning. In some cases, we can even compare old and new technologies directly, such as with land measurement and surveying techniques. Throughout the class we will engage in readings and discussions on the theory of humans and technology, to gain a better understanding of how processes such as innovation function in all time periods.

Taught by: Peter Cobb
Activity: Seminar
1 Course Unit

CLST 020 Plato: Democracy and the Power of Rhetoric
If you aspired to a political career in ancient Athens, public speaking was an essential skill. Athens was a direct democracy, which meant that having the ability to win over your fellow citizens was tantamount to political success. Young, ambitious citizens would therefore pay handsomely to study with rhetoricians, who professed to teach this all-important skill. Plato, however, was famously wary of the power of rhetoric. In this class, we will read selections from Plato’s dialogues in which many of the most prominent rhetoricians are engaged in discussion with Socrates about the nature of rhetoric, as well as its potential benefits and pitfalls. Students will then assume the role of citizens charged with speaking before the Athenian Assembly on various subjects. This will likely include a recreation of the trial of Socrates, who was himself accused of using rhetoric to make the weaker argument the stronger. By examining democracy at its threshold, and the power wielded by rhetoricians within a democracy, this CWiC seminar aims to provide both the context and the perspective to consider its later evolution.

Grades will be based on at least two oral presentations, as well as general participation in other classroom activities.

Taught by: Reese
Activity: Seminar
1 Course Unit

CLST 026 Ancient Greece
The Greeks enjoy a special place in the construction of western culture and identity, and yet many of us have only the vaguest notion of what their culture was like. A few Greek myths at bedtime when we are kids, maybe a Greek tragedy like Sophokles’ Oidipous when we are at school: these are often the only contact we have with the world of the ancient Mediterranean. The story of the Greeks, however, deserves a wider audience, because so much of what we esteem in our own culture derives from them: democracy, epic poetry, lyric poetry, tragedy, history writing, philosophy, aesthetic taste, all of these and many other features of cultural life enter the West from Greece. The oracle of Apollo at Delphi had inscribed over the temple, “Know Thyself.” For us, that also means knowing the Greeks. We will cover the period from the Late Bronze Age, c. 1500 BC, down to the time of Alexander the Great, concentrating on the two hundred year interval from 600-400 BC.

For BA Students: History and Tradition Sector
Taught by: McInerney
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CLST 027 Ancient Rome
The Roman Empire was one of the few great world states-one that unified a large area around the Mediterranean Sea-an area never subsequently united as part of a single state. Whereas the great achievements of the Greeks were in the realm of ideas and concepts (democracy, philosophy, art, literature, drama) those of the Romans tended to be in the pragmatic spheres of ruling and controlling subject peoples and integrating them under the aegis of an imperial state. Conquest, warfare, administration, and law making were the great successes of the Roman state. We will look at this process from its inception and trace the formation of Rome’s Mediterranean empire over the last three centuries BC; we shall then consider the social, economic and political consequences of this great achievement, especially the great political transition from the Republic (rule by the Senate) to the Principate (rule by emperors). We shall also consider limitations to Roman power and various types of challenges, military, cultural, and religious, to the hegemony of the Roman state. Finally, we shall try to understand the process of the development of a distinctive Roman culture from the emergence new forms of literature, like satire, to the gladiatorial arena as typical elements that contributed to a Roman social order.

For BA Students: History and Tradition Sector
Taught by: Grey
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit
CLST 029 Rome & America
This course explores a range of social structures and contexts, cultural understandings and intellectual practices where the influence of Roman exemplars is discernible in both historical and present-day America. It presents students with Roman and American materials placed in explicit or implicit dialog with one another: e.g., descriptions and discussions of political processes and structures; attitudes towards games, public entertainments, and communal cohesion; rhetorics and vocabularies of public space. Among other tasks and projects, students will stage a 'reimagination' of the Constitutional (Philadelphia) Convention of 1787, which resulted in the United States Constitution. They will also emulate ancient moralists and satirists, who attacked Rome's 'Bread and Circuses' culture, by focusing their attention upon comparable practices in modern America.

Taught by: Grey
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Freshman Seminar

CLST 100 Greek & Roman Mythology
Myths are traditional stories that have endured many years. Some of them have to do with events of great importance, such as the founding of a nation. Others tell the stories of great heroes and heroines and their exploits and courage in the face of adversity. Still others are simple tales about otherwise unremarkable people who get into trouble or do some great deed. What are we to make of all these tales, and why do people seem to like to hear them? This course will focus on the myths of ancient Greece and Rome, as well as a few contemporary American ones, as a way of exploring the nature of myth and the function it plays for individuals, societies, and nations. We will also pay some attention to the way the Greeks and Romans themselves understood their own myths. Are myths subtle codes that contain some universal truth? Are they a window on the deep recesses of a particular culture? Are they entertaining stories that people like to tell over and over? Are they a set of blinders that all of us wear, though we do not realize it? We investigate these questions through a variety of topics creation of the universe between gods and mortals, religion and family, sex, love, madness, and death.

For BA Students: Arts and Letters Sector
Taught by: Grey
Activity: Lecture
1 Course Unit

CLST 101 Introduction to Mediterranean Archaeology
This course tells the story of what it was like to live in the complex societies of ancient Greece and Rome. This story is told principally using the art, architecture, pottery and coins produced by these societies. We will examine both the bold and sexy, and the small and humble, from the Parthenon to wooden huts, from the Aphrodite of Knidos to the bones of a fisherman named Peter.

For BA Students: History and Tradition Sector
Activity: Lecture
1 Course Unit

CLST 102 Classical Traditions
A broad consideration of the ways in which writers and artists from the early modern era to the present day have responded to the classical tradition, borrowing from, imitating, questioning, and challenging their classical predecessors. Through modern reworkings of ancient epic, tragedy, biography, and lyric by authors ranging from Shakespeare and Racine to contemporary poets, painters, and filmmakers, we will ask what the terms "classical" and "tradition" might mean and will track the continuities and differences between antiquity and the modern world. Should we see ancient Greek and Roman culture as an inheritance, a valuable source of wealth bequeathed to the modern age? Or is there something wrong with that picture? How do ancient texts have to be adapted and transformed if they are to speak to modern conditions and concerns? This is an introductory-level course open to anyone who cares about the relationship between the present and the past.

For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

CLST 103 History of Ancient Philosophy
An introduction to the major philosophical thinkers and schools of ancient Greece and Rome (The Presocratics, Plato, Aristotle, Stoics, Epicureans, and Sceptics). Topics to be covered include: nature of the universe, the relation between knowledge and reality, and the nature of morality and the good life. We will also examine some of the ways in which non-philosophical writers (e.g., Homer, Hesiod, Aristophanes, and Thucydides) treat the issues discussed by the philosophers.

For BA Students: History and Tradition Sector
Activity: Lecture
1 Course Unit
CLST 123 Great Discoveries in Archaeology
Archaeology is a young and exciting scientific discipline created around 150 years ago as a way to discover and interpret the material remains of our human past. Many archaeological sites are world-famous: Pompeii, Troy, the pyramids of Egypt, the Parthenon of Athens, the temple complex at Angkor, to name a few. In this course, we will examine many important archaeological sites, mainly in the Old World of the Mediterranean, Near East, and Asia, but also in the New World of North and South America. Using a thematic and comparative approach, we will delve deeper to explore the societies that produced these wonders, and examine cultural similarities and differences across the ancient world. This course is a non-technical introduction for students interested in archaeology, history, art history, anthropology, or related subjects. There are no prerequisites. A typical sequence of meetings will begin with lecture on a particular theme, such as Writing Systems or Sacred Spaces and Places, followed by the presentation of relevant monuments, sites, or regions from different parts of the world, with discussion and assessment of the cross-cultural similarities and differences. In this way, both the great diversity of culture in our world, as well as our underlying similarities, can be revealed. How different are we from our ancestors who lived hundreds or thousands of years ago? Museum visits and exercises will allow students to engage with the material creations of these civilizations.
Taught by: Tartaron
Activity: Lecture
1 Course Unit

CLST 127 The Material Past in a Digital World
The material remains of the human past -objects and spaces- provide tangible evidence of past people's lives. Today's information technologies improve our ability to document, study, and present these materials. But what does it mean to deal with material evidence in a virtual context? In this class, students will learn basic digital methods for studying the past while working with objects, including those in the collections of the Penn Museum. This class will teach relational database design and 3D object modeling. As we learn about acquiring and managing data, we will gain valuable experience in the evaluation and use of digital tools. The digital humanities are a platform both for learning the basic digital literacy students need to succeed in today's world and for discussing the human consequences of these new technologies and data. We will discuss information technology's impact on the study and presentation of the past, including topics such as public participation in archaeological projects, educational technologies in museum galleries, and the issues raised by digitizing and disseminating historic texts and objects. Finally, we will touch on technology's role in the preservation of the past in today's turbulent world. No prior technical experience is required, but we hope students will share an enthusiasm for the past.
Taught by: Peter Cobb
Activity: Lecture
1 Course Unit

CLST 129 The Decline and Fall of the Roman Empire?
The Roman Empire, teetering under the weight of its bureaucracy, oppressed by the demands of its soldiers, weakened by wave after wave of barbarian invasions, and, with the rise of Christianity, confronted by its own immorality, finally fell when the last Roman emperor, Romulus Augustulus, was sent into exile in 476 CE. That, at least, is one version of the story. In truth, there are many stories that can be told of the period between the apogee of the Roman empire in the 2nd c. AD and the rise of Christianity and Islam and origins of the so-called Barbarian Kingdoms in the 7th and 8th centuries AD. This course will explore this period of 600 years, using methodologies from history, archaeology, social science and the sciences to understand the complex problem of empire and its evolutions. No previous knowledge of ancient or medieval history required.
Taught by: Bowes, Grey
Activity: Lecture
1 Course Unit

CLST 136 The Ancient Economy
This class presents an introduction to economies before economics, a study of economic activity in the Greco-Roman world. Ancient Greece and Rome have been called some of the first "global" economies - they engaged in long-distance trade, introduced the first coinage systems, and built and manufactured at large scales. At the same time, they remained agrarian societies, with majority peasant populations, high levels of inequality and social systems that often placed social capital ahead of profit. Using textual sources, archaeology and techniques from the natural and social sciences, this class will not only look at basic elements of economic activity in the ancient world - demographics, trade, monetization, industry - but also ask critical questions about how - or if - modern economic methods can be applied to the distant past. No previous knowledge of the ancient world or economics is necessary.
Taught by: Bowes
Activity: Lecture
1 Course Unit

CLST 140 Scandalous Arts in Ancient and Modern Communities
What do the ancient Greek comedian Aristophanes, the Roman satirist Juvenal, have in common with Snoop Dogg and Eminem? Many things, in fact, but perhaps the most fundamental is that they are all united by a stance that constantly threatens to offend prevailing social norms, whether through obscenity, violence or misogyny. This course will examine our conceptions of art (including literary, visual and musical media) that are deemed by certain communities to transgress the boundaries of taste and convention. It juxtaposes modern notions of transgression, and the criteria used to evaluate such material, with the production of and discourse about transgressive art in classical antiquity. Students will consider, among other things, why communities feel compelled to repudiate some forms of art, while others into classics."
For BA Students: Humanities and Social Science S
Taught by: Rosen
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Previously listed as CLST 240.
CLST 143 Great Books of Greece and Rome
The literature of ancient Greece and Rome has been foundational for the national literatures of Europe and the Americas, and in the modern period it remains one of the most influential and widely read world literatures. This course introduces many of the most representative works that define the Greek and Roman canon from Homer to Augustine, along with the most characteristic issues that they examine. In the process, students will become familiar not only with the works themselves, but with the idea of a literary canon consisting of "great books," and will consider differing perspectives both on that idea and those of what constitutes a "foundational" or a "classical" literature, of literary influence, and of a community or culture defined in part by such a literature.

For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: For BA Students: Arts and Letters Sector

CLST 146 Ancient Mediterranean Empires
What constituted an empire in antiquity and how was imperialism legitimized? Which measures were used to maintain and organize imperial power? How did foreign rule affect the daily life of people all over the Mediterranean? In this course we will discuss and compare ancient empires from Achaemenid Persia to Alexander the Great and the Hellenistic kingdoms of his successors to the emergence of Rome as one of the most successful and influential empires in world history. Topics that will be discussed include ancient ideas and concepts of imperial rule, patterns of political, economic and cultural power and their interrelations as well as imperial crises and local resistance. All texts will be discussed in translation. There are no prerequisites.

Taught by: Wilker
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CLST 148 Food and Fire: Archaeology in the Laboratory
This course will let students explore the essential heritage of human technology through archaeology. People have been transforming their environment from the first use of fire for cooking. Since then, humans have adapted to the world they created using the resources around them. We use artifacts to understand how the archaeological record can be used to trace breakthroughs such as breaking stone and bone, baking bread, weaving cloth and firing pottery and metals. The seminar will meet in the Penn Museum's new Center for the Analysis of Archaeological Materials. Students will become familiar with the Museum's collections and the scientific methods used to study different materials. Class sessions will include discussions, guest presentations, museum field trips, and hands-on experience in the laboratory.

For BA Students: Humanities and Social Science Sector
Taught by: Katherine Moore
Activity: Lecture
1 Course Unit

CLST 185 Ancient Political Thought
The way in which the Greeks understood and expressed their political institutions, activities and challenges has deeply impressed our own conception of politics. This course will trace the history of this ancient heritage from its inception to today, first through a close analysis of key texts from Thucydides, Plato, Aristotle, and Polybius, and then by considering several important moments in the reception of the Greek political tradition, from the Renaissance and American Revolution to the crisis of modernity and the Neo-Conservative Movement. We will evaluate the relationship between distant and recent past as well as the influence of both on our own day.

For BA Students: History and Tradition Sector
Course not offered every year
Activity: Recitation
1 Course Unit

CLST 191 World Literature: Classics of the World I
This course will introduce students to a wide array of literary works from across the world. It operates on the assumption that cultures have never been isolated from each other and that literature has always been in motion across national boundaries; it has been translated, adapted, and circulated. We will explore the genres, forms, and thematic preoccupations of major works that strive to imagine a wider world, while also studying the critical debates around the concept of world literature, from its origins with Goethe's essay on Weltliteratur to contemporary arguments about cosmopolitanism and globalization.

Taught by: Premoli/Irele
One-term course offered either term
Activity: Seminar
1 Course Unit

CLST 199 Independent Study
Coursework and/or research undertaken independently by the student, supervised by a faculty member.
Activity: Independent Study
1 Course Unit

CLST 202 Cleopatra
Cleopatra VII (70/69 30 BCE) is one of the most famous women in world history. She has been remembered, admired, and reproached as a power-hungry Hellenistic queen, as the last pharaoh of Egypt, as a self-confident female ruler, and as the vicious seductress of Julius Caesar and Mark Antony. Her supposedly extravagant lifestyle, her political schemes, but also her integrity in choosing suicide over submission have inspired poets, artists, and historians from her own time to our modern world. In this seminar, we will take a closer look at some of the common perceptions and stereotypes that have shaped the image of Cleopatra for more than 2000 years. The main focus, however, will be on the historical queen, her biography, and the political and cultural contexts of her life. We will use ancient literary texts, papyri, inscriptions, coins, and archaeological evidence to analyze Cleopatra's rise to power, how she presented herself to her subjects and how she was perceived by others, as well as her role in the tumultuous events that led to the end of the Hellenistic period and the rise of imperial Rome under the rule of Augustus.

Taught by: Wilker
Course not offered every year
Activity: Seminar
1 Course Unit
CLST 211 Ancient Moral Philosophy
A survey of the ethical theories debated by philosophers in Classical Greece and Rome. Plato, Aristotle, Stoics, Epicureans and Pyrrhonist Sceptics offer competing answers to the fundamental question raised by Socrates: How are we to live? That is, what is the best life for a human being? These philosophers generally agree that virtue is an important part of the best human life, but disagree about whether it is the greatest good (Epicurus, for example claims that pleasure is the highest good), or whether there are any other goods (for example, health, wealth, family). Much attention is paid in their theories to accounts of the virtues of character, and to the place of wisdom in the best sort of human life.
For BA Students: Society Sector
Taught by: Meyer
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CLST 217 Periclean Athens
Athens in the 5th Century BCE is often viewed as a high point of human civilization. We will assess this claim by looking at the period's cultural achievements (in such areas as drama, architecture, and oratory) within their social and political contexts. Topics for discussion include: the structure and workings of the Athenian democracy; the interplay between pro-democratic and anti-democratic positions in Athenian political life; the connections between democracy and imperialism; conceptions of citizenship and relations between citizens and non-citizens (women, slaves, and resident foreigners); the role of the law courts in both dispute resolution and elite competition; sexual politics; and the civic significance of religious ritual.
Taught by: MURNAGHAN
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 220 Greek Art and Artifact
This course surveys Greek art and artifacts from Sicily to the Black Sea from the 10th BCE up to the 2nd centuries BCE reaching the Age of Alexander and the Hellenistic Kingdoms. Our objects range from public sculpture and painting on and around grand buildings and gardens, to domestic luxury arts like jewelry, cups and vases, mosaic floors, and the humbler objects of worship and every-day life. Greek addressed heroic epic, religious and political themes, engaged viewers' emotions, and served mundane as well as monumental aims. Current themes include Greek ways of looking at art and space, and ideas of invention and progress; the role of monuments, makers and patrons in Greek society; and connections with the other cultures that inspired and made use of Greek artists and styles. To understand ancient viewers' encounters, you will meet the spaces of sanctuary and tomb, house and city, garden and private collection; your readings will sample ancient peoples' art writing. Diverse approaches introduce art historical aims and methods, and their relationships to archaeology, anthropology and other disciplines – also to modern kinds of museums, not least our own University Museum of Archaeology. No prerequisites. This course fulfills the 'global requirement'. Of interest to students of classical, middle-eastern, visual and religious studies, anthropology, history, communications and the GSD programs.
Taught by: Kuttner
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CLST 221 Hellenistic and Roman Art and Artifact
An intensive introduction to the art and architecture of Rome and her empire from Republican and later Hellenistic to Constantinian times. Variable emphasis on topics ranging from major genres, styles, and programs of commemorative and decorative art, historical narrative, and political iconography to building types and functions and the specific Etrusco-Roman notion of space, land division, and city planning.
Taught by: Kuttner
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CLST 223 Ages of Homer: An Archaeological Introduction to the Greek Bronze and Iron Ages
This illustrated lecture course surveys the prehistory and early history of the Greek world through texts and material remains, with the aim of bringing to life the society, economy, and politics of this ancient era. Among the topics are the rise and fall of the great Bronze Age civilizations of the Aegean area, the Minoans of Crete and the Mycenaeans of the Greek mainland; the cataclysmic volcanic eruption on the island of Thera and its long-term consequences; the possibly historical Trojan War; the Homeric world of the Dark Age that followed the collapse of the Mycenaean palaces; and the Greek renaissance of the eighth century B.C.-including the adoption of the alphabet, the great colonizing movement, and the Panhellenic sanctuaries that laid the foundation for the Classical world to come. Ages of Homer is part of a sequence of introductory courses on the archaeology of the Greco-Roman world, which also includes Introduction to Greek Archaeology (CLS 275) and Introduction to Roman Archaeology (CLST 274). There are no prerequisites, and these courses need not be taken in a particular order.
Taught by: Tartaron
Course not offered every year
Activity: Lecture
1 Course Unit

CLST 227 Age of Caesar
A course on Roman culture and society in a period of tumultuous political change, the lifetime of Julius Caesar (100-44BCE). Focuses on the interplay between shifting political and military realities and developments in social organization and literary production at Rome and in the wider Mediterranean world. The reception of Caesar in later ages will also be considered. Readings (all in translation) will include Catullus, Cicero, Lucetius, Plutarach, Sallust, Suetonius, and, of course, Caesar himself.
Taught by: Damon
Course not offered every year
Activity: Seminar
1 Course Unit
CLST 228 Excavating Ancient Cities: Troy and Gordion
The instructor has spent the last 30 years excavating the Turkish sites of Troy and Gordion, the latter of which has been explored under Penns sponsorship. The former was famous in antiquity as the site of the Trojan War; the latter served as the capital of the Phrygian Kingdom, ruled by Midas. Both of these are multi-period sites, with nine settlements built above each other during more than four millennia, and determining the chronology and appearance of each settlement has consistently been controversial. In this course we will examine the history of both sites, focusing on the problems of archaeological interpretation. Students will be placed in the position of the archaeologist and charged with re-interpreting the existing archaeological evidence.
Taught by: Brian Rose
Activity: Lecture
1 Course Unit

CLST 251 Greek and Roman Universe
This course covers the history of Greek and Roman exploration and mapping of the earth and the cosmos from the Bronze Age to Late Antiquity, together with advances in timekeeping and the measurement of time. Readings include poetic, historical, and scientific texts.
Taught by: Farrell
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 267 The Ancient Novel
The ancient Greek and Roman novels include some of the most enjoyable and interesting literary works from antiquity. Ignored by ancient critics, they were until fairly recently dismissed by classical scholars as mere popular entertainment. But these narratives had an enormous influence on the later development of the novel, and their sophistication and playfulness, they often seem peculiarly modern—or even postmodern. They are also an important source for any understanding of ancient culture or society. In this course, we will discuss the social, religious and philosophical contexts for the ancient novel, and we will think about the relationship of the novel to other ancient genres, such as history and epic. Texts to be read will include Lucian’s parodic science fiction story about a journey to the moon; Longus’ touching pastoral romance about young love and sexual awakening; Heliodorus’ gripping and exotic thriller about pirates and long-lost children; Apuleius’ Golden Ass, which contains the story of Cupid and Psyche; and Petronius’ Satyricon, a hilarious evocation of an orgiastic Roman banquet.
Taught by: Wilson
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 268 Living World in Archaeological Science
By focusing on the scientific analysis of archaeological remains, this course will explore life and death in the past. It takes place in the new Center for the Analysis of Archaeological Materials (CAAM) and is team taught in three modules: human skeletal analysis, analysis of animal remains, and analysis of plant remains. Each module will combine laboratory and classroom exercises to give students hands-on experience with archaeological materials. We will examine how organic materials provide key information about past environments, human behavior, and cultural change through discussions of topics such as health and disease, inequality, and food.
Taught by: Kassabaum, Monge, Moore
Activity: Lecture
1 Course Unit

CLST 271 Greek & Roman Medicine
The history of Western medicine is remarkably recent; until the nineteenth century prevailing theories of the body and mind, and many therapeutic methods to combat disease, were largely informed by an elaborate system developed centuries earlier in ancient Greece, at a period when the lines between philosophy, medicine, and what we might consider magic, were much less clearly defined than they are today. This course will examine the ways in which the Greeks, and then the Romans, conceptualized the body, disease, and healing, and will compare these to medical culture of our time. We will consider sources from Hippocrates, Plato, and Aristotle to Galen and Soranus, and will juxtapose these writings with modern discourse about similar topics. We will also pay some attention to ancient pharmacology and religious healing, and will visit the Penn Museum to see their collection of ancient medical instruments. All readings will be in English and no previous background in Classical Studies is required. This course will be especially appealing (and useful) to Pre-med and Nursing students, and to students interested in the History of Science, Ancient Philosophy, and Classics.
Taught by: Rosen
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Fulfills History Tradition Distribution Requirement

CLST 300 Lies My Ancient History Teacher Taught Me
The neat, comforting narratives that we construct of the histories of ancient Greece and Rome cover up a collection of controversies and debates that continue to rage in contemporary scholarship. Can we use the Homeric epics as sources of early Greek history? Who was responsible for the Peloponnesian War? How can we best explain Rome’s acquisition of empire? How new was the political revolution of Augustus? What were the main reasons for the rise of Christianity? In this course, we explore these and other controversies, focusing on both modern scholarship and the ancient sources. All texts will be discussed in translation. No prior knowledge of Ancient History is required, although it would be useful to have taken ANCH 026 and/or ANCH 027.
Taught by: Cam Grey
Course not offered every year
Activity: Seminar
1 Course Unit
CLST 310 Ancient and Modern Constitution Making
Constitution-making reemerged as an urgent issue with the transformation of colonial empires after World War II, the collapse of the Soviet empire in 1991, and nationalist movements in the Balkans, the British Isles, and the European Union. It has remained important as competition for control of Central Asia, the Middle East, and Northern Africa has intensified. The written constitution has been hailed by some as making the vehicle for changing long established cultures, but its success has been uneven when it comes to reducing political conflict and to reforming if not improving customs, character, habits, and actions. What might explain this uneven success? Is an explanation to be found by going back to what appears to be the roots of constitution-making? This course builds on contemporary scholarship to reconstruct what we may call the constitution-making tradition as it develops in the main ancient texts, which are read in English translation. The course traces this tradition through the classically trained thinkers of the Seventeenth Century, the American colonial compacts and covenants, the so-called state constitutions, and the debates in the U.S. Constitutional Convention up to recent efforts in, for example, Zimbabwe (2013) or Egypt (2014).
Taught by: Mulhern
One-term course offered either term
Activity: Seminar
1 Course Unit

CLST 311 Disasters in the Ancient World
Natural disasters occupy a powerful place in our imagination. Stories of floods, plagues, earthquakes and storms excite and horrify us, and communities mobilize their resources quickly in response to these events. In the ancient Mediterranean world, natural disasters could take on potent meaning, indicating the anger or disfavor of the gods, acting as warnings against certain courses of action, or confirmations of individuals’ fears or suspicions about the world in which they lived. In this course, we explore the evidence for some disasters in the ancient Mediterranean world, the ways in which contemporaries reacted to those disasters and interpreted their causes. This project is, of necessity, multidisciplinary, involving textual, archaeological, geological, and comparative materials and drawing on methodologies from history, political and archaeological science, and the emerging field of disaster studies. In the process, we will gain an appreciation of the social structures of communities in the period, the thought-world in which they operated, and the challenges and opportunities that attend a project of this sort. No prior knowledge of Ancient History is required, although it would be useful to have taken an introductory survey course. Texts will be discussed in translation.
Taught by: Grey
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 325 Topics in Roman Art and Architecture
Topics vary
One-term course offered either term
Activity: Seminar
1 Course Unit

CLST 328 Topography and Monuments of Ancient Rome
An intensive exploration of Rome’s urban topography during the Republican and Imperial periods (6th c. B.C. through 4th c. A.D.) Using archaeological and textual sources, including the Etruscan and Roman collections of the Penn Museum, the goal will be to reconstruct the built environment and decoration of Rome over the course of a millennium. Of interest to students of classics, archaeology, art history, and architecture. Some familiarity with Rome will be a plus, but is not required.
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 329 Topics in Classicism and Literature
This advanced seminar will examine the classical backgrounds to English poetry, in particular the Biblical and Greco-Roman antecedents to Renaissance lyric verse and verse drama (such as, preeminently, Shakespeare). Different versions of this course will have different emphases on Biblical or Hellenist backgrounds.
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 332 The Rise and Decline of Macedonia
In this course, we will study the rise and development of Macedonia from a tiny kingdom on the northern fringes of the Greek world to one of the major powers of the region and beyond. Regarded by the Greeks as an at least semi-barbarian culture on the periphery, Macedonia became the dominant power in the Greek world during the fourth century BC and its king Alexander the Great set out to conquer the world. After his death, Macedonia was one of the Hellenistic kingdoms competing for power and influence in the Mediterranean until it finally came under Roman control. Topics that will be discussed include questions of ethnicity and identity, Macedonian kingship, culture and society (including the role of women) and the role of Macedonian traditions in the Hellenistic era in general. Special emphasis will therefore be laid on critical reading and interpretation of ancient literary texts, documentary evidence and archaeological material. that will be discussed include questions of ethnicity and identity, Macedonian kingship, culture and society (including the role of women) and the role of Macedonian traditions in the Hellenistic era in general.
Taught by: Wilker
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 336 Archaeology of Anatolia
This class is devoted to the archaeology and history of Anatolia (ancient Turkey) from the beginning of the Bronze Age (3000 BC) to the end of the Byzantine period (1453 AD). Emphasis will be placed on the great empires in Anatolia (Hittite, Phrygian, Lydian, Urartian, Persian, Roman, and Byzantine), and on the great cities (Troy, Sardis, Ephesus, Constantinople). The course is intended to complement the major exhibit on Gordion, the Phrygians, and Anatolian archaeology that will open at the Penn Museum in February of 2016 and run for 10 months.
Taught by: Brian Rose
Course not offered every year
Activity: Lecture
1 Course Unit
CLST 337 Iliad
Homer’s Iliad presents a dark and difficult vision of the world, but one that nonetheless inspires. Casual cruelty, divine caprice, and savage violence test heroes and lesser folk and provoke a reckoning with the stark realities of both human vulnerability and capability. It inspires kind of terror, but still also somehow provides a kind of comfort, albeit one whose character seems almost beyond comprehension. By a close and careful reading of Homer’s text, along with some reflections and readings drawn from more contemporary wars, including the current ones, we will try to examine these issues with one eye on the past and one on the present. Our goal will be to achieve some further understanding of war and human experience. This course will be offered online.
Taught by: Struck
Course usually offered summer term only
Activity: Seminar
1 Course Unit

CLST 338 Power & Peril: the Paradox of Monarchy Among Ancient Greeks, Romans & Jews
We imagine Ancient Greece and Rome as the cradles of democracy and republicanism, the early Judea as pious theocracy, but the evidence tells us that monarchy was the most common and prevalent form of government in antiquity (and the premodern world in general). Despite their ubiquity, the King was a polarizing figure in reality and in conception. On the one hand, some idealized the monarchy as the ideal leader, and monarchy provided the language with which to describe and even imagine the very godself on the other, monarchs were widely reviled in both theory and practice, from the Greek tyrant to biblical Saul. The Emperor Augustus loudly denied his own affinity to the office of king, even as he ruled alone and was revered as a god. In other words, kings stood both for the ideal ruler and the worst form of government. This class confronts the paradox of the King.
Taught by: Wilker, Dohrmann
Activity: Seminar
1 Course Unit

CLST 339 Descent to the Underworld in Ancient Near-Eastern and Western Literature
From antiquity to the present the hero’s journey to the underworld, or the land of the dead, has offered poets and philosophers a metaphor to express our search for life’s meaning. In antiquity that meaning was to be found by an extraordinary individual in a heroic quest beyond the grave. In this course we will consider various interpretations what of this katabasis means within the context of our everyday struggle to find meaning.
Taught by: Foley
Activity: Seminar
1 Course Unit

CLST 341 Topics in Greco-Roman Art
Topic Varies
Taught by: Kuttner
Activity: Seminar
1 Course Unit

CLST 343 The Iliad and its Afterlife
As the earliest work in the western tradition, the Iliad has been a constant point of reference for later considerations of heroism, friendship, the search for meaning in the face of mortality, and the effects of war on individuals and societies. We will begin with a close reading of the Iliad in translation, with attention both to the story of its hero Achilles as he experiences disillusionment, frustration, anger, triumph, revenge, and reconciliation and to the poems broader portrait of a society at war, which incorporates the diverse perspectives of invaders and defenders, men and women, old and young, gods and mortals, along with tantalizing glimpses of peacetime life. We will then consider how later writers and artists have drawn on the Iliad to present a range of perspectives of their own – whether patriotic, mock heroic, romantic, or pacifist – with particular attention to 20th and 21st century responses by such figures as W.H. Auden, Simone Weil, Cy Twombly, David Malouf, Alice Oswald, and Adrienne Rich. There are no specific prerequisites, but the course can serve as a complement to CLST 302, The Odyssey and its Afterlife or CLST 331 Reading the Iliad in a Time of War.
Taught by: Murnaghan
Activity: Seminar
1 Course Unit

CLST 344 Curiosity: Ancient and Modern Thinking about Thinking
This course will examine two approaches to the still unanswered question of what happens when we humans come up with new knowledge. How should we describe the impulse, or set of impulses, that leads us to seek it? What is happening when we achieve it? And how do we describe the new state in which we find ourselves after we have it? We will study the work of contemporary physicists and cognitive scientists on these questions along side the approaches developed by the two most powerful thinkers from antiquity on the topic, Plato and Aristotle.
Taught by: Struck
Also Offered As: EAS 244
Prerequisites: Curiosity, bravery, and a predilection for the interdisciplinary
Activity: Seminar
1 Course Unit
CLST 345 Ancient Epic Poetry
Admission to the course is by application only. This course will be a collaboration between Penn and Yale-NUS in Singapore. It involves travel to study in Singapore during Penns Spring Break 2019. Mira Seo, Professor of Humanities (Literature) at Yale-NUS and Peter Struck, Professor of Classics at University of Pennsylvania, will teach a shared syllabus between two seminars, one at Yale NUS, and one at Penn. The syllabus will focus on five complete epics, Gilgamesh, the Iliad, Odyssey, Ramayana, and Aeneid, with appropriate secondary literature on each text. Class will meet on each campus independently during standard course times. In addition, we will schedule six plenary sessions via teleconference, held as additional sessions in the morning (Singapore) and evening (Philadelphia) to allow for simultaneity. In the plenary sessions, we will engage in a mix of interactive activities, including lectures, discussions, and group work. The course will pivot around two weeks at the midpoint of the semester, the last week of February (23 February-3 March, 2019) and the first week of March (3-10 March, 2019). The first is Yale-NUS’s Spring break, and that class will travel to Philadelphia and join Penn students in face-to-face class sessions, plus engage in additional ambassadorial kinds of events, in which they will explore the richness of Penn and Philadelphia, including the Penn Museum. The first week of March is Penns Spring break, and as Yale students return to Singapore, Penn students will fly over to meet them for a week that mirrors the Philadelphia experience, with attendance in classes, and cultural events, including the Asian Civilizations Museum. Course grades will consist in a combination of sole-authored papers and work pursued by groups drawn from both campuses and turned in as collaborative projects. These will be seeded before the face-to-face weeks, and pursued via shared blog and small group videoconferencing links. There will be money available to subvene travel expenses for students. Up to date passports are required for the course.
Taught by: Peter Struck
Activity: Lecture
1 Course Unit

CLST 360 Troy Stories: Classical Epic and Medieval Romance
In this course on ancient and medieval epic we will track the literary compulsion to return to the Trojan War. The matter of Troy provided ancient and medieval writers with a rich resource for reflections on war and violence, on the power and vulnerability of states, on personal and communal suffering, and on how history is written. We will begin with the Homeric Iliad along with other ancient Greek uses of the Trojan myth; we will read Virgilis refashioning of the Trojan story as the new beginnings of a triumphant Roman history; and then we will consider how medieval writers, including Geoffrey of Monmouth, Boccaccio, Chaucer, the Gawain-Poet, and Robert Henryson, shaped and contended with the myth of Troy. In the hands of late medieval writers, Troy becomes a literary site for the transformation of epic into the genre of romance. The course requirements will be: one ten-minute oral presentation on a research topic of your choice related to the reading, together with a short write-up of your research; one very short critical paper; and one longer research paper (which can develop the subject of your oral presentation).
Taught by: Copeland
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 362 Intro to Digital Archaeology
Digital methods allow archaeologists to approach research questions about the human past with increasing accuracies on larger datasets and at multiple scales. This class introduces students to the three main steps of digital archaeology: data management, analysis, and sharing. Data management involves the design, creation, and curation of digital objects that capture the archaeological process and evidence. Students will gain deep familiarity in working with the main types of digital archaeological data: structured data (relational databases), 3D models/spatial data, and raster images. The class will provide abundant hands-on experience with the latest equipment and software for working with many different kinds of data. We will learn about data analysis techniques through a close examination of a variety of case studies in the literature that demonstrate how other archaeologists have applied digital methods to their archaeological questions. Finally, we will discuss the importance of sharing data through open access data publication and we will apply our skills with structured data to existing online archaeological datasets. The goal of this class is to prepare students to make methodological decisions during future research endeavors, both in the field and in the archaeological lab.
Taught by: Peter Cobb
Prerequisite: Prior archaeological classwork and/or experience preferred
Activity: Lecture
1 Course Unit

CLST 370 Classics & American Government
Before the universities established public-service programs in the twentieth century, many Americans prepared themselves for public life by studying Greek and Latin authors in school and college. In this course, using English translations, students survey an eighteenth-century classical curriculum and trace its influence in the political activity of Madison and others who guided the development of American governmental institutions.
Taught by: John Mulhern
Course usually offered in fall term
Activity: Seminar
1 Course Unit
CLST 396 History of Literary Criticism
This is a course on the history of literary theory, a survey of major debates about literature, poetics, and ideas about what literary texts should do, from ancient Greece to examples of modern European thought. The first half of the course will focus on early periods: Greek and Roman antiquity, especially Plato and Aristotle; the medieval period (including St. Augustine, Dante, and Boccaccio); and the early modern period (such as Philip Sidney and Giambattista Vico). We'll move into modern and 20th century by looking at the literary (or "art") theories of some major philosophers, artists, and poets (Kant, Hegel, Shelley, Marx, the painter William Morris, Freud, and the critic Walter Benjamin). We'll end with a look at Foucault's work. The point of this course is to consider closely the Western European tradition which generated questions that are still with us, such as: what is the "aesthetic"; what is "imitation" or mimesis; how are we to know an author's intention; and under what circumstances should literary texts ever be censored. During the semester there will be four short writing assignments in the form of analytical essays (3 pages each), and students can use these small assignments to build into a long writing assignment on a single text or group of texts at the end of the term. Most of our readings will come from a published anthology of literary criticism and theory; a few readings will be on Canvas.
Taught by: Copeland
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

CLST 399 Independent Study
This course is taken by students doing independent work with a faculty advisor, such as students approved to work on a senior research paper in pursuit of honors in the major.
One-term course offered either term
Activity: Independent Study
1 Course Unit

CLST 402 Post-Baccalaureate Studies in Greek
Intensive Greek reading course for students in the Post-Baccalaureate Program in Classical Studies. Readings are chosen to expose students to a variety of prose and poetry texts during their program experience. The Fall course includes some grammar review and analysis as well as translation. Permission of instructor required for non-Post-Baccalaureate students.
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

CLST 403 Post-Baccalaureate Studies in Latin
Intensive Latin reading course for students in the Post-Baccalaureate Program in Classical Studies. Readings are chosen to expose students to a variety of prose and poetry texts during their program experience. The Fall course includes some grammar review and analysis as well as translation. Permission of instructor required for non-Post-Baccalaureate students.
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

CLST 425 Late Antique Arts
What is 'Late Antiquity'? In 312 when Roman emperor Constantine inaugurated a Christian empire, 'Roman' culture was centuries old. The period ca. 200-650 saw profound transformations that launched Medieval, Byzantine and Islamic traditions. In the epoch of economic and political upheaval destruction was frequent but partial: Rome long survived, Constantine's 'new Rome,' Constantinople flourished, and around the Empire both proto-global visual culture and local forms prospered. Roman cultural models authorized both innovation and passion for tradition, in forms and styles: we critique art-historical models for Late Antiquity 'decline,' analyze habits of material reuse and curation, and look at new Christian and Jewish roles for Roman things as well as polytheist visual survival. Foreign allies and enemies, and new peoples invading an already polythetic Empire, interacted with Greco-Roman Late Antiquity; we visit arts of Sasanian and Islamic empires east and south, and 'barbarian' domains in Africa, Europe, Britain. Media discussed, for sacred, courtly, domestic, funerary, political and civic spaces and structures include not just 'monumental' painting, mosaic, sculpture, but also objects of silver, ceramic, ivory, figural textile, glass; painted books, jewelry; mass-media artifacts like coins and pilgrimage tokens. We also study Late Antique texts on art, objects, space and viewership.
Taught by: Kuttner
Activity Lecture
1 Course Unit

CLST 427 Roman Sculpture
Survey of the Republican origins and Imperial development of Roman sculpture-free-standing, relief, and architectural—from ca. 150 BC to 350 AD. We concentrate on sculpture in the capital city and on court and state arts, emphasizing commemorative public sculpture and Roman habits of decorative display; genres examined include relief, portraits, sarcophagi, luxury and minor arts (gems, metalwork, coinage). We evaluate the choice and evolution of styles with reference to the functions of sculptural representation in Roman culture and society.
Taught by: Kuttner, Rose
Course not offered every year
Activity: Lecture
1 Course Unit

CLST 500 Materials and Methods, proseminar in CLASSICAL STUDIES AND ANCIENT HISTORY
This is the required proseminar for first year graduate students in classical and ancient history. It will introduce you to some key methodological, practical and theoretical tools for beginning a scholarly career in these fields.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CLST 503 Historical Grammar of Greek
Investigation of the grammar of Classical Greek from the viewpoint of historical linguistics. The course will offer historical explanations for numerous structural peculiarities of the Greek language and anomalies of Greek grammar, touch on the relationship of Greek with other languages, and incidentally introduce the student to some basic concepts of language analysis likely to be useful in teaching Greek and learning other languages.
Taught by: Ringe
Course not offered every year
Prerequisite: A fluent reading knowledge of ancient Greek
Activity: Seminar
1 Course Unit
CLST 517 MLA Proseminar: Reading the Iliad in an Age of War
Homer's Iliad presents a dark and difficult vision of the world, but one that nonetheless inspires. Casual cruelty, divine caprice, and savage violence test heroes and lesser folk and provoke a reckoning with the stark realities of both human vulnerability and capability. It inspires kind of terror, but still also somehow provides a kind of comfort, albeit one whose character seems almost beyond comprehension. By a close and careful reading of Homer's text, along with some reflections and readings drawn from more contemporary wars, including the current ones, we will try to examine these issues with one eye on the past and one on the present. Our goal will be to achieve some further understanding of war and human experience. This course will be offered online.
Taught by: Struck/Reinhardt
Activity: Seminar
1 Course Unit

CLST 521 Topics in Greek and Roman Art
Topic Varies. Please check website for more details. Fall 2018: "Roman Provincial Art" is a very active scholarly category: we test how it might be productive, sampling visual culture outside the empire's Italian heartland from the Late Republic into Late Antiquity. Rome's arts were always in dialogue with those of neighboring cultures; imperialist expansion into the Mediterranean world and beyond meant that cultural relations across many boundaries—social, ethnic, territorial—potentially became cultural politics. Of related interest are relationships between visual and material culture within the Roman world’s formal boundaries, in proto-global and imperial contexts, and those of peoples along and beyond those frontiers. (In Late Antiquity some of them took up rule within the old imperial boundaries, and came to cultural terms with their new lands.) "Style" is a fraught issue: what does attributed crudeness in regional practice add up to, and what were the aims of apparently trans-Mediterranean forms of display? Do "arts" engage identity formation, enforced or discrepant viewing?
Taught by: Kuttner
Course not offered every year
Prerequisites: No prerequisite. Open to advanced undergraduates with permission of the instructor.
Activity: Seminar
1 Course Unit

CLST 526 Material & Methods in Mediterranean Archaeology
This course is intended to familiarize new graduate students with the collections of the University of Pennsylvania Museum of Archaeology and Anthropology and the wide range of scholarly interests and approaches used by faculty at Penn and neighboring institutions, as well as to provide an introduction to archaeological methods and theory in a Mediterranean context. Each week, invited lecturers will address the class on different aspects of archaeological methodology in their own research, emphasizing specific themes that will be highlighted in readings and subsequent discussion. The course is divided into five sections: Introduction to the Mediterranean Section; Collections; Method and Theory in Mediterranean Archaeology; Museum Work; and Ethics. The course is designed for new AAMW graduate students, though other graduate students or advanced undergraduate students may participate with the permission of the instructor.
Taught by: Tartaron
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CLST 532 Ancient Greek Colonies
This seminar examines the archaeology of Greek colonization from the Late Bronze Age to ca. 500 B.C. These colonies were highly diverse in their motivations, physical settings, and political and social structures, as well as in their relationships with mother cities and the new worlds they inhabited. Emphasis is placed on the colonial experience as a cross-cultural and negotiated process; several streams of the changing theoretical and conceptual approaches to Greek colonization are explored. In addition to archaeological and epigraphic evidence, literary and historical traditions are examined. Colonies from the southern Balkan peninsula, Black Sea, Ionia, northern Africa, and Magna Graecia will be the focus of reading and reports. Seminar meetings will consist of oral reports and discussion of these reports and other topics. Depending on the number of participants, each person will be responsible for two or three reports of approximately 30-45 minutes length. Accompanying the oral report will be a PowerPoint document (in most cases), a synopsis/summary of one to two pages, and a bibliography. These will all be posted on the course Canvas site. No later than one week before an oral presentation, the presenter will identify one or two key readings for all to read, in consultation with the instructor. These will be posted, in PDF format, on the Canvas site. One or more visits to the Penn Museum may be built into the course.
Taught by: Tom Tartaron
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 533 Topog & Mon of Anc Rome
An intensive exploration of Rome's urban topography during the Republican and Imperial periods (6th c. B.C. through 4th c. A.D.) Using archaeological and textual sources, including the Etruscan and Roman collections of the Penn Museum, the goal will be to reconstruct the built environment and decoration of Rome over the course of a millennium. Of interest to students of classics, archaeology, art history, and architecture. Some familiarity with Rome will be a plus, but is not required.
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 541 Plato and Aristotle in the Renaissance
Course not offered every year
Activity: Seminar
1 Course Unit
**CLST 562 Intro to Digital Archaeology**
Digital methods allow archaeologists to approach research questions about the human past with increasing accuracies on larger datasets and at multiple scales. This class introduces students to the three main steps of digital archaeology: data management, analysis, and sharing. Data management involves the design, creation, and curation of digital objects that capture the archaeological process and evidence. Students will gain deep familiarity in working with the main types of digital archaeological data: structured data (relational databases), 3d models/spatial data, and raster images. The class will provide abundant hands-on experience with the latest equipment and software for working with many different kinds of data. We will learn about data analysis techniques through a close examination of a variety of case studies in the literature that demonstrate how other archaeologists have applied digital methods to their archaeological questions. Finally, we will discuss the importance of sharing data through open access data publication and we will apply our skills with structured data to existing online archaeological datasets. The goal of this class is to prepare students to make methodological decisions during future research endeavors, both in the field and in the archaeological lab.

Taught by: Peter Cobb
Prerequisite: Prior archaeological classwork and/or experience preferred
Activity: Lecture
1 Course Unit

**CLST 568 Living World in Archaeological Science**
By focusing on the scientific analysis of archaeological remains, this course will explore life and death in the past. It takes place in the new Center for the Analysis of Archaeological Materials (CAAM) and is taught in three modules: human skeletal analysis, analysis of animal remains, and analysis of plant remains. Each module will combine laboratory and classroom exercises to give students hands-on experience with archaeological materials. We will examine how organic materials provide key information about past environments, human behavior, and cultural change through discussions of topics such as health and disease, inequality, and food.

Taught by: Kassabaum, Monge, Moore
Activity: Lecture
1 Course Unit

**CLST 598 Language Pedagogy Workshop**
The Workshop is intended to serve as a forum for first-time teachers of Latin or Greek. This will include discussing course-plans and pedagogical theories and strategies, collaborating on course materials, and addressing any concerns in the language courses presently being taught.

Taught by: James Ker
Activity: Seminar
1 Course Unit

**CLST 600 Graduate Seminar**
Topics will vary
One-term course offered either term
Activity: Seminar
1 Course Unit

**CLST 611 Greek Epigraphy: Ancient Economies**
Scholars have long debated the nature of the ancient economy, the terms in which it can best be approached, and the decision-making processes that underpinned economic behavior in antiquity. In particular, controversy has surrounded the extent to which the economies of Greco-Roman antiquity can be modeled using contemporary tools of analysis.

In recent scholarship, many of the tenets laid down by Moses Finley in his "Ancient Economy" have been re-evaluated, with the result that the field is currently in a state of intellectual ferment. It is the purpose of this course to explore the terms in which contemporary debates over ancient economic systems are formulated, with reference to a variety of societies and periods, from the palace economies of the Mycenaean period to the system of taxation introduced in the early fourth century by the emperor Diocletian and his colleagues in the Tetrarchy.

Taught by: Bowes
Course not offered every year
Activity: Seminar
1 Course Unit

**CLST 616 Ancient Economies**
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Taught by: Bowes and Grey
One-term course offered either term
Activity: Seminar
1 Course Unit

**CLST 618 Medieval Poetics**
This is a comparative course on medieval stylistic practices, formal innovations, and especially theories of form. Our common ground will be the theories that were generated in learned and pedagogical traditions of medieval Latin (with their roots in ancient thought about poetic form).

We will also collaborate on the particulars of the European vernacular cultures that stamped their interests on the interplay of language, genre, and form. Questions common to all the literary traditions may be the social, ethical, and epistemological roles of poetry. Other common questions include the distinctively medieval terms of interpretive theory and practice; technologies of interpretation; theories of fiction (fabula), the histories of the language arts; transformations of the terminology of figurative language; grammatical orthopraxis and permitted deviation; and material texts. As we turn from interpretive to generative categories, we will consider how arts of poetry find their linguistic and stylistic focus in the vocabularies of individual vernacular traditions.

Taught by: Rita Copeland
Course not offered every year
Activity: Seminar
1 Course Unit

**CLST 622 Gloss & Commentary**
Activity: Seminar
1 Course Unit
CLST 698 Prospectus Workshop
Designed to prepare graduates in any aspect of study in the ancient world
to prepare for the dissertation prospectus. Course will be centered around
individual presentations and group critique of prospectus’ in process, as
well the fundamentals of large-project research design and presentation.
Taught by: Bowes
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: Graduates only

CLST 700 Geoarchaeology
Activity: Lecture
1 Course Unit

CLST 705 Ethnoarchaeology Greece
Ethnoarchaeology involves distinctive theoretical and methodological
approaches to the study of living societies for the explicit purpose of
shedding light on archaeological questions. In this seminar, we will review
the intellectual history of ethnoarchaeology in North America and Europe,
and explore case studies from Greece, the wider Mediterranean, and
beyond. Among the topics will be analogy, cross-cultural comparison,
experimental archaeology, oral history research, and archaeologically
oriented ethnographic fieldwork. Students will create a proposal for
ethnoarchaeological fieldwork in their area of interest in NSF or Wenner-
Gren format, to be critiqued by the instructor and their peers.
Taught by: Tartaron
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 706 Archaeology of the Hellenistic Period in Italy, Greece, and Asia
Minor
A survey of the archaeology of the Hellenistic period (331-31 BCE) across
the Mediterranean, with a focus on Rome, Magna Graecia, Greece, and
western Asia Minor. The course will stress the interactions among cities
and kingdoms during the Roman Republic and Greek Hellenistic periods,
especially the second century B.C. Students will work with relevant
objects in the Penn Museums Mediterranean Section.
Taught by: Brian Rose
Activity: Seminar
1 Course Unit

CLST 707 Topics in Aegean Archaeology
Topics vary. This course explores current topics in Aegean archaeology. It
is designed to inform and prompt debate and discussion on substantive,
methodological, and theoretical matters of current interest, within a
geographical and/or chronological framework. Spring 2017 topic TBA.
Taught by: Tom Tartaron
Activity: Seminar
1 Course Unit
Notes: Undergraduates require permission of instructor

CLST 711 The Archaeology of Greece and Asia Minor in the Archaic and
Classical Periods
An examination of new discoveries and conflicting interpretations in the
archaeology of Greece and Asia Minor between the seventh and fourth
centuries B.C.E. Both sides of the Aegean will receive equal attention, and
emphasis will be placed on sanctuaries, settlements, and cemeteries.
Taught by: C. Brian Rose
Activity: Seminar
1 Course Unit
Notes: Graduates Students Only

CLST 715 Archaeology of Troy
An introduction to the archaeology of Troy, in northwestern Turkey.
The course will focus on the results of excavations at the site in 1988,
although the earlier excavations of Schliemann, Dorpfeld, and Blegen will
also be considered. The course will cover a broad chronological span--
from the early Bronze age through the late Roman period, and will include
Greek, Roman, and Medieval attitudes toward Troy and the Trojan legend.
Taught by: Rose
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 720 Topics in Aegean Art
Fall 2018: The choices made by groups of people with regard to the
treatment of their dead can be reflective of a society's beliefs and
social structure. In this course, we will examine the burial traditions of the people of the Prehistoric Aegean from the Neolithic through the
end of the Bronze Age, circa 7,000-1,100 BCE. We will focus on burial
architecture, grave goods, burial rituals, mortuary variability, and the
symbolic meaning of death and burial in Prehistoric Greece. Particular
attention will be paid to recent discoveries on Crete, the Mainland, and
the Cycladic islands. Students will write two papers, and these papers
will be presented to the class. The first paper will be circa 15 pages long
with footnotes, bibliography, and images (presented via powerpoint) and
the second will be a 20-25 page paper with footnotes, bibliography, and
images presented via powerpoint.
Taught by: Shank
Course not offered every year
Activity: Seminar
1 Course Unit

CLST 790 Masters Thesis
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

CLST 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit

CLST 999 Independent Study and Research
For doctoral candidates.
One-term course offered either term
Prerequisites: Permission of Graduate Chair and instructor required.
Activity: Independent Study
1 Course Unit
COGNITIVE SCIENCE (COGS)

COGS 001 Introduction to Cognitive Science
Cognitive Science is founded on the realization that many problems in the analysis of human and artificial intelligence require an Interdisciplinary approach. The course is intended to introduce undergraduates from many areas to the problems and characteristic concepts of Cognitive Science, drawing on formal and empirical approaches from the parent disciplines of computer science, Linguistics, neuroscience, philosophy and psychology. The topics covered include Perception, Action, Learning, Language, Knowledge Representation, and Inference, and the relations and interactions between them. The course shows how the different views from the parent disciplines interact and identifies some common themes among the theories that have been proposed. The course pays particular attention to the distinctive role of computation in such theories and provides an introduction to some of the main directions of current research in the field. It is a requirement for the BA in Cognitive Science, the BAS in Computer and Cognitive Science, and the minor in Cognitive Science, and it is recommended for students taking the dual degree in Computer and Cognitive Science.
Taught by: Brainard/Ungar
Course usually offered in fall term
Also Offered As: CIS 140
Activity: Lecture
1 Course Unit
Notes: This is a Formal Reasoning course.

COGS 298 Human Computer Interaction
Activity: Lecture
1 Course Unit

COGS 301 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

COGS 398 Senior Thesis
This course is a directed study intended for cognitive science majors who have been admitted to the cognitive science honors program. Upon admission into the program, students may register for this course under the direction of their thesis supervisor.
One-term course offered either term
Activity: Independent Study
1 Course Unit
COLLEGE (COLL)

COLL 135 The Art of Speaking
This course is designed to equip students with the major tenets of rhetorical studies and peer education necessary to work as a CWiC speaking advisor. The course is a practicum that aims to develop students' abilities as speakers, as critical listeners and as advisors able to help others develop those abilities. In addition to creating and presenting individual presentations, students present workshops and practice advising. During this ABCS course, students will practice their advising skills by coaching and mentoring students at a public school in Philadelphia.
Taught by: Weber
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Students need to apply and are interviewed by the instructor and Associate Director of CWiC
COMMUNICATIONS (COMM)

COMM 123 Critical Approaches to Popular Culture
Popular culture has been variously dismissed as mere trivia, "just entertainment," it has been condemned as propaganda, a tool of mass deception; and its consumers have been dubbed fashion victims and couch potatoes. This course considers these critiques, as well as those that suggest that popular culture offers valuable material for the study of social life. We will consider the meanings and impact of popular culture, including its effects on how we see ourselves, others, and American life; who makes distinctions between high, middlebrow, and low or mass culture; and how power and resistance structure the production and consumption of popular texts.
Taught by: Paxton
Course usually offered in spring term
Activity: Lecture
1 Course Unit

COMM 125 Introduction to Communication Behavior
This course introduces students to the theoretical models and research methods used to study communication and behavior, with a focus on mass media processes and effects. Topics examined include: the social construction of meaning through communication, effects of media violence, children's responses to educational television, the political impact of the news, and the influence of social media on relationships, and the role of media in creating and perpetuating gender, racial, and ethnic stereotypes. The aim of the course is to provide students with (1) a general understanding of research on attitudinal and behavioral aspects of mediated and interpersonal communication, and (2) the basic conceptual tools needed to critically evaluate the assumptions, theories, and empirical evidence supporting conclusions about communication behavior and media effects. Toward this end, thought the paradigms of critical and cultural studies will be reviewed briefly, the class will focus on social scientific approaches to understanding communication behavior. Students have the option of producing a multi-media capstone project or writing a term paper on a communication behavior-related topic of their choice. This class meets twice a week (WF) as a lecture and once a week (M) in smaller group seminars.
For BA Students: Society Sector
Course usually offered in fall term
Activity: Lecture
1 Course Unit

COMM 130 Media Industries and Society
The aim of this course is to prepare you to work in the media business as well as to be an informed citizen by acquainting you with the work and language of media practitioners. The class also investigates the exciting, and (to some employed there) scary changes taking place in the news industry, the advertising industry, the movie industry, and several other areas of the media system. In doing that, the course ranges over economic, political, legal, historical, and "cultural" considerations that shape what we see when we go online, use social media, watch TV, read books, play video games, and more. You'll never look at media the same again.
For BA Students: Society Sector
Taught by: Turow
Course usually offered in spring term
Activity: Lecture
1 Course Unit

COMM 203 Media, Culture & Society in Contemporary China
This course studies contemporary Chinese media, culture, and society in the context of globalization. Major topics include Internet expression and censorship, mass media commercialization, entertainment media, middle class and consumerism, environmental degradation, new forms of inequality, and civil society and popular protest. Taking a sociological approach, this course introduces methods and theories for analyzing media, institutions, inequality, and social change.
Taught by: Yang
Course not offered every year
Activity: Lecture
1 Course Unit

COMM 209 Urban Communication
How cities communicate has had to evolve with the times and circumstances. Even as there is extraordinary optimism about the future of America's cities, most continue to grapple with the devastating effects of 20th century deindustrialization and racial disparities in education, income, housing, and health and unplanned crisis. It has become the task of municipal leadership to balance the demands of disparate interests, govern fairly and effectively and communicate to various constituencies about policy and government's role. In the age of social media that perpetuates a 24/7 news cycle, municipal governments and their leadership have had to respond to queries, concerns and circumstances while governing, all in new ways. Using personal experiences from serving 4 US Big City Mayors. I will provide examples about how cities have had to communicate through the varying levels of leadership during times of crisis.
Taught by: Peterkin-Bell
Course usually offered in spring term
Activity: Lecture
1 Course Unit

COMM 210 Quantitative Research Methods in Communication
This course is a general overview of the important components of social research. The goal of this class is to understand the logic behind social science research, be able to view research with a critical eye, and to engage in the production of research. The first third of the semester focuses on defining research problems, research design, and assessing research quality. We cover such topics as sampling, measurement, and causal inference. These topics are then illustrated through reviews of two research areas: survey research and content analysis. The last third of the semester focuses descriptive and inferential statistics, measures of association for categorical and continuous variables, and the basic language of data analysis. For those classes, we make use of STATA, a program useful for learning statistics. Most modules are illustrated through lectures, class exercises, reading published scientific articles, and discussing research featured in the news.
Taught by: Bleakley
Course usually offered in fall term
Activity: Seminar
1 Course Unit
COMM 211 Media Activism Studies
This seminar provides an introduction to the politics and tactics underlying various types of media activism. The class will examine interventions aimed at media representations, labor relations in media production, media policy reform, activists' strategic communications, and "alternative" media making. The course will draw from an overview of the existing scholarship on media activism, as well as close analyses of actual activist practices within both old and new media at local, national, and global levels. We will study how various political groups, past and present, use media to advance their interests and effect social change. Each member of the class will choose one case study of an activist group or campaign to explore throughout the semester.
Taught by: Pickard/Various
Activity: Seminar
Course not offered every year
1 Course Unit

COMM 213 Social Media and Social Life
The irruption of social media as a means of communication has been said to transform many dimensions of social life, from how we interact with significant others to how we engage in public life - but has it, really? Regardless of the specific technology (blogs, micro-blogs, social networking sites, peer-to-peer networks), social media make interdependence more prevalent, and exposure to information more pervasive. But social networks, and the ties that bring us together, have long mediated the way in which we obtain information, engage in public discussion, and are recruited or mobilized for a public cause. So what has social media brought to the table that is new? This course will evaluate the evidence that can help us answer this question, as well as challenge conventional views and discuss questions that remain open. The effects of social media on ideological polarization, social influence and peer pressure, agenda-setting dynamics, and the formation and effects of social capital are examples of the substantive topics and theoretical debates that will be considered.
Taught by: Gonzalez-Bailon
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 217 New Media and Politics in the Time of Trump
New media always have been the keys to American politics. Every era-changing president was the first to master a new medium: from Lincoln (telegraph) and FDR (radio), to JFK (broadcast television) to Obama (Facebook) and now Trump (Twitter). We will study traditional forms for context, but focus on the cutting-edge digital/social news gathering and distribution, examining the journalistic benefits and risks of several newer forms. These include broad-based agnostic platforms, ideologically-tailored websites, social video apps, podcasts and comedy-as-news. The course also will feature guests from across all sectors. Our core mission is to assess whether the latest revolution in media encourages or impedes the survival of self-government in America, where the Founders had hoped that a free press would inform the citizenry – and not merely incite anger, division and fear.
Taught by: Fineman
Activity: Lecture
1 Course Unit

COMM 218 Social Media, Social Data
What are social data and how can we critically, ethically and effectively capture, analyze and use them? During this course, students will gain a well-grounded theoretical understanding of social media combined with practical, hands on experience in capturing and analyzing their own sets of social data. The first part of the course provides an overview of the history of social media, then looks at how practices and platforms vary across the world. Students will also discuss current issues related to social data and questions of ethics and intellectual property as they apply to a number of contexts. The second part of the course delves into capturing and analyzing social data using a wide array of techniques and platforms. Students will gain hands-on experience and a valuable toolkit for data analysis that will allow them to apply the course material to real world problems of their choosing.
Course usually offered summer term only
Activity: Lecture
1 Course Unit

COMM 225 Children and Media
This course examines children's relationship to media in its historic, economic, political, and social contexts. The class explores the ways in which "childhood" is created and understood as a time of life that is qualitatively unique and socially constructed over time. It continues with a review of various theories of child development as they inform children's relationship with and understanding of media. It next reviews public policies designed to empower parents and limit children's exposure to potentially problematic media content and simultaneously considers the economic forces that shape what children see and buy. The course concludes with a critical examination of research on the impact of media on children's physical, cognitive, social, and emotional development. Students in this course produce a prototype for an educational children's media property as their capstone project.
Taught by: Woolf
Course not offered every year
Activity: Lecture
1 Course Unit

COMM 226 Introduction to Political Communication
This course is an introduction to the field of political communication, conceptual approaches to analyzing communication in various forms, including advertising, speech making, campaign debates, and candidates' and office-holders' uses of news. The focus of this course is on the interplay in the U.S. between traditional and social media and politics. The course includes a history of televised campaign practices from the 1952 presidential contest through the election of 2016.
Taught by: Jamieson
Course usually offered in fall term
Activity: Lecture
1 Course Unit

COMM 230 Advertising and Society
This course explores the historical and contemporary role of the advertising industry in the U.S. media system. The course will cover the social history of advertising; the structure of today's advertising industry; the workings of advertising in digital media; and critical analyses of advertising's role in society. In addition to academic writings, the class will read industry reports to understand contemporary strategies and processes.
Taught by: Turow
Course not offered every year
Activity: Lecture
1 Course Unit
COMM 237 Health Communication
An examination of the influence of public health communication on health behavior. The course will consider: intervention programs addressing behaviors related to cancer, cardiovascular disease, HIV/AIDS, drug use, obesity and others; theories of health behavior change; issues in the design of effective health communication programs; concerns about the portrayal of health and medicine on mass media.
Taught by: Hornik/Staff
Course not offered every year
Activity: Lecture
1 Course Unit

COMM 243 Ethnography and Media for Social Justice
How do qualitative social scientists study urban communities? What kinds of powerful tales can be told about urban lifestyles and social issues in places like Philadelphia? This course will allow students to study various ethnographic treatments of urban communities in the United States, using films, articles, TV serials, and books as guides for the framing of their own independent research on the streets of Philadelphia. Students will also form production teams of two or three people, and these production teams will be responsible for (i) identifying and researching an important urban issue in contemporary an important urban issue in contemporary Philadelphia and (ii) turning that research into a 15-30 minute video documentary or pod cast. Mixing video/audio journalism with ethnographic methods will enhance their skills at archival and social research, from participant observation and interviewing techniques to sound editing and production. This course is intended to be a rigorous and exciting opportunity for students to tell empirically grounded stories using the voices of their participants and the sounds of the city.
Taught by: Lingel
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 245 Teens and Screens: Understanding Youth Media Behavior
Why do screen media and digital technologies captivate youth? In this course we address this question by examining the role media play in adolescent development and behavior. We begin by considering adolescence as a unique period of psychological and social development and discussing emerging adults as a special population. Next, we will explore how adolescents use and interact with media and how their media preferences are related to their developmental needs, with particular attention to social media use and media content targeted to, and popular with, adolescent audiences. Finally, we will investigate how media influence adolescent self-identity and behavior by reviewing media effects in areas of sex, violence, gender norms, and friendship quality. The strength of the evidence for media effects and its behavioral and policy implications will be presented and debated within each area of study. Relevant theoretical perspectives will inform these discussions. Throughout the semester students will critically reflect upon current empirical research while also spotlighting different media-TV shows, social media apps (e.g., Yik Yak) and social movements (e.g., #iammorethanadistraction).
Taught by: Bleakley
Course usually offered in fall term
Activity: Seminar
1 Course Unit

COMM 262 Visual Communication
Examination of the structure and effects of visual media (film, television, advertising, and other kinds of pictures).
Course not offered every year
Activity: Lecture
1 Course Unit

COMM 270 Global Digital Activism
This seminar examines the forms, causes, and consequences of global digital activism, defined broadly as activism associated with the use of digital media technologies (e.g., Facebook, Twitter, mobile phones, and the Chinese Weibo). The goal is to provide students with a theoretical tool-kit for analyzing digital activism and to develop a critical understanding of the nature of contemporary activism and its implications for global social change. Major cases to be examined include the "Occupy Wall Street" movement in the US, the Arab Spring, the "indignados" protests in Spain, and internet activism in China. Students are required to conduct primary, hands-on research on a contemporary case (or form) of digital activism and produce a final research paper. This research project may be done individually or in small groups.
Taught by: Yang
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 275 Communication and Persuasion
Theory, research and application in the persuasive effects of communication in social and mass contexts. Primary focus on the effects of messages on attitudes, opinions, values, and behaviors. Applications include political, commercial, and public service advertising; propaganda; and communication campaigns (e.g. anti-smoking).
Taught by: Cappella/Staff
Course usually offered in spring term
Activity: Lecture
1 Course Unit

COMM 282 Sick and Satired - The Insanity of Humor and How it Keeps Us Sane
The goal of this course will be to prove definitively how and why humor, as both an instigator and peacemaker, might be considered one of the most influential and profoundly useful forms of communication devised by human beings. The unique ability of jokes and satire to transcend familiar literary and journalistic forms for the purpose of deepening (or cheapening) socio-philosophical arguments and to inspire (or discourage) debate and participation in public conversations about innumerable political and social issues will be explored. The fearless analytical nature of both high and lowbrow comedy will be examined, as well as its deflective qualities, and the corollaries construed from humor's dissection of straight society's monomania will be inspected and tested for cohesion and viability. Additionally, the course will teach students to recognize and assert, through informed justification based on both contemporary and historical examples, the indispensability of the political and cultural satirist's unique role in society as a witness, a predictor and, in some circumstances, an instigator of public and private debate conceived and exercised for the purpose of revealing and mediating differences between disparate groups based, not solely on language differences, but also on social status, political affiliation, cultural identity, ethnicity, gender, religious fellowship, sexual orientation and socio-economic caste.
Taught by: Booth
Course usually offered in fall term
Activity: Lecture
1 Course Unit
COMM 290 Special Topics in Communication
This is an intermediate level special topics course that covers varying topics in communication. For more information about the course, please see: https://www.asc.upenn.edu/academics/undergraduate-program/curriculum-and-major-requirements
Taught by: Various Instructors
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 292 WARNING! Graphic Content - Political Cartoons, Comix and the Uncensored Artistic Mind
This course examines the past, present and future of political cartooning, underground comix, graphic journalism and protest art, exploring the purpose and significance of image-based communication as an unparalleled propagator of both noble and nefarious idea. The work presented will be chosen for its unique ability to demonstrate the inflammatory effect of weaponized visual jokes, uncensored commentary and critical thinking on a society so often perplexed by artistic free expression and radicalized creative candor.
Taught by: Booth
Course usually offered in fall term
Activity: Lecture
1 Course Unit

COMM 294 Chicks and Cyborgs: Gender, Technology and Culture
Information and communication technologies (ICT) are powerful tools of connectivity and social change, but they also contain embedded ideological tensions that can produce inequalities and deepen inter-group disparities. At the core of this class is a sustained analysis of the effects of gender on the development and use of ICT. Drawing on a range of theories for communication, gender, information, media, sexuality and technology, this course helps students understand feminist critiques of science and technology; develop critical analyses of public policies that have consequences; identify barriers to the recruitment and retention of historically marginalized groups in the technology industry; and understand frameworks for thinking about communication technologies as shaping everyday life.
Taught by: Lingel
Course not offered every year
Activity: Lecture
1 Course Unit

COMM 300 Public Space, Public Life
Public space as a mediated system of communication anchored in embodied practice. Historical aspects, public space as a cultural signifier, how the organization and regulation of collective spaces facilitates and enriches or hinders common life, public space as a critical component of democracy.
Taught by: Marvin/Staff
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COMM 301 Introduction to the Political Economy of Media
This course has two aims. First, assuming that communications are central to any society, it situates media systems within larger national and international social relationships and political structures. Second, this course critically examines the structures of the communication systems themselves, including ownership, profit imperatives, support mechanisms such as advertising and public relations, and the ideologies and government policies that sustain these arrangements. Considering case studies ranging from traditional news and entertainment media to new digital and social media, the course provides a comprehensive survey of the major texts in this vibrant sub-field of media studies.
Taught by: Pickard/Various
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 307 Communication, Sports, and Social Justice
This course will examine the current relationship between sports, celebrity and the power to communicate for social justice. Through case studies, review of current events, and empirical evidence from experience, students will learn to evaluate the patterns and strategies that athletes have employed to elevate an issue. This course will pull from hot button moments in our current landscape from athletes protesting against racial inequality to the sports leagues’ communication challenges to publicly address those concerns. There will be a review of the pioneering efforts that were successful, unsuccessful, or to be determined. Our studies will develop a critical eye for communication approaches and how well those tactics yield the desired changes. We will draw upon this insight to formulate ways to improve communication and determine the most influential and effective practices to date.
Taught by: Glanville
Activity: Lecture
1 Course Unit

COMM 310 The Communication Research Experience
In this hands-on course students will work with active researchers in the Communication Neuroscience lab at Penn to gain experience in how research works. Research topics will depend on student interests, with emphasis on one or more of the following: social influence and persuasion, health communication, peer influence in teens, mobile technology, social media, emotion regulation, peace and conflict resolution, mindfulness, interpersonal communication, political communication, adolescent brain development, communication neuroscience. Students will have the opportunity to interact closely with a mentor and will gain experience conceptualizing research questions, designing experiments, collecting data, and making an analysis plan.
Taught by: Falk
Course not offered every year
Prerequisites: COMM 210 (Communication Research Methods) or permission of the instructor.
Activity: Seminar
1 Course Unit
COMM 311 Peace Communication

When 'me' and 'you' becomes 'us' and 'them', a suite of psychological processes are amplified or come online. In this course, we will examine the forces that drive people to engage in intergroup conflict through the lenses of evolutionary biology and psychology, and then examine the effectiveness of communications-based interventions at easing conflict. In the first part of the course, we will learn about the theoretical work on intergroup psychology; in the second part, we will examine the specific processes that drive conflict (e.g., stereotypes, prejudice, dehumanization) and how they are measured using both explicit self-report and implicit measures (e.g., physiology, neuroimaging); in the third part, we will explore the interventions that have been demonstrated to work (and fail) to decrease intergroup conflict. No prior experience in psychology or neuroscience is required.

Taught by: Bruneau
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COMM 313 Computational Txt Analys

In this 'big data' era, presidents and popes tweet daily. Anyone can broadcast their thoughts and experiences through social media. Speeches, debates and events are recorded in online text archives. The resulting explosion of available textual data means that journalists and marketers summarize ideas and events by visualizing the results of textual analysis (the ubiquitous 'word cloud' just scratches the surface of what is possible). Automated text analysis reveals similarities and differences between groups of people and ideological positions. In this hands-on course students will learn how to manage large textual datasets (e.g. Twitter, YouTube, news stories) to investigate research questions. They will work through a series of steps to collect, organize, analyze and present textual data by using automated tools toward a final project of relevant interest. The course will cover linguistic theory and techniques that can be applied to textual data (particularly from the fields of corpus linguistics and natural language processing).

Taught by: O'Donnell
Course not offered every year
Activity: Lecture
1 Course Unit

COMM 321 Big Data and Social Research

Online networks are prevalent in how we access and share information. They shape how we consume news, how we interact with friends, peers and strangers, and how we mobilize groups or try to gain the attention of large audiences. Online networks encourage dynamics of information exchange that can, potentially, be very consequential for the societies we live in or the societies we would like to build. Networked technologies have, in brief, the potential to transform governance, collaboration, and organization, and radically change how we think about regulation and policy making in the digital age. This research seminar aims to help students develop a technical understanding of how networks operate, what dynamics they are more likely to encourage, and what features limit their ability to diffuse information or spread behavior. We need to understand the logic of networks - and learn how to model their complex and counter-intuitive dynamics - before we can analyze their social impact or engineer interventions, for instance, campaigns to promote socially beneficial behavior.

Taught by: Gonzalez-Bailon
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 322 History and Theory of Freedom of Expression

Historical origins, purpose, theory, practice of freedom of expression in the United States. Philosophical roots of contemporary law and debates about expressive limits, especially problems associated with media of communication. Major topics include, but are not limited to traitorous and subversive speech, insulting speech and hate speech, sexual and violent expression, non-verbal expression, artistic expression.

Taught by: Marvin
Course usually offered in fall term
Activity: Seminar
1 Course Unit

COMM 323 Contemporary Politics, Policy and Journalism

A course on the modern media and its impact on government and politics. It primarily covers the post-Watergate/post-Vietnam era of journalism, the past quarter century. Each week focuses on specific topics and areas of post-Watergate journalism, as well as current press coverage of national events over the prior week. This course gives students the opportunity to interact and discuss the intersection of the press, politics, and public policy with some of the leading practitioners in the field.

Taught by: Hunt
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COMM 330 The Hidden World of Privacy Policies

The US Federal Trade Commission considers privacy policies essential for internet sites and apps. Lawyers for firms with internet sites and/or apps spend much time writing privacy policies. Yet surveys show that most Americans don't read the policies-and in fact cannot understand them because of their legal jargon. Moreover, surveys indicate, most Americans don't even correctly understand what the label privacy policy means. The aim of this course will be to examine this crucial but misunderstood aspect of modern life. You will learn how to read privacy policies, how to understand their strategic business purposes within the internet industry, and how to think about the implications for society when the key rules of surveillance and privacy are hidden from all but a relative few. You will also work with others in the class to create and carry out a survey of college students' understanding of privacy policies. There will be one exam and a paper related to the survey.

Taught by: Turow
Course not offered every year
Activity: Seminar
1 Course Unit
COMM 332 Survey Research and Design
Survey research is a small but rich academic field and discipline, drawing on theory and practice from many diverse fields including political science, communication, sociology, psychology, and statistics. Surveys are perhaps the most ubiquitous tool of measurement in the social sciences today. Successful practitioners develop expertise in the art and science of survey methodology, including sampling theory and practice, questionnaire instrument development and operationalization, and the analysis and reporting of survey data. Survey researchers are scientists of the method itself testing various practices by which surveys can be improved upon, as well as developing a keen understanding of the nature of error in surveys and how to control it. This course is a canvass course on survey research and design, highly experiential but also based upon introductory statistical theory and analysis.

Taught by: Dutwin
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 339 Critical Perspectives in Journalism
This course aims to provide students with a critical understanding of journalism. It combines theoretical perspectives on the making of news with primary source material produced by and about journalists. Students will analyze theoretical material on journalism — about how news is made, shaped, and performed — alongside articles and broadcasts appearing in the media, interviews with journalists in the trade press, and professional reviews. Topics include models of journalistic practice, journalistic values and norms, gatekeeping and sourcing practices, storytelling formats in news, and ethical problems related to misrepresentation, plagiarism, and celebrity.

Taught by: Zeltizer
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COMM 377 Philosophical Problems of Journalism
An exploration of the relationship between journalism and philosophy by examining particular issues in epistemology, political philosophy, ethics, and aesthetics. Among likely topics: the concept of a “fact”; the role of the press in the state; whether journalists (like doctors and lawyers) operate according to a specialized “professional” ethics; and the limits of journalism as a literary or visual genre. Course reading will include philosophical texts, breaking print journalism, and blogs that specialize in media issues.

Taught by: Romano
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COMM 381 The Journalism of Social Change
From Thucydides to #METOO, journalism has been more than a pipeline for the transmission of facts. It has moral purposes, including the advancement of social justice. We will examine that crucial role in depth, from Engels’ descriptions of 19th century English factory life, through the Muckrakers in Progressive Era America, and on to 20th and early 21st century reporting that has exposed racial and gender discrimination, poverty, government corruption and authoritarianism (including conservative crusades against both) and the ravages of wars, both justified and not. We will find, explain and critique up-to-the-minute examples of this tradition in digital and social media, and ask whether and how well “new media” is upholding journalism’s moral calling.

Taught by: Fineman
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 382 Media and the Construction of Class
From Homer Simpson to Kim Kardashian, Lebron James to Jeb Bush and from Duck Dynasty to PBS documentaries on poverty, American media are filled with stories and debates about the meaning and importance of class in American life, and why people occupy the class positions they do. This course will consider some of the key patterns, assumptions, and tensions in popular media representations and explorations of class, with a focus on 21st century media. We will discuss how media portrayals reflect, and might affect, the lived experience of class and inequality in the United States.

Taught by: Shapiro
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 384 Memes, Media, and Meanings
This class covers both identity politics and media logics and their interplay in an increasingly playful and rapidly changing media landscape. Students will read a combination of media theory, feminist media theory, and cultural studies literature in the first half of the semester in order to have the theoretical grounding to conduct research paper/case studies of "media moments" that act as important markers in identity making of either individuals or groups. In the second half of the semester the class will work as a group to examine several cases from across geographical boundaries of identity making in and through media in order to discover both how identity is produced, constructed, and negotiated through media as well as how media platforms and formats interact to enable this process of identity making. Various theorists will be brought to bear to examine the framework of media industries, affordances of media platforms, and possibilities for media engagement and performance. These theories will then be deployed as part of empirical research projects through which students will discover how we engage with media and how that engagement impacts our understandings of our social locations.

Taught by: Rajabi
One-term course offered either term
Activity: Seminar
1 Course Unit
COMM 388 Ritual Communication
This course explores the significance of rituals as communicative events in contemporary American culture. We will pay particular attention to the ways in which rituals contribute to the making and re-making of social groups, be they ethnic, religious, familial, or institutional. And we will also attend to the obverse: the ways in which rituals create and perpetuate boundaries between "us" and "them" or between "appropriate" and "deviant" social behavior. Issues of race, class, gender, and sexuality will be central to our exploration of how rituals function. Over the course of the semester, we will analyze individual rites of passage—the quinceañera for example—as well as rituals that mark transitions on a far local level as well as those that most of us experience only in mediated forms. Students will conduct original ethnographic fieldwork and learn how to develop compelling research proposals.
Taught by: Paxton
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COMM 390 Special Topics in Communication
This is a special topics course that covers varying topics in communication. For more information about the course, please see: https://www.asc.upenn.edu/academics/undergraduate-program/curriculum-and-major-requirements
Taught by: Various Instructors
Course not offered every year
Activity: Lecture
1 Course Unit

COMM 393 Political Polling
Political polls are a central feature of elections and are ubiquitously employed to understand and explain voter intentions and public opinion. This course will examine political polling by focusing on four main areas of consideration. First, what is the role of political polls in a functioning democracy? This area will explore the theoretical justifications for polling as a representation of public opinion. Second, the course will explore the business and use of political polling, including media coverage of polls, use by politicians for political strategy and messaging, and the impact polls have on elections specifically and politics more broadly. The third area will focus on the nuts and bolts of election and political polls, specifically with regard to exploring traditional questions and scales used for political measurement; the construction and considerations of likely voter models; measurement of the horserace; and samples and modes used for election polls. The course will additionally cover a fourth area of special topics, which will include exit polling, prediction markets, polling aggregation, and other topics. It is not necessary for students to have any specialized mathematical or statistical background for this course.
Taught by: Dutwin
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 395 Communication and the Presidency
This course examines the vital aspect of communication as a tool of the US Presidency. Reading and class discussions focus on case studies drawn primarily from Presidential administrations beginning with FDR of the radio-telephone-internet era, studies that demonstrate the elements of successful and unsuccessful presidential initiatives and the critical factor of communication, common to both. Readings and discussion will cover the range of issues of presidential import; issues pertaining to war and peace, the drive for civil rights and equal rights, domestic prosperity and development, international leadership and issues attending the rise of an interdependent world and a global economy. The key objective and requirement of 395 is an individual paper project that centers on a presidential speech (or set of speeches) addressing a key national or international topic. Student papers are to be based in part on primary research, hence, Communications 395 is also an introduction to primary research methods and to the use of primary research materials housed in the Presidential library system.
Taught by: Eisenhower
Two terms. student may enter either term.
Activity: Seminar
1 Course Unit

COMM 397 New Media and Politics
This course seeks to trace the evolving relationship between new media technologies and political power, process, and change from multiple perspectives: the citizen/voter, the campaign, and the news media. Major theories of communication and persuasion are the foundation of this course. We will apply these theories to each of the above perspectives beginning with a brief history of U.S. political campaigns before the advent of the internet in presidential campaigns in 1996. From there we will take a deeper dive into the landmark changes brought on by new media technologies to mobilize, persuade, inform, and fundraise around the presidential campaigns since then. We will then follow how the new U.S. president and new Congress operate in this ever evolving media and digital landscape through the crucial first 100 days. Finally, we will examine issues of social media and activism, including its use as a tool for regime change, social change, and terrorism in the U.S. and around the world. New media include, but are not limited to, the internet, email, texting, blogging, social media, and "Big Data."
Taught by: Winneg
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COMM 402 Arab Uprisings: Local and Global Representations
This course explores the Arab uprisings as a battleground where multiple narratives battle for visibility across a variety of media platforms. We will examine local and global representations of the popular movements that have swept Arab countries since December 2010, analyzing different media, styles and modalities of representations. We will focus among other things on social media, political humor, graffiti, and the human body as instruments of communication, and focus on various related debates and polemics about the political impact of technology, the effectiveness of political satire, and the role of gender and sexuality in revolutionary politics. The overall approach of the course is critical/theoretical.
Taught by: Kraidy
Course not offered every year
Activity: Seminar
1 Course Unit
COMM 404 Media and Politics
Media and Politics will examine multiple issues specific to the past and present political media environment in the United States. Focus will be primarily, though not exclusively on the contemporary news media (as opposed to political advertising and other marketing-oriented communications). Topics will include the rise of partisan media, selective exposure, news as entertainment, etc. Reading expectations will be relatively heavy, and under the supervision of the professor, students will be expected to write a research paper on a topic not directly a part of the course material.
Taught by: Mutz
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 407 Understanding Social Networks
Digital technologies have made communication networks ubiquitous: even when we can’t really notice them, they mediate most aspects of our daily activities. Networks, however, have always been the backbone of social life: long before Facebook, Twitter, Snapchat, or other similar platforms, communication created channels for information diffusion that linked people in a myriad other ways. Through letters, commerce, or simply face to face interactions, people have always been exposed to the behavior of others. These communicative ties embed us into an invisible web of influence that we can make tangible and analyze. This course will teach you how to map those connections in the form of networks, and how to study those networks so that we can improve our understanding of social life. The goal is to help you grasp the consequences of connectivity, and how small changes in the structure of our ties could lead to big differences in how networks behave.
Taught by: Gonzalez-Bailon
Course not offered every year
Activity: Lecture
1 Course Unit

COMM 417 The Politics of Digital Media Policy
This discussion-oriented course examines key digital media policy debates and their underlying politics. We will examine policies affecting news and entertainment media, social media, telecommunications, and the Internet. Drawing from major texts within this growing sub-field, we will formulate analyses about the future trajectory of U.S. and global digital media and evaluate relevant policies in relation to democratic theory and ethical concerns. In particular, we will focus on how media policy is shaped by political processes in and outside Washington, D.C., and consider to what extent new digital media have disrupted pre-existing policy regimes. Students will choose one specific case study of a digital media policy debate to explore throughout the semester.
Taught by: Pickard
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 419 Communication, Culture & Revolution
This seminar explores revolutionary communication and cultural expression. Looking at the ongoing Arab uprisings in comparative perspective, we will examine modalities of communication through which revolutionaries express themselves, describe and attack incumbent dictators and other opponents, call for new social solidarities, and construct revolutionary political identities. Revolutionary contexts are considered as battlegrounds where multiple narratives contend for visibility. We will explore relevant debates and polemics, historical and contemporary, concerning the political impact of technology and the role of gender and sexuality in revolutionary politics. We will focus on social media, political humor, graffiti, and the human body as instruments of communication. The overall approach of the seminar is theoretical, critical and transnational.
Taught by: Kraidy
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 423 Communication and Social Influence Laboratory
Considerable resources are devoted to constructing mass media campaigns that persuade individuals to change their behavior. In addition, individuals powerfully influence one another without even knowing it. Still, our ability to design and select optimal messages and interventions is far from perfect. This course will review investigations in social and cognitive psychology and communication sciences that attempt to circumvent the limits of introspection by using biological and implicit measures, with particular focus on neuroimaging studies of social influence and media effects.
Taught by: Falk
Course not offered every year
Prerequisites: COMM 275 or a media effects or persuasion course at ASC, psych, or Wharton
Activity: Seminar
1 Course Unit

COMM 431 Is Public Opinion the Voice of the People?
Democracy relies on mechanism in which the public communicates with policy makers. This course examines the extent to which public opinion effectively represents this mechanism. We begin with historical conceptions of public opinion tracing back to ancient Athens and 18th century enlightenment thinking. We then consider the extent to which public opinion can be captured by modern day polling, or whether it only emerges after considered deliberation and discussion. We then discuss the ways in which elite rhetoric and the media move public opinion, including through the use of public opinion polls. Finally, we ask whether policymakers are actually sensitive to the voice of the people or only the voice of some of the people.
Taught by: Lelkes
Course not offered every year
Activity: Seminar
1 Course Unit
COMM 439 Media Criticism
Criticisms at its core an assumption of judgment about the target or performance being evaluated. Yet whose judgment is being articulated? On which basis and authority? To which ends? And with which effects? This course examines the shape of contemporary media criticism, focusing on its meaning function in different domains of popular culture (including music, television, news, and film) and the patterns by which it is produced. Students will become acquainted with theories and ongoing debates about contemporary media criticism themselves. The course aims to sensitize students to the nuances of their own consumption of criticism and patterns by which it is typically produced.
Taught by: Zelizer
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 441 The Internet versus Democracy
At the turn of the 21st century, many claimed that the internet would make the world a more democratic place. Have these prophecies come true? We examine the effects the internet has had on democracy, looking at research that examines whether, for instance, the internet has increased or decreased inequality, polarization, and political participation. In addition to reading and discussing empirical literature, we will also test many of the theories in this course through hands-on workshops in data science.
Taught by: Leikes
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 453 Internet Experiments Practicum
In this hands-on course, students will work with active researchers in the Network Dynamics Group at Penn to gain experience in how research works. Research topics will depend on student interests, with emphasis on one or more of the following: network dynamics of peer influence, social media technologies, political polarization, processes of social diffusion, and social change through online networks. Students will have the opportunity to learn from leading researchers in the field of computational social science, and to participate in building their own Internet experiment. This will involve designing a research study, collecting and analyzing data, and working on a team to produce a co-authored, Internet-based experimental research study on social dynamics. Prerequisites: COMM 210 (Communication Research Methods), COMMY (Coursera Course, Angela has info on Title, etc.), and permission of the instructor
Taught by: Centola
Course not offered every year
Prerequisites: COMM 210 (Communication Research Methods and permission of the instructor)
Activity: Seminar
1 Course Unit

COMM 485 Globalization and the Music Video
This seminar focuses on the music video genre to explore topical and conceptual issues at the heart of the globalization of the media and cultural industries. After a formative period largely grounded in North America and Western Europe, the music video migrated to other parts of the world in the 1990s as a wave of privatization and liberalization engulfed national media systems worldwide. Based on a variety of scholarly and trade readings about the globalization of media and culture, the changing media and creative industries, and the music video genre itself, questions to be tackled include: What changes when a media form migrates from its original context? What does the content of music videos reveal about socio-economic and cultural change worldwide? How do music videos rearticulate gender and sexuality, and nationalism? What transnational circuits of ideas, images and ideologies are enabled or constrained by music video?
Taught by: Kraidy
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 491 Communication Internship
Seminar for students concurrently participating in department-approved internships in communication-related organizations. Students will develop independent research agendas to investigate aspects of their internship experience or industry. Building on written field notes, assigned readings, and classroom discussion and evaluation, students will produce final papers using ethnographic methods to describe communications within their site or industry in order to understand and critically examine their hands-on experiences.
Taught by: Haas
Two terms. student may enter either term.
Activity: Seminar
1 Course Unit

COMM 493 Independent Study
Two terms. student may enter either term.
Activity: Independent Study
1 Course Unit

COMM 494 Honors & Capstone Thesis
First semester of the two semester thesis course; completed during the Fall semester of senior year. The senior thesis provides a capstone intellectual experience for Honors students and Communication and Public Service Program (ComPS) participants. Students conduct a primary research study on a communication related issue over the course of two semesters. Students should consult with and arrange for a faculty supervisor no later than the summer before senior year. Students must also file a designated form and topic statement, approved and signed by the supervising faculty member no later than the first day of class. Required of all students planning to enroll in COMM 495 or COMM 499 in the Spring. All Honors students must have a 3.5 cumulative GPA at the end of junior year for eligibility. See the Annenberg website for complete eligibility requirements.
Two terms. student may enter either term.
Activity: Seminar
1 Course Unit
COMM 495 COMPS Capstone Thesis
Second semester of two semester thesis course. Successful completion of Comm 494 is required for enrollment. The capstone thesis is a requirement for all Communication and Public Service Program participants. Students complete the primary research project started during COMM 494. For students graduating with a 3.5 cumulative GPA after completing COMM 495 with a grade of 3.7 or higher, the capstone thesis may be designated as a senior honors thesis in communication and public service.
Two terms. student may enter either term.
Prerequisites: Written proposal approved by both thesis supervisor and major chair.
Activity: Independent Study
1 Course Unit

COMM 498 Experimental Design
The main goal of this course is to familiarize students with experiments, quasi-experiments, population-based survey experiments and field experiments as they are widely used in the social sciences. By the end of the course, students will be expected to understand what it is about a study that allows for a strong causal inference. Whether one is reading about studies in a newspaper or reading academic journal articles, it is important to know how to distinguish convincing versus unconvincing evidence of any given claim. As a final project, students will be expected either to develop their own original experimental design or to analyze the evidence pertaining to a causal claim of their choosing based on what they have learned in class. Throughout the course of the semester, we will also consider how to deal with the issue of causality as it occurs in observational studies, and draw parallels between experimental and observational research.
Taught by: Mutz
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 499 Senior Honors Thesis
Second semester of two semester thesis course. Completion of Comm 494 with a grade of 3.3 or higher and a 3.5 cumulative GPA at the end of the Fall semester of senior year are required for enrollment. The Senior Honors Thesis provides a capstone intellectual experience for students who have demonstrated academic achievement of a superior level. Students complete the primary research project started during COMM 494.
Two terms. student may enter either term.
Activity: Independent Study
1 Course Unit

COMM 500 Proseminar
Introduction to the field of communications study and to the graduate program in communications. Required of all degree candidates. Open only to graduate students in communication.
Course usually offered in fall term
Activity: Lecture
0 Course Units

COMM 509 Directed Readings in Theory
In the crush of academic life, it is not always as easy to read dense theoretical texts carefully and in as much details as we’d like. This course offers a chance to slow down, step back, and revel in the opportunity to read informing texts that address the relationship between social theory and communication. Here are texts that are often quoted; we will explore their content and place them in conversation with one another, with their interlocutors, and with ourselves. Besides lively discussion, requirements include several essays and a long-form critically annotated citation analysis of a foundational text.
Taught by: Marvin/Pearl
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 522 Introduction to Communication Research
The logic of scientific inquiry and the nature of research. Hypothesis development, research design, field and laboratory observation and experimentation, measurement, interviewing and content analysis, sampling, and basic statistical analysis. Required of all degree candidates. Open only to graduate communication students.
Taught by: Delli Carpini/Hornik
Course usually offered in fall term
Activity: Lecture
1 Course Unit

COMM 525 Introduction to Political Communication
This course is designed as a PH.D.-level introduction to the study of political communication, and is recommended as a foundational course to be taken early in ones course of study for students interested in political communication as a primary or secondary area of research and teaching. As an introduction to the field it is structured to cover a wide-range of topics and approaches, including media institutions and the effects of both mass mediated and deliberative communications. While no single course can provide comprehensive coverage of a subfield with as long and diverse a history as political communication, our hope is that you will leave this course with a strong grasp of the major theories, trends, methods, findings and debates in this area of study, as well as the gaps in our knowledge and promising directions for future research.
Taught by: Moehler
Course not offered every year
Activity: Seminar
1 Course Unit
COMM 530 Advertising and the Digital Age
It is impossible to understand the development of the contemporary digital era without understanding the role played by the advertising industry, broadly the understood. From the launch of first popular web browsers in the mid-1990s, various forms of marketing communication have shaped the most popular activities—from search to social to apps—and redefined the ways companies think about individuals in society. The aim of this course is to study these developments historically and contemporaneously. First we will range across the history of advertising and its related social force, consumerism, through the late 20th century. We will next investigate the forces that guided the rise of the internet as a commercial medium in the face of an earlier ethic that decried that very idea. Then we will dive into the ways marketers attempt to guide the internet and other digital media to their benefit by exploring a range of key contemporary activities: the rise of the smartphone as a marketing device, programmatic advertising, personalization strategies, location and cross-platform targeting and attribution, online retailing, the responses of brick and mortar retailers, advertisers’ roles in the crating of print media, native advertising/branded content, the rise of “influencers,” and the transformation of “television” as a product, an activity, and an industry. We will read industry documents and other materials to assess how all these activities actually “work” and what drives them. Then we will consider their societal implications through a variety of lenses, including surveillance, privacy, pluralism, and democracy.
Taught by: Turow
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 553 Computational Social Science Research Seminar
This is a graduate research seminar in which top researchers in the field of Computational Social Science will present cutting-edge research. Our focus will be on carefully reading the speaker's work, and discussing in detail their theoretical models, empirical methods, and overall scientific contribution. Participants will also present in the seminar, which will help to prepare them for professional presentations of their work at conferences and job talks. This seminar will meet weekly.
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 575 Social Psychology of Communication
Contributions of social psychology to understanding communication behavior: message systems; social cognition; persuasive communications; attitude formation and change; face-to-face interactions and small group situations; strategies of attributional and communicative interpretation; mass communication effects; social influence and networks.
Taught by: Cappella
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 594 Intro To Networks
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 609 Comparative Political Communication
This course explores major themes in the study of political communication from a comparative perspective. It focuses on how communication affects political behavior, attitudes, and outcomes. In doing so we will question how different political and social institutions shape individual-level communication effects. We also examine the roles of mass media and interpersonal communication under different regime types and economic systems. Finally we also ask how media systems are influenced by political institutions. For each topic we will critically examine the working hypotheses, methods, and evidence. The class is designed to provide a greater understanding of comparative political communication theories, as well as to develop social science reasoning and methodology. The readings, class discussions, and assignments will move back and forth between theories, empirical evidence, and public policies. The seminar will require active student participation in class discussions. The discussions will focus on the assigned readings for the week, but students are encouraged to discuss additional works that are relevant. Students must also write an original research paper, which can hopefully become a published article. The course readings span every major region but students are free to choose a geographic focus for their research paper.
Taught by: Moehler
Activity: Seminar
1 Course Unit

COMM 615 Experimental Design and Issues in Causality
The main goal of this course is to familiarize students with experiments, quasi-experiments, survey experiments and field experiments as they are widely used in the social sciences. Some introductory level statistics background will be assumed, though this is a research design course, not a statistics course. By the end of the course, students will be expected to develop their own original experimental design that makes some original contribution to knowledge. Throughout the course of the semester, we will also consider how to deal with the issue of causality as it occurs in observational studies, and draw parallels to experimental research.
Taught by: Mutz
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 623 Seminar on Communication, Behavior, and Health
Seminar members will critically review theory and research on communication, behavior, and health, with the goal of suggesting new directions that research might take. Theories of health behavior, methodological issues in health behavior research, and strategies to improve health-related behaviors, including sexual risk behaviors, physical activity, diet, and medication adherence, using a variety of approaches will be studied.
Taught by: Jemmott
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 630 Historical Trends of Mass Communication Research
An introduction into the field of mass communication research covering classic studies from the late 19th century through 1970s. Emphasis is on the societal, organizational, political, and other considerations that shaped the field.
Taught by: Turow
One-term course offered either term
Activity: Seminar
1 Course Unit
COMM 637 Public Health Communication
Theories of health behavior change and the potential role for public health communication; international experience with programs addressing behaviors related to cancer, AIDS, obesity, cardiovascular disease, child mortality, drug use and other problems, including evidence about their influence on health behavior; the design of public health communication programs; approaches to research and evaluation for these programs.
Taught by: Hornik
Course usually offered in spring term
Activity: Lecture
1 Course Unit

COMM 639 Communication and Cultural Studies
This course tracks the different theoretical appropriations of "culture" and examines how the meanings we attach to it depend on the perspectives through which we define it. The course first addresses perspectives on culture suggested by anthropology, sociology, communication, and aesthetics, and then considers the tensions across academic disciplines that have produced what is commonly known as "cultural studies." The course is predicated on the importance of becoming cultural critics versed in alternative ways of naming cultural problems, issues, and texts. The course aims not to lend closure to competing notions of culture but to illustrate the diversity suggested by different approaches.
Taught by: Zelizer
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 644 Communication and Space
Physicalized space is said to be crucial to public life. Perhaps so. But it is also critical to urbanization, globalization, modernity, mobility, social hierarchy, flow, scale, imperialism (what Said called the geography of violence), revolution, intimacy, shopping malls, simulacra, and being-in-the-world. Space is not only mediated and dialectical; it is a privileged strategy of post-modernity, "the everywhere of modern thought." So far as media go, the analytic of space implies a shift away from narrative and toward process and practice as ways of structuring experience. What are the theories that get at this? How can we use theories of space to think about media and culture, to rediscover the richness of the world? And what about the explosive iteration of screen culture that logically ought to imperil lived space but seem to offer new modes for grounding it. We will explore these themes in the relevant literatures for the purpose of developing fabulously interesting research projects, including some in visual format. No spatial pre-requisites.
Taught by: Marvin
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 660 Content Analysis
An introduction to content analysis, the analysis of large bodies of textual matter, also called message systems analysis, quantitative semantics, propaganda analysis, and (computer-aided) text analysis. The course inquires into the theories, methods, and empirical problems common to these analytical efforts: sampling, text retrieval, coding, reliability, analytic constructs, computational techniques, and abductive inference. It illustrates these problems by studies of mass media content, interview or panel data, legal research, and efforts to draw inferences from personal documents typical in psychology and literature. Students design a content analysis and do the preparatory work for an academic or practical research project. They may also use the opportunity of forging available theories into a new analytical technique and test it with available texts, or solve a methodological problem in content analysis research.
Taught by: Krippendorff
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 665 Digital Media and Social Theory
This course explores critical issues in contemporary society through the lens of digital media studies and social theory. The goal is to build constructive dialogues between digital media studies and contemporary social theory. Special attention will be given to how social theory may inform the theorizing and empirical analysis of digital culture, politics, and practices. We will read monographs on globalization, power and control, dissent and protest, self and community, and the public sphere as they relate to digital media technologies. They include works by McLuhan, Castells, Turkle, Papacharissi, Lievrouw, Bimber, W. Chun and more. These monographs will be examined alongside the works of Gramsci, Foucault, Williams, Habermas, Bourdieu, Giddens, and Melucci. Students are required to submit weekly reading reports, make oral presentations, and complete a term paper.
Taught by: Yang
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 671 Computational Social Science
This is an advanced graduate research seminar in which guest speakers will present cutting-edge research in Computational Social Science. Our focus will be on carefully reading the speaker’s work, and discussing in detail their theoretical models, empirical methods, and overall scientific contribution. Participants will also present in the seminar, which will help to prepare them for professional presentations of their work at conferences and job talks. This seminar will meet weekly.
Taught by: Centola
One-term course offered either term
Activity: Seminar
1 Course Unit
COMM 673 Arts & Propaganda
This course (seminar) deals with examples of controversy or struggles, through public art or exhibition, to define or proclaim, contest or reinforce national identities. Some are internal debates, within national boundaries, some are transnational and exist in a global frame. In most instances, there are sharp disputes having to do with history and its interpretation and representation, about the role of museum and implications for legitimacy, about the relationship of patronage to power. Some sessions will be rooted in art history and iconography, some in the use of archival material to bring fresh perspectives to bear, some on aspects of law and regulation.
Taught by: Price
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 675 Message Effects
Current research, theory and statistical methods for assessing the effects of messages. Specific focus on messages designed to have a persuasive effect on attitudes, beliefs, opinions, or behaviors. Experimental and non-experimental research from mass and interpersonal communication, health, social psychology, advertising, political science and journalism will be considered. Unintended effects—such as the consequences of violent pornography—are not considered.
Taught by: Cappella
Course not offered every year
Prerequisite: COMM 575
Activity: Seminar
1 Course Unit

COMM 684 Data Visualization for Research
Empirical research employs data to gain insights and build a theoretical understanding of the world. An appropriate visualization of data is key to illuminating hidden patterns and effectively communicate the main findings of research. This course will discuss the visualization strategies of published research, give recommendations of best practice, and discuss tips and techniques for specific research purposes (i.e. hypothesis testing, group comparison) and data structures, including temporal, geographic, and network data. This course will equip you with tools you can use to learn through visualization and to communicate more effectively your own research.
Taught by: Gonzalez-Bailon
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 697 Popular Culture and Politics
Not surprisingly, most research regarding the media’s impact on political attitudes, opinions, knowledge and behaviors focuses on news and public affairs genres, ignoring the vast majority of media content labeled “entertainment.” Spurred in part by technological, economic, cultural and political changes that have increasingly blurred the line between news and entertainment, a small but growing body of empirical research is exploring the political influence of popular culture. In this course we will critically review this literature, focusing on issues of theory, methods, findings and implications.
Taught by: Delli Carpini
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 699 Advanced Project in a Medium
Proposal written in specified form and approved by both the student’s project supervisor and academic advisor must be submitted with registration. Open only to graduate degree candidates in communication. One-term course offered either term
Activity: Independent Study
1 Course Unit

COMM 701 Introduction to the Political Economy of Media
This course has two aims. First, assuming that communications are central to any society, it situates media systems within larger national and international social relationships and political structures. Second, this course critically examines the structures of the communication systems themselves, including ownership, profit imperatives, support mechanisms such as advertising and public relations, and the ideologies and government policies that sustain these arrangements. Considering case studies ranging from traditional news and entertainment media to new digital and social media, the course provides a comprehensive survey of the major texts in this vibrant sub-field of media studies.
Taught by: Pickard
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 703 International Communication: Power and Flow
The tumultuous rise of new media technologies, including the Internet and social media, combine with grinding geopolitical change to create dramatic changes in law and policy regarding speech and society. This course is an examination of current dilemmas in historical context, about strategic communications in contrast or challenge to goals of free expression and to the exercise of power over the flow of information. Taking relevant contexts, including societies in transition, authoritarian societies, states and societies in conflict, we explore the relationship of the state and other entities to the flow of words and images, and how these messages impact public opinion, stability, and democratic growth. We start with a theoretical orientation focused on two competing paradigms— the paradigm of free expression and the paradigm of national identity, conflict management, and sovereignty. The class will then explore several case studies viewed through the lens of narrative theory. Areas of discussion may include case studies such as Ukraine, Russia, Syria, Iran and, as well, the drama of the development of global internet policy.
Taught by: Price, M.
One-term course offered either term
Activity: Seminar
1 Course Unit
**COMM 706 Analysis of Election Data**
This course is intended to serve as a workshop for students interested in the empirical analysis of elections, public opinion and political communication more generally. The centerpiece of the course will be an original research paper produced by each student on a topic of his or her own choosing. The requirements for these papers are fairly open, but demanding: the research papers must a) involve empirical analysis of a major election data set, b) be oriented toward answering an original research question selected with the guidance of the instructor, and c) aim to be of publishable quality. There are no formal prerequisites for the course. However, if you have less than two semesters of statistical training, and/or no formal background in the study of elections, public opinion or political communication, then this is probably not the right course for you. In order to be able to formulate an original research question, you need some background in the literature, which is provided by other courses, but is not a formal part of this course.
Taught by: Mutz
One-term course offered either term
Activity: Seminar
1 Course Unit

**COMM 712 Race, Media and Politics**
"Race" has and continues to play an important role in American politics. In this course we will critically review the relevant Communication and Political Science literature with an eye towards understanding: (1) the role of the mass media in the construction and dissemination of race as a sociopolitical concept; (2) how race affects political attitudes, opinions and behaviors; (3) the unique methodological problems researchers face in studying racial attitudes and opinions; and (4) shortcomings in the existing scholarship on race, media and politics and how these shortcomings might be addressed.
Taught by: Delli Carpini
One-term course offered either term
Activity: Seminar
1 Course Unit

**COMM 713 Historical and Visual Culture Methodology**
This methodology class will examine different historiographical and visual approaches, particularly as they relate to the study of communication. Students will be guided through archival research skills, working extensively with primary sources in their final projects. Each week will feature a different "research question" that will require archival exploration to answer, and the readings will relate to different ways to approach the question. The second half of the course will be devoted to developing and workshopping final projects.
Taught by: Pearl
Course not offered every year
Activity: Seminar
1 Course Unit

**COMM 715 Political Communication**
This course examines the role of political communication in influencing political attitudes and behaviors. Because of the broad nature of the topic, course readings and lectures will be interdisciplinary, drawing on research in sociology, history, psychology, political science and communication research. There are two primary goals for the course. One goal is to acquaint graduate students with the wide-ranging literature on political communication. A second major goal is to stimulate ideas for original research in the field of political communication. Toward this end, by the end of the semester students will be expected to be sufficiently familiar with the field to propose original studies on topics of their choosing. The formulation of an original research question and research design will be an important component of the final examination.
Taught by: Mutz
Course not offered every year
Activity: Seminar
1 Course Unit

**COMM 721 Theory and History in Global Communication**
For more than a half century, global communication theory has been shaped by interaction between worldwide geopolitical developments on the one hand, and theoretical trends in the social sciences and humanities on the other hand. This course is designed to give you a firm grasp of the historical trajectory of global communication theory and to develop knowledge of the central debates that have animated the field since the mid-20th century. We will discuss how these debates have changed, under what circumstances, and how contemporary scholarship wrestles with them; and how language and jargon in the field has shifted from "international" to "global." We will also explore why some key issues and media have received relatively scant attention in global communication research, while others have arguably been overemphasized. We will read a mixture of primary sources by luminaries in the different paradigms that have dominated global communication, complemented with secondary texts that are carefully selected to give you a sense of the architecture of the field, an understanding of what sub-areas of global communication scholarship are published and the journals and presses that publish in those sub-areas.
Taught by: Kraidy
One-term course offered either term
Activity: Seminar
1 Course Unit

**COMM 722 Theories and Methods in Qualitative Research**
The objective of this course is to ensure that students have a grasp of the fundamental theories and methods of qualitative research. After spending time immersing ourselves in the metatheories that shape social science research, we will address ethical issues that emerge in all human subjects research (qualitative and otherwise), focusing primarily on responsible treatment of participants and their data. Then we will work through a series of research techniques, including semi-structured interviews, focus groups, ethnography, discourse analysis and participatory mapping. With the goal of providing practical instruction on qualitative methods and a grounding in theoretical issues, this course is meant to prepare studies for conducting a broad range of qualitative research projects in communication and media studies.
Taught by: Lingel
Course not offered every year
Activity: Seminar
1 Course Unit
COMM 727 Evaluation of Communication Campaigns
The various roles of research in campaign work: foundational research, formative research, monitoring research, summative evaluation research, policy research. The place for a theory of campaign effects. The ethics of evaluation research. Alternative designs, measurement, statistical and analytic approaches.
Taught by: Hornik
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 731 Beauty & Technology
Have concepts of beauty changed over time? According to Darwin, the meaning of facial expressions and emotions are consistent across cultures and are universally understood. Modern scholarship would have us believe that notions of human beauty are framed by facial symmetry and reproductive fitness, while fashion magazines seem to challenge both these claims. What role does technology play in communicating and shaping ideas of beauty? By the same token, to what extent is technology deployed in service of the ideas of those behind the lens? In this course, we will explore changing notions of beauty and their relationship to the technologies and media through which it is viewed.
Taught by: Pearl
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 741 Media Effects Research Design
This course will include three components. Part one will focus on readings and lectures about media effects research design, with some emphasis on exposure measurement, and on constructing out-of-laboratory designs including natural and quasi experiments, longitudinal and time series designs and designs appropriate for evaluating persuasive campaigns. Part two will be case focused, asking for design critiques of current published research studies. Part three will provide an opportunity for development of designs relevant to students' own interests.
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 745 Media Ethnography: Theory and Practice
This course will allow students to conduct 'critical readings' of ethnographic engagements with television, radio and film as cultural phenomena. We will examine how ethnographers use their method and genre to understand the production, reception and circulation of mass media. We will also draw on contemporary social/critical theory to unpack some of the epistemological assumptions organizing and anchoring such qualitative work. (The internet will also be discussed.)
Taught by: Jackson
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 753 The Internet, State Power, and Free Expression: Media Policy Evolution in a Evolving Global Context
Global Internet policy is a zone of contestation, with states, corporations, civil society, and "netizens" seeking to assert particular perspectives. This course studies processes and rhetoric of Internet policy-making. It seeks to identify the major competing positions and the structures in key countries charged with projecting and obtaining global consensus. Among the concepts to be analyzed in this context are "sovereignty," "Internet freedom," "multi-stakeholder involvement," and the growing role of cybersecurity. There will be sessions on the WCIT meetings in Dubai in 2012 and its predecessors, on approaches to Internet policy in US, China and Brazil, Russia and India. We shall explore the relationship between national policy making and global approaches.
Taught by: Price
Activity: Seminar
1 Course Unit

COMM 760 Language and Social Constructions of Reality
This seminar inquires into the principles and processes by which realities come to be socially constructed and discursively maintained. It serves as an introduction to the emerging epistemology of communication, which is concerned less with what communication is than with what it does, constitutes, and actively maintains, including when being studied. The seminar develops analytical tools to understand how realities establish themselves in language and action, how individuals can become entrapped in their own reality constructions, how facts are created and institutions take advantage of denying their constructedness. After reading several exemplary studies, students explore the nature of a construction on their own. The seminar draws on the discourse of critical scholarship and emancipatory pursuits, which are allied with feminist writing, cultural studies, and reflexive sociology. It is committed to dialogical means of inquiry and takes conversation as an ethical premise.
Taught by: Krippendorff
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 799 Independent Research
Proposal written in specified form and approved by both the student’s project supervisor and academic advisor or another member of the faculty must be submitted with registration.
One-term course offered either term
Activity: Independent Study
1 Course Unit

COMM 801 Filter Bubbles, Long Tails, and Information Cascades: Research Methods for a Fragmented Media Environment
Scholars and pundits have made many claims in recent years about the impact that digital technologies, and social media in particular, play in shaping access to political information and the formation of beliefs. However, all these claims rely on specific measurement instruments and research designs that are not always appropriately scrutinized or evaluated. This course will discuss the different analytical approaches that can be used to measure media consumption, selective exposure, bias, opinion formation, and the diffusion of information in the online media environment. Our goal is to assess the strength and weaknesses of different research designs with an eye on how to best triangulate available evidence and advance in a cumulative fashion in this important research domain.
Course not offered every year
Activity: Seminar
1 Course Unit
COMM 811 Neurobiology of Social Influence
A graduate level statistics course, ability to read primary research articles in cognitive neuroscience (no course prereqs, but students with less background may need to do supplemental work at the front end). Considerable resources are devoted to constructing mass media campaigns that persuade individuals exert powerfully influence one another without even knowing it. Still, our ability to design and select optimal messages and interventions is far from perfect. This course will review investigations in social and cognitive psychology and communication sciences that attempt to circumvent the limits of introspection by using biological and implicit measures, with particular focus on neuroimaging studies of social influence and media effects.
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 813 Theor & Hist Global Comm
For decades, global communication theory has been shaped by interaction between worldwide political, economic and technological developments and theoretical trends in the social sciences and humanities. This course is designed to give you a firm grasp of the historical trajectory of global communication theory and to acquire knowledge of the central debates that have animated the field since the mid-20th century. From development communication to global digital culture, we will discuss how these debates have changed, under what circumstances, and how contemporary scholarship wrestles with them. We will also explore why some key issues and types of media have received relatively scant attention in global communication research, while others have arguably been over-emphasized. We will read a mixture of primary sources by intellectual leaders of different paradigms that have dominated global communication complemented with secondary texts that are carefully selected to give you a sense of the architecture of the field, an understanding of what sub-areas of global communication scholarship are published and the journals and presses that publish in those sub-areas. Required readings will be available on electronic reserves.
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 815 Community, Network, and Crowd: Critical Perspectives on Forms of Human Togetherness
Between the micro-level of individuals and the macro-level of society is the meso-level of social phenomena, where much sociological research locates its scholarship. This seminar considers theories of human togetherness that have shaped research in the humanities and the social sciences. As researchers shift between terms like community, network, public, and collective, what connotations drop out and emerge? What are the relevant theories that can help us be critical about the analysis of social groups? Our discussions will examine the meanings of a broad range of concepts, from crowds and publics to community and networks, from secret societies and gangs to collective, what connotations drop out and emerge? What are the relevant theories that can help us be critical about the analysis of social groups? Our discussions will examine the meanings of a broad range of concepts, from crowds and publics to community and networks, from secret societies and gangs to counter-cultural communes. Special attention will be given to the sources, functions, and influences of different types of communities and the relationship among communication, community, and solidarity. Readings will include classical statements by Durkheim and Simmel as well as contemporary writings by Kristen Ross, Jodi Dean, Judith Butler, Michael Warner, Etienne Wenger, Antonio Negri, Michael Hardt, danah boyd and others.
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 835 Revolting Media: Communication and Social Change
Social change has always had its communicative element: pamphleteers calling for the abolition of absolute monarchy, citizen journalists campaigning against tyranny, filmmakers celebrating revolution, broadcasters publicising civil rights, illegal radio stations supporting anti-colonial struggles, bloggers organising pro-democracy movements. This course celebrates the role of media in historical revolts and considers the work of key theorists - including Fanon, Enzensberger, Williams and Mattelart - who mapped out the the conditions in which communications could play a progressive role in reform and revolution. The course then moves from an emphasis on the media in revolt to more recent debates concerning a revolt against the media. This includes looking at the collapse of trust in key public institutions, the breakdown of the traditional liberal consensus, increased pressures on impartiality and the rise of populist media forms and outlets. The course features a timeline of revolting media that includes everything from purposeful struggles against inequality and injustice to more recent manifestations marked by ‘fake news’, ‘post truth’ and ‘emotion-driven journalism’ in an effort to demonstrate the diversity of media models available (but not always offered).
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 848 Decoding the Social World
Have digital technologies, and the new data they provide, helped us advance old theoretical debates about communication and the role it plays in social life? How was social thought shaped by previous technological breakthroughs and how is the digital revolution shaping our theories today? What are the questions that are still open, the puzzles that require further research and more theoretical development? This seminar will consider these and related questions, offering a (personal) overview of the frontiers of communication research as seen through the lens of digital data and with a focus on the identification of social mechanisms. The discussions will be articulated around two forthcoming books: 'Decoding the Social World: When Data Science Meets Communication,' and 'The Oxford Handbook of Communication in the Networked Age,' which will offer a starting point to start thinking about theoretical problems and the best empirical strategies to solve them.
Taught by: Gonzalez-Bailon
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 850 The Body: Theory, Method, Discourse
Taught by: Kraidy
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This seminar examines the body as a central communication problematic in theory research. We will read a wide-ranging selection of essays, articles and books, examining a variety of research traditions that have focused on the body - phenomenology, feminism, biopolitics, etc-across the humanities and social sciences. We will explore how the body has been understood as tool, symbol, icon, battleground, and lived experience. In turn we will examine contemporary applications, ending with digital culture, of these approaches through notions of affect, aesthetics, materiality, embodiment, performativity, docility, social action, and creative insurgency. Though theoretical, this seminar has a strong methodological component focusing on discourse analysis.
COMM 856 Privacy, Surveillance & Marketplace
This class will look at various philosophical and sociological perspectives on privacy, put them into historical context, and explore some of the dynamics of the contemporary marketplace that may (or may not) affirm Sun Microsystems CEO Scott McNealy's 1999 comment to reporters and analysts, "You have zero privacy anyway. Get over it." The class will involve mainly reading and discussion, with possibly a paper that extends a stream of the readings in a particular direction.
Taught by: Turow
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 857 Advanced Qualitative Research
For students writing qualitative dissertation proposals. Seminar members will read and respond to one another's developing drafts and preliminary research. We will talk through unfolding projects and develop research and writing practice. For most students the goal is to produce a defensible proposal by the end of the semester. In some cases students who are not writing formal proposals but are beginning to focus on literature review & dissertation design may find this seminar useful. Adviser approval required for enrollment.
Taught by: Marvin
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 860 Global Media Activism: The 1960s
The long 1960s witnessed the explosion of media and activism on a global scale. From the French May Movement in 1968 to the Chinese Cultural Revolution, from the student protests in Zimbabwe, Germany and Brazil to Women's Liberation and the New Left in the United States, political radicalism was deeply intertwined with activist and alternative media and the mainstream press. The ideological divide of the Cold War not only failed to stop the transnational flows of the narratives and icons of radicalism, but gave them a fateful potency. In this process, the meanings and forms of political activism were transformed. This seminar analyzes this wave of political activism and its media practices while tracing its long-term consequences, memories, and legacies. Our goal is to understand media and activism in a pivotal period of global modernity as well as the historical origins of mediated activism in the 21st century.
Taught by: Yang
Activity: Seminar
1 Course Unit

COMM 867 Media and Social Movements
Examines the meanings and roles of media and communication in social movements; analyzes media reform activism; studies both historical movements and contemporary protests around the world (Arab Spring, Indignados, Occupy, etc); covers a broad range of theoretical perspectives, especially network and diffusion theories, political economy, narrative theory, and theories of performance. Students are required to submit a final research paper.
Taught by: Gonzalez-Bailon, Pickard & Yang
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 869 Ethnography and the Internet
This course covers qualitative and interpretive methods for investigations of socio-technical phenomena related to digital culture and online life. Concentrating on ethnographic methods, the course will cover methodological issues common to research on digital technologies, drawing on theorists from communication, media studies, information studies, sociology, anthropology and internet studies. In addition to developing a sophisticated understanding of ethical and methodological issues surrounding ethnography and online life, students will complete a research proposal for a qualitative or interpretive study of online phenomena.
Taught by: Lingel
Course not offered every year
Prerequisite: Completion of graduate level research methods course
Activity: Seminar
1 Course Unit

COMM 871 Computational Social Science Seminar
This is an advanced graduate research seminar in which guest speakers will present cutting-edge research in Computational Social Science. Our focus will be on carefully reading the speaker's work, and discussing in detail their theoretical models, empirical methods, and overall scientific contribution. Participants will also present in the seminar, which will help to prepare them for professional presentations of their work at conferences and job talks. This seminar will meet weekly.
Taught by: Centola
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 872 Internet Experiments Practicum
Web-based experiments are an exciting new way to do social science research online. They have created a vast number of new scientific opportunities for studying complex social systems. This course is an advanced undergraduate / graduate practicum that focuses on how to build Internet experiments. Class participants will be exposed to the literature in computational social sciences that uses the Internet to study human behavior. Students will be expected to participate in a hands-on research project in which we build a new experiment to study complex social behavior. This course requires strong research and analytic abilities, and would be appropriate for both advanced social science majors with a strong technical background, and advanced computer science and engineering majors with a strong interest in social science. The practicum will meet weekly. Interested students will need to prepare a paragraph describing their interest and preparation for this course, and will be asked to discuss their background with Professor Centola.
Taught by: Centola
Course not offered every year
Activity: Seminar
1 Course Unit
COMM 880 The Social Neuroscience of Communication
This interdisciplinary course focuses on understanding the mechanisms of social thinking, media effects and interpersonal communication across multiple levels of analysis. We use the brain as one powerful window to understand and predict outcomes that are challenging to predict otherwise. The course will cover foundational readings and involve weekly, seminar style discussions of recent papers in social neuroscience, neuroeconomics and communication science.
Taught by: Falk
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 883 Describing Your Data
This course is for students who have collected empirical data and will explore ways of describing data for scientific and translational purposes. For example, students will explore different ways to explore and visualize their data, write about their data (e.g., a conference abstract vs. a blog post), present present their data (e.g., a conference talk vs. a pop talk) and make their data more reproducible. Students will also read scholarly work (oversampling, though not limited to work on media effects) and critique their work in relation to what is known about effective communication and reproducibility. Students should come prepared to engage with art, science and computer programming.
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 889 Cultural Sociology
Studies culture as values, scripts, practice, performance, and style in the contexts of everyday life, social class and status groups, social movements, and status groups, social movements, and changes of communication technologies. Approaches politics, society, institutions, identities, and social change as dynamic processes and complex interactions at both micro/meso and meso/macro levels. Examines the production, reception, circulation, and effects of signs, symbols, and stories. Readings include both classic authors (Elias, Simmel, Bakhtin, Goffman, Foucault, Bourdieu, Raymond Williams, etc) and contemporary works from sociology and communication studies.
Taught by: Yang
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 891 Censorship: Global Sur
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 892 Critical Data Studies
Course not offered every year
Activity: Seminar
1 Course Unit

COMM 893 Networks, Theories, and Online Data: New Approaches to Social Change
How do fads and innovations spread across a population? Why do political parties polarize, or reach an unexpected consensus? How can social technologies help to promote the emergence of social movements and new democratic politics? This course examines theories of social change and innovation diffusion, in light of methodological advances in network science and computational social science. The new revolution in computing has creating remarkable opportunities for doing social science research, and understanding the dynamics of how collective behaviors emerge and spread. The goal of the course is to think carefully about how formal/predictive models can be connected with empirical data. This course addresses research at the forefront of social science and complex systems. Participants will get the most out of the material by aggressively pursuing questions that emerge from the readings, and from participating in hands-on research projects. The expectation is that students will develop research projects, or mature existing projects, which will be the focus of their work for the course. They should use this course as a foundation for developing publishable research. This course will also focus on the presentation of research - emphasizing clear, intelligible presentations, suitable for disciplinary conferences.
Taught by: Centola
One-term course offered either term
Activity: Seminar
1 Course Unit

COMM 894 Introduction to Networks
Much of what we think and do is shaped by social interactions, by the behavior we see in other people, or the information we receive from them: we pay attention to what our friends or we monitor news through the feeds of social media, and we are more likely to use technologies already embraced by other users. Networks are behind those (and, by extension, most) dimensions of social life. They offer the language to capture the invisible structure of interdependence that links us together, and the means to analyze dynamics like diffusion, influence, or the effects of media in an increasingly diverse information environment. The aim of this course is to introduce networks and the relational way of thinking. Students will gain the necessary literacy to read, interpret, and design network-based research; learn how to go from concepts to metrics; and draw and interpret networks through the lens of substantive research questions. We will pay equal attention to the theory and the empirics of network science, and set the foundations for more advanced work on networks.
Taught by: Gonzalaz-Bailon
One-term course offered either term
Activity: Seminar
1 Course Unit
COMM 898 Social Influence, Media Effects and the Brain
Considerable resources are devoted to constructing mass media
campaigns that persuade individuals to change their behavior and
individuals exert powerfully influence one another without even
knowing it. Still, our ability to design and select optimal messages and
interventions is far from perfect. This course will review investigations
in social and cognitive psychology and communication sciences that
attempt to circumvent the limits of introspection by using biological
and implicit measures, with particular focus on neuroimaging studies of
social influence and media effects.
Taught by: Falk
Course not offered every year
Prerequisites: A graduate level statistics course, ability to read primary
research articles in cognitive neuroscience (no course prereqs, but
students with less background may need to do supplemental work at the
front end)
Activity: Seminar
1 Course Unit
COMPARATIVE LITERATURE (COML)

COML 001 Approaches to Genre
This is a topics course. Please see COML website for current semester's description: http://ccat.sas.upenn.edu/Complit/ Some dare to build the struts and rafters of a Jerusalem to come, some turn their heads away from the writing on the wall, and some dance as the palaces burn. We mean to investigate each, and to articulate our own responses to the end that comes again and again. Although no artist, author, or prophet that we study was able to shake their sense of the final, the course itself will not have one. But it will address those figures in depth. They include: Margaret Atwood, Stanley Kubrick, Sigmund Freud, John of Patmos, William Blake, Ovid, Lars Von Trier, Octavia Butler, William Shakespeare, Samuel Beckett, Boccaccio, Mary Shelley, Karl Marx, Mohammed, Donna Haraway, Frank Kermode, Cormac McCarthy, and Norman O.Brown. One-term course offered either term Activity: Seminar 1 Course Unit
Notes: Communication within the Curriculum. This is a topics course. This seminar engages questions of literary genre, including its function as a mediating presence for thinking about audience, literary history, and the marketplace. The theme of the seminar will change with the instructor. Customarily this course will be affiliated with Communication within the Curriculum (CWIC), and so will have a speaking and presentation component to it.

COML 002 Approaches to Literary Studies
This is a topics course. Please see the Comp Lit website for current semester's description: http://ccat.sas.upenn.edu/Complit/ Course not offered every year Activity: Seminar 1 Course Unit Notes: Communication within the Curriculum. This is a topics course. This seminar engages questions of literary genre, including its function as a mediating presence for thinking about audience, literary history, and the marketplace. The theme of the seminar will change with the instructor. Customarily this course will be affiliated with Communication within the Curriculum (CWIC), and so will have a speaking and presentation component to it.

COML 012 India's Literature: Love, War, Wisdom and Humor
This course introduces students to the extraordinary quality of literary production during the past four millennia of South Asian civilization. We will read texts in translation from all parts of South Asia up to the sixteenth century. We will read selections from hymns, lyric poems, epics, wisdom literature, plays, political works, and religious texts. For BA Students: Arts and Letters Sector Taught by: Patel Course not offered every year Activity: Lecture 1 Course Unit
COML 013 Introduction to Modern South Asian Literatures
This course will provide a wide-ranging introduction to the literatures of South Asia from roughly 1500 to the present, as well as an exploration of their histories and impact on South Asian society today. How are literary movements and individual works - along with the attitudes towards religion, society, and culture associated with them - still influential in literature, film, and popular culture? How have writers across time and language engaged with questions of caste, gender, and identity? We will read from the rich archive of South Asian writing in translation - from languages that include Braj, Urdu, Bangla, and Tamil - to consider how these literatures depict their own society while continuing to resonate across time and space. Topics of discussion will include the Bhakti poetries of personal devotion, the literature of the Untouchables - formerly referred to as the Untouchables - and the ways in which literature addresses contemporary political and social problems. Students will leave this course with a sense of the contours of the literatures of South Asia as well as ways of exploring the role of these literatures in the larger world. No prior knowledge of South Asia is required; this course fulfills the cross-cultural analysis requirement. Taught by: Goulding One-term course offered either term Activity: Seminar 1 Course Unit

COML 014 Critical Speaking Seminar
This is a topics course. Please see COML website for current semester's description: http://ccat.sas.upenn.edu/Complit/ Some dare to build the struts and rafters of a Jerusalem to come, some turn their heads away from the writing on the wall, and some dance as the palaces burn. We mean to investigate each, and to articulate our own responses to the end that comes again and again. Although no artist, author, or prophet that we study was able to shake their sense of the final, the course itself will not have one. But it will address those figures in depth. They include: Margaret Atwood, Stanley Kubrick, Sigmund Freud, John of Patmos, William Blake, Ovid, Lars Von Trier, Octavia Butler, William Shakespeare, Samuel Beckett, Boccaccio, Mary Shelley, Karl Marx, Mohammed, Donna Haraway, Frank Kermode, Cormac McCarthy, and Norman O.Brown. One-term course offered either term Activity: Seminar 1 Course Unit Notes: Communication within the Curriculum. This is a topics course. This seminar engages questions of literary genre, including its function as a mediating presence for thinking about audience, literary history, and the marketplace. The theme of the seminar will change with the instructor. Customarily this course will be affiliated with Communication within the Curriculum (CWIC), and so will have a speaking and presentation component to it.

COML 015 Freshman Seminar
The primary goal of the freshman seminar program is to provide every freshman the opportunity for a direct personal encounter with a faculty member in a small setting devoted to a significant intellectual endeavor. Specific topics will be posted at the beginning of each academic year. Please see the College Freshman seminar website for information on current course offerings http://www .college.upenn.edu/courses/ seminars/freshman.php. Fulfills Arts and Letters sector requirement. Course not offered every year Activity: Seminar 1 Course Unit

COML 016 Topics in Literature
This course will explore various topics within the diverse landscape of literature with an emphasis on a particular theme or genre. Course not offered every year Activity: Seminar 1 Course Unit Notes: Freshman seminar.

COML 023 In Praise of the Small
We can memorize aphorisms and jokes, carry miniature portraits with us, and feel playful in handling small objects. This seminar will ask us to pay attention to smaller texts, art works, and objects that may easily be overlooked. In addition to reading brief texts and looking at images and objects, we will also read texts on the history and theory of short genres and the small. Taught by: Weissberg Course not offered every year Activity: Seminar 1 Course Unit Notes: Freshman seminar. All readings and lectures in English. No knowledge of German is required.
COML 51 Translating Literature
Activity: Lecture
1 Course Unit

COML 053 Music of Africa
African Contemporary Music: North, South, East, and West. Come to know contemporary Africa through the sounds of its music: from South African kwela, jazz, marabi, and kwantino to Zimbabwean chimurenga; Central African soukous and pygmy pop; West African fuji, and North African rai and hop hop. Through reading and listening to live performance, audio and video recordings, we will examine the music of Africa and its intersections with politics, history, gender, and religion in the colonial and post-colonial era.
Taught by: Muller
Activity: Lecture
1 Course Unit

COML 056 Seeing/Hearing South Africa: Politics and History through Contemporary Performance
This course begins in the regular semester—students are provided a general introduction to South African history, politics, environment, and performance through a range of resources: scholarly literature, film, music, and online resources; with particular focus on sites, communities, and events included in the two week intensive travel to South Africa (either Fall semester Intro with winter break travel; or spring semester Intro with late spring intensive travel). Students are given guidelines for writing about and representing live performances and their experiences of exhibits and heritage sites. For fall/winter travel: focus is on Cape Town’s New Year’s Festival performed by those historically called “Cape Coloured” a Festival that makes complicated understandings of race, slavery, and transatlantic translation of borrowed culture.
For the Spring/late spring travel, the destination is music festivals in mid-May. Both classes include visits to Robben island, Kirstenbosch gardens; “Cape Malay’ heritage sites; travel to KwaZulu Natal, and to Johannesburg’s apartheid museum, Soweto’s anti apartheid destinations, the Cradle of Humankind works heritage site, a game park, and the Union Buildings in Pretoria. En route we will stop over to view Khoisan rock art.
Taught by: Muller
Activity: Seminar
1 Course Unit
Notes: Application required through Penn Global: https://global.upenn.edu/pennabroad/pgs

COML 059 Modernisms and Modernities
This class explores the international emergence of modernism, typically from the middle of the 19th century to the middle of the 20th century. We will examine the links between modernity, the avant-garde, and various national modernisms that emerged alongside them. Resolutely transatlantic and open to French, Spanish, Italian, German, or Russian influences, this course assumes the very concept of Modernism to necessitate an international perspective focusing on the new in literature and the arts—including film, the theatre, music, and the visual arts. The philosophies of modernism will also be surveyed and concise introductions provided to important thinkers like Marx, Nietzsche, Sorel, Bergson, Freud, and Benjamin.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course.

COML 061 20th-Century British Literature
This course introduces major works in twentieth-century British literature. We will read across a range of fiction, poetry, plays, and essays, and will consider aesthetic movements such as modernism as well as historical contexts including the two World Wars, the decline of empire, and racial and sexual conflict. Authors treated might include: Conrad, Yeats, Joyce, Eliot, Lawrence, Forster, Shaw, Woolf, Auden, Orwell, Beckett, Achebe, Rhys, Synge, Naipaul, Rushdie, Heaney, and Walcott.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: See Comparative Literature website for current offerings at: http://ccat.sas.upenn.edu/Complit/

COML 062 20th-Century Poetry
From abstraction to beat, from socialism to negritude, from expressionism to ecopoetry, from surrealism to visual poetry, from collage to digital poetry, the poetry of the twentieth century has been characterized by both the varieties of its forms and the range of its practitioners. This course will offer a broad overview of many of the major trends and a few minor eddies in the immensely rich, wonderfully varied, ideologically and aesthetically charged field. The course will cover many of the radical poetry movements and individual innovations, along with the more conventional and idiosyncratic work, and will provide examples of political, social, ethnic, and national poetics, both in the Americas and Europe, and beyond to the rest of the world. While most of the poetry covered will be in English, works in translation, and indeed the art of translation, will be an essential component of the course.
Course not offered every year
Activity: Lecture
1 Course Unit

COML 065 20th-Century British Novel
This course traces the development of the novel across the twentieth century. The course will consider the formal innovations of the modern novel (challenges to realism, stream of consciousness, fragmentation, etc.) in relation to major historical shifts in the period. Authors treated might include: Conrad, Lawrence, Joyce, Forster, Woolf, Cather, Faulkner, Hemingway, Achebe, Greene, Rhys, Baldwin, Naipaul, Pynchon, Rushdie, and Morrison.
Course not offered every year
Activity: Lecture
1 Course Unit

COML 074 Science and Literature
This course will explore the emergence of modern science fiction as a genre, the ways it has reflected our evolving conceptions of ourselves and the universe, and its role as the mythology of modern technological civilization. We will discuss such characteristic themes as utopias, the exploration of space and time, biological engineering, superman, robots, aliens, and other worlds—and the differences between European and American treatment of these themes.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit
COML 090 Women and Literature
This course will focus on questions of gender difference and of sexual desire in a range of literary works, paying special attention to works by women and treatments of same-sex desire. More fundamentally, the course will introduce students to questions about the relation between identity and representation. We will attend in particular to intersections between gender, sexuality, race, class, and nation, and will choose from a rich vein of authors: Mary Wollstonecraft, Jane Austen, Mary Shelley, Lord Byron, the Brontës, Christina Rossetti, George Eliot, Oscar Wilde, Henry James, Gertrude Stein, Zora Neale Hurston, E. M. Forster, Virginia Woolf, Nella Larsen, Radclyffe Hall, Willa Cather, Elizabeth Bishop, Jean Rhys, James Baldwin, Sylvia Plath, Bessie Head, Audre Lorde, Adrienne Rich, Cherré Moraga, Toni Morrison, Michael Cunningham, Dorothy Allison, Jeanette Winterson, and Leslie Feinberg.

One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: This is a topics course. If the topic is "Gender, Sexuality, and Literature," the following description applies.

COML 093 Introduction to Postcolonial Literature
English is a global language with a distinctively imperial history, and this course serves as an essential introduction to literary works produced in or about the former European colonies. The focus will be poetry, film, fiction and non-fiction and at least two geographic areas spanning the Americas, South Asia, the Caribbean and Africa as they reflect the impact of colonial rule on the cultural representations of identity, nationalism, race, class and gender.

Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course.

COML 094 Introduction to Literary Theory
This course introduces students to major issues in the history of literary theory, and provides an excellent foundation for the English major or minor. Treating the work of Plato and Aristotle as well as contemporary criticism, we will consider the fundamental issues that arise from representation, making meaning, appropriation and adaptation, categorization and genre, historicity and genealogy, and historicity and temporality. We will consider major movements in the history of theory including the "New" Criticism of the 1920's and 30's, structuralism and post-structuralism, Marxism and psychoanalysis, feminism, cultural studies, critical race theory, and queer theory. See the Comparative Literature website at http://ccat.sas.upenn.edu/complit/ for a description of the current offerings.

Course not offered every year
Activity: Lecture
1 Course Unit

COML 095 Universal Language: From the Tower of Babel to Artificial Intelligence
"Universal Language" is a course in intellectual history. It explores the historical trajectory, from antiquity to the present day, of the idea that there once was, and again could be, a universal and perfect language among the human race. If recovered, this language can explain the origins and meaning of human experience, and can enable universal understanding and world peace.

Taught by: Verkholyantsev
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 098 Topics: Freshman Seminar
Topics vary. See the Department's website at https://ccat.sas.upenn.edu/complit/ for a description of current offerings.

One-term course offered either term
Activity: Seminar
1 Course Unit

COML 100 Introduction to Literary Study
Literature does not exist for your protection. So dangerous is it, that Socrates argued poets ought to be banned from his ideal Republic. And Socrates himself—one of the most subversive of all poetic thinkers—was condemned to death for corrupting the young with his speeches. All great literature is unsettling and alarming. Along with its beauty and delicacy and rhetorical power and ethical force, it can be terrifyingly sublime and even downright ugly: full of contempt and horror and grandiosity and malice. From Socrates' day to our own, countless writers have been jailed, exiled, and murdered, their works censored, banned, burned, for daring to say what others wish would remain unsaid—about religion and the State; sexuality, gender, and the body; art, science, and commerce; freedom and order; love and hate—and for saying it in ways that are aesthetically innovative, surprising, seductive, ravishingly unanticipated.

For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

COML 101 Introduction to Folklore
The purpose of the course is to introduce you to the subjects of the discipline of Folklore, their occurrence in social life and the scholarly analysis of their use in culture. As a discipline folklore explores the manifestations of expressive forms in both traditional and modern societies, in small-scale groups where people interface with each face-to-face, and in large-scale, often industrial societies, in which the themes, symbols, and forms that permeate traditional life, occupy new positions, or occur in different occasions in everyday life. For some of you the distinction between low and high culture, or artistic and popular art will be helpful in placing folklore forms in modern societies. For others, these distinction will not be helpful. In traditional societies, and within social groups that define themselves ethnically, professionally, or culturally, within modern heterogeneous societies, and traditional societies in the Americas, Africa, Asia, Europe and Australia, folklore plays a more prominent role in society, than it appears to plan in literate cultures on the same continents. Consequently the study of folklore and the analysis of its forms are appropriate in traditional as well as modern societies and any society that is in a transitional phase.

For BA Students: Humanities and Social Science Sector
Taught by: Ben-Amos
Course not offered every year
Activity: Lecture
1 Course Unit

COML 104 Study of a Period
This is an introduction to literary study through a survey of works from a specific historical period—often the 20th century, but some versions of this course will focus on other times. We will explore the period's important artistic movements, ideas, and authors, focusing on interconnectedness of the arts to other aspects of culture.

For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

COML 107 Topics: Freshman Seminar
Topics vary. See the Department's website at https://ccat.sas.upenn.edu/complit/ for a description of current offerings.

One-term course offered either term
Activity: Seminar
1 Course Unit
COML 108 Greek & Roman Mythology
Myths are traditional stories that have endured many years. Some of them have to do with events of great importance, such as the founding of a nation. Others tell the stories of great heroes and heroines and their exploits and courage in the face of adversity. Still others are simple tales about otherwise unremarkable people who get into trouble or do some great deed. What are we to make of all these tales, and why do people seem to like to hear them? This course will focus on the myths of ancient Greece and Rome, as well as a few contemporary American ones, as a way of exploring the nature of myth and the function it plays for individuals, societies, and nations. We will also pay some attention to the way the Greeks and Romans themselves understood their own myths. Are myths subtle codes that contain some universal truth? Are they a window on the deep recesses of a particular culture? Are they entertaining stories that people like to tell over and over? Are they a set of blinders that all of us wear, though we do not realize it? Investigate these questions through a variety of topics creation of the universe between gods and mortals, religion and family, sex, love, madness, and death.
For BA Students: Arts and Letters Sector
Taught by: Struck
Course not offered every year
Activity: Lecture
1 Course Unit

COML 114 Literature of the South Asian City: Space, Culture, Politics
The South Asian city as a way of organizing space and social relations, as a symbol, as a memory is the subject of this course. Through primarily, though by no means exclusively, readings of literature in translation, we will gain a sense for the history of the city and the ways in which it is a setting for protest and nostalgia, social transformation and solitary flâneurie. We will see reflections of the city in poetry recited in its homes, detective novels sold in its train stations, stories scribbled in its cafes, plays staged in its theaters, and films produced in its backlots. Readings will attempt to address urban spaces across South Asia, and will include works by writers such as Mirza Ghalib, Rabindranath Tagore, Saadat Hasan Manto, and Vijay Tendulkar. We will examine these works in the context of secondary readings, including histories and ethnological works that take up life in the modern city. Students will finish this course prepared to pursue projects dealing with the urban from multiple disciplinary perspectives. This course is suitable for anyone interested in the culture, society, or literature of South Asia, and assumes no background in South Asian languages.
Taught by: Goulding
Course not offered every year
Activity: Lecture
1 Course Unit

COML 115 Experimental Writing Seminar
It's clear that long-cherished notions of creativity are under attack, eroded by file-sharing, media culture, widespread sampling, and digital replication. How does writing respond to this environment? This workshop will rise to that challenge by employing strategies of appropriation, replication, plagiarism, sampling, plundering, as compositional methods. Along the way, we'll trace the rich history of forgery, frauds, hoaxes, avatars, and impersonations spanning the arts, with a particular emphasis on how they employ language. We'll see how the modernist notions of change, procedure, repetition, and the aesthetics of boredom dovetail with popular culture to usurp conventional notions of time, place, and identity, all as expressed linguistically.
Taught by: Bernstein
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Students wishing to take this course must submit a writing sample as part of the selection process. May be repeated for credit with a different instructor.

COML 116 Introduction to Film Theory
This course offers students an introduction to the major texts in film theory across the 20th and 21st centuries. The course gives students an opportunity to read these central texts closely, to understand the range of historical contexts in which film theories are developed, to explore the relationship between film theory and the major film movements, to grapple with the points of contention that have emerged among theorists, and finally to consider: what is the status of film theory today? This course is required for all Cinema Studies majors, but is open to all students, and no prior knowledge of film theory is assumed.
Requirements: Close reading of all assigned texts; attendance and participation in section discussions; 1 midterm exam; 1 take-home final exam.
Activity: Lecture
1 Course Unit

COML 118 Poetics of Screenwriting
This course studies scriptwriting in a historical, theoretical and artistic perspective. We discuss the rules of drama and dialogue, character development, stage vs. screen-writing, adaptation of nondramatic works, remaking of plots, author vs. genre theory of cinema, storytelling in silent and sound films, the evolvement of a script in the production process, script doctoring, as well as screenwriting techniques and tools. Coursework involves both analytical and creative tasks.
Taught by: Todorov
Course not offered every year
Activity: Seminar
1 Course Unit

COML 119 The Novel
An introduction to literary study through a genre, either the short story or poetry. Versions of this course will vary widely in the selection of texts assigned. Some versions will begin with traditional stories or poems, including a sampling of works in translation. Others will focus exclusively on modern and contemporary American short fiction or poetry. This course is designed for the General Requirement, and is ideal for the students wishing to take an English course but not necessarily intending to major.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit
COML 120 Iranian Cinema: Gender, Politics and Religion
This seminar explores Iranian culture, society, history and politics through the medium of film. We will examine a variety of cinematic works that represent the social, political, economic and cultural circumstances of contemporary Iran, as well as the diaspora. Along the way, we will discuss issues pertaining to gender, religion, nationalism, ethnicity, and the role of cinema in Iranian society and beyond. Discussions topics will also include the place of the Iranian diaspora in cinema, as well as the transnational production, distribution, and consumption of Iranian cinema. Films will include those by internationally acclaimed filmmakers, such as Rakhshan Bani-Etemad, Asghar Farhadi, Bahman Ghobadi, Abbas Kiarostami, Mohsen Makhmalbaf, Dariush Mehrjui, Tahmineh Milani, Jafar Panahi, Marjane Satrapi and others. All films will be subtitled in English. No prior knowledge is required. Taught by: Entezari Course not offered every year Activity: Seminar 1 Course Unit

COML 121 Working with Translations
In this class we will study and translate some of the major figures in 20th century poetry, including Rainer Maria Rilke, Claire Malroux, Pablo Neruda, Cesare Pavese, Anna Akhmatova, and Bei Dao. While the curriculum will be tailored to the interests and linguistic backgrounds of the students who enroll, all those curious about world poetry and the formidable, irresistible act of translation are welcome. Students should have at least an intermediate knowledge of a language other than English. We will study multiple translations of seminal poems, render our own versions in response, and have the additional opportunity to work directly from the original. Students may also work in pairs, or groups. A portion of the course will be set up as a creative writing workshop in which to examine the overall effect of each others' translations so that first drafts can become successful revisions. While class discussions will explore the contexts and particularity of (among others) Urdu, Italian, French, and Polish poetry, they might ultimately reveal how notions of national literature have radically shifted in recent years to more polyglottic and globally textured forms. Through guest speakers, essays on translation theory, and our own ongoing experiments, this course will celebrate the ways in which great poetry underscores the fact that language itself is a translation. In addition to the creative work, assignments will include an oral presentation, informal response papers, and a short final essay. Taught by: Silverman, Taije Course not offered every year Activity: Seminar 1 Course Unit

COML 125 Narrative Across Cultures
The purpose of this course is to present a variety of narrative genres and to discuss and illustrate the modes whereby they can be analyzed. We will be looking at shorter types of narrative: short stories, novellas, and fables, and also some extracts from longer works such as autobiographies. While some works will come from the Anglo-American tradition, a larger number will be selected from European and non-Western cultural traditions and from earlier time-periods. The course will thus offer ample opportunity for the exploration of the translation of cultural values in a comparative perspective. For BA Students: Arts and Letters Sector Taught by: Loomba One-term course offered either term Activity: Lecture 1 Course Unit

COML 127 The Adultery Novel
The object of this course is to analyze narratives of adultery from Shakespeare to the present and to develop a vocabulary for thinking critically about the literary conventions and social values that inform them. Many of the themes (of desire, transgression, suspicion, discovery) at the heart of these stories also lie at the core of many modern narratives. Is there anything special, we will ask, about the case of adultery—once called "a crime which contains within itself all others"? What might these stories teach us about the way we read in general? By supplementing classic literary accounts by Shakespeare, Pushkin, Flaubert, Chekhov, and Proust with films and with critical analyses, we will analyze the possibilities and limitations of the different genres and forms under discussion, including novels, films, short stories, and theatre. What can these forms show us (or not show us) about desire, gender, family and social obligation? Through supplementary readings and class discussions, we will apply a range of critical approaches to place these narratives of adultery in a social and literary context, including formal analyses of narrative and style, feminist criticism, Marxist and sociological analyses of the family, and psychoanalytic understandings of desire and family life. For BA Students: Arts and Letters Sector Taught by: Fischler One-term course offered either term Activity: Seminar 1 Course Unit Notes: All readings and discussions in English.

COML 128 The Diary
Diary writing is an intimate mode of expression in which individuals seek to find meaning in their personal lives and relations, responding to the external realities in which they live. Their coping is subjected to their historical, educational and social contexts, and to the generic conventions of diary writing. This course examines the diary as a genre, exploring its functions, meanings, forms and conventions, comparing it with fictive and non-fictive autobiographical writings such as the diary novel, autobiography and the memoir, as well as comparative gender diary-writing. Taught by: Ben-Amos, B Course not offered every year Activity: Lecture 1 Course Unit

COML 126 The Fantastic and Uncanny in Literature: Ghosts, Spirits & Machines
Do we still believe in spirits and ghosts? Do they have any place in an age of science of technology? Can they perhaps help us to define what a human being is and what it can do? We will venture on a journey through literary texts from the late eighteenth century to the present to explore the uncanny and fantastic in literature and Our discussions will be based on a reading of Sigmund Freud's essay on the uncanny, and extraordinary Romantic narratives by Ludwig Tieck, E.T.A. Hoffmann, Edgar Allan Poe, Nathaniel Hawthorne, Prosper For BA Students: Arts and Letters Sector Taught by: Weissberg Course usually offered in fall term Activity: Lecture 1 Course Unit Notes: All readings and lectures in English.
COML 133 Creative Writing and the World
A creative writing workshop devoted to writing in and across various social, political, geographical, and historical contexts. Offerings may include Writing for a Diasporic World, Writing the City, the Environment, or other topics and themes. See the Comparative Literature Program’s website at http://ccat.sas.upenn.edu/Complit/ for current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 140 Topics In Modernism
This course explores an aspect of literary modernism intensively; specific course topics will vary from year to year. Past offerings have included seminars on the avant-garde, on the politics of modernism, and on its role in shaping poetry, music, and the visual arts.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Critical Speaking

COML 141 Scandalous Arts in Ancient and Modern Communities
What do the ancient Greek comedian Aristophanes, the Roman satirist Juvenal, have in common with Snoop Dogg and Eminem? Many things, in fact, but perhaps the most fundamental is that they are all united by a stance that constantly threatens to offend prevailing social norms, whether through obscenity, violence or misogyny. This course will examine our conceptions of art (including literary, visual and musical media) that are deemed by certain communities to transgress the boundaries of taste and convention. It juxtaposes modern notions of artistic transgression, and the criteria used to evaluate such material, with the production of and discourse about transgressive art in classical antiquity. Students will consider, among other things, why communities feel compelled to repudiate some forms of art, while others into classics. For BA Students: Humanities and Social Science S
Taught by: Rosen
Course not offered every year
Activity: Lecture
1 Course Unit

COML 143 Foundations of European Thought: from Rome to the Renaissance
This course offers an introduction to the world of thought and learning at the heart of European culture, from the Romans through the Renaissance. We begin with the ancient Mediterranean and the formation of Christianity and trace its transformation into European society. Along the way we will examine the rise of universities and institutions for learning, and follow the humanist movement in rediscovering and redefining the ancients in the modern world.
For BA Students: History and Tradition Sector
Taught by: Moyer
Activity: Lecture
1 Course Unit

COML 148 Slavery and Serfdom
During the Cold War, the United States and Russia were locked in an ideological battle, as capitalist and communist superpowers, over the question of private property. So how did these two countries approach the most important question regarding property that ever faced human civilization: how could governments justify the treatment of its subjects, people, as property? In 1862, Russia abolished serfdom, a form of human bondage that had existed in its territories since the 11th century. Just a year later, in 1863, Abraham Lincoln signed the Emancipation Proclamation, declaring America’s slaves then, thenceforward, and forever free. What forces, both domestic and international, both political and cultural, influenced this near simultaneous awakening in which huge swathes of the Russian and U.S. populations were liberated? While scholars have often sought to compare slavery and serfdom as institutions, this course does not attempt to draw connections between the two. Rather, we will focus on how the slavery/anti-slavery and serfdom/anti-serfdom debates were framed in each respective country as well as how Russia used American slavery and the U.S. used Russian serfdom to shape their own domestic debates.
Taught by: Wilson
Course not offered every year
Activity: Seminar
1 Course Unit

COML 150 War and Representation
This class will explore complications of representing war in the 20th and 21st centuries. War poses problems of perception, knowledge, and language. The notional “fog of war” describes a disturbing discrepancy between agents and actions of war; the extreme nature of the violence of warfare tests the limits of cognition, emotion, and memory; war’s traditional dependence on declaration is often warped by language games—“police action,” “military intervention,” “nation-building,” or palpably unnamed and unacknowledged state violence. Faced with the radical uncertainty that forms of war bring, modern and contemporary authors have experimented in historically, geographically, experientially and artistically particular ways, forcing us to reconsider even seemingly basic definitions of what a war story can be. Where does a war narrative happen? On the battlefield, in the internment camp, in the suburbs, in the ocean, in the ruins of cities, in the bloodstream? Who narrates war? Soldiers, refugees, gossips, economists, witnesses, bureaucrats, survivors, children, journalists, descendants and inheritors of trauma, historians, those who were never there? How does literature respond to the rise of terrorist or ideology war, the philosophical and material consequences of biological and cyber wars, the role of the nuclear state? How does the problem of war and representation disturb the difference between fiction and non-fiction? How do utilitarian practices of representation—propaganda, nationalist messaging, memorialization, xenophobic depiction—affect the approaches we use to study art? Finally, is it possible to read a narrative barely touched or merely contextualized by war and attend to the question of war’s shaping influence? The class will concentrate on literary objects—short stories, and graphic novels—as well as film and television. Students of every level and major are welcome in and encouraged to join this class, regardless of literary experience.
For BA Students: Humanities and Social Science S
Taught by: Irele
One-term course offered either term
Activity: Seminar
1 Course Unit
COML 151 Water Worlds: Cultural Responses to Sea Level Rise & Catastrophic Flooding
As a result of climate change, the world that will take shape in the course of this century will be decidedly more inundated with water than we're accustomed to. The polar ice caps are melting, glaciers are retreating, ocean levels are rising, polar bear habitat is disappearing, countries are jockeying for control over a new Arctic passage, while low-lying cities and small island nations are confronting the possibility of their own demise. Catastrophic flooding events are increasing in frequency, as are extreme droughts. Hurricane-related storm surges, tsunamis, and raging rivers have devastated regions on a local and global scale. In this seminar we will turn to the narratives and images that the human imagination has produced in response to the experience of overwhelming watery invasion, from Noah to New Orleans. Objects of analysis will include mythology, ancient and early modern diluvialism, literature, art, film, and commemorative practice. The basic question we'll be asking is: What can we learn from the humanities that will be helpful for confronting the problems and challenges caused by climate change and sea level rise? For BA Students: Arts and Letters Sector Taught by: Richter Course not offered every year Activity: Lecture 1 Course Unit

COML 152 Central Eastern Europe
Taught by: Verkholantsev Activity: Lecture 1 Course Unit

COML 191 World Literature
How do we think 'the world' as such? Globalizing economic paradigms encourage one model that, while it connects distant regions with the ease of a finger-tap, also homogenizes the world, manufacturing patterns of sameness behind simulations of diversity. Our current world-political situation encourages another model, in which fundamental differences are held to warrant the consolidation of borders between Us and Them, "our world" and "theirs." This course begins with the proposal that there are other ways to encounter the world, that are politically compelling, ethically important, and personally enriching—and that the study of literature can help tease out these new paths. Through the idea of World Literature, this course introduces students to the appreciation and critical analysis of literary texts, with the aim of navigating calls for universality or particularity (and perhaps both) in fiction and film. "World literature" here refers not merely to the usual definition of "books written in places other than the US and Europe," but any form of cultural production that explores and pushes at the limits of a particular world, that steps between and beyond worlds, or that heralds the coming of new worlds still within us, waiting to be born. And though, as we read and discuss our texts, we will glide about in space and time from the inner landscape of a private mind to the reaches of the farthest galaxies, knowledge of languages other than English will not be required, and neither will any prior familiarity with the literary humanities. In the company of drunken kings, botanical witches, ambisexual alien lifeforms, and storytellers who've lost their voice, we will reflect on, and collectively navigate, our encounters with the faraway and the familiar—and thus train to think through the challenges of concepts such as translation, narrative, and ideology. Texts include Kazuo Ishiguro, Ursula K. LeGuin, Salman Rushdie, Werner Herzog, Jamaica Kincaid, Russell Hoban, Hiroshi Teshigahara, Arundhati Roy, and Abbas Kiarostami. One-term course offered either term Activity: Seminar 1 Course Unit

COML 192 Classics of the World II
This class provides a survey of works drawn from the Western literary canon from the Renaissance to the 20th century. Work may be drawn in part from the following authors: Montaigne, Shakespeare, Webster, Moliere, Milton, Behn, Laclos, Rousseau, Sterne, the Romantic poets, Austen, Dickens, Bronte, Wilde, Woolf and Joyce. One-term course offered either term Activity: Seminar 1 Course Unit

COML 193 Great Story Collections
This course is intended for those with no prior background in folklore or knowledge of various cultures. Texts range in age from the first century to the twentieth, and geographically from the Middle East to Europe to the United States. Each collection displays various techniques of collecting folk materials and making them concrete. Each in its own way also raises different issues of genre, legitimacy, canon formation, cultural values and context. For BA Students: Arts and Letters Sector Taught by: Azzolina Course not offered every year Activity: Lecture 1 Course Unit

COML 197 Madness and Madmen in Russian Culture
This course will explore the theme of madness in Russian literature and arts from the medieval period through the October Revolution of 1917. The discussion will include formative masterpieces by Russian writers (Pushkin, Dostoevsky, Tolstoy, Chekhov, and Bulgakov), painters (Repin, Vrubel, Filonov), composers (Mussorgsky, Tchaikovsky, and Stravinsky), and film-directors (Protazanov, Eisenstein), as well as non-fictional documents such as Russian medical, judicial, political, and philosophical treatises and essays on madness. For BA Students: Humanities and Social Science S Course not offered every year Activity: Lecture 1 Course Unit

COML 199 Study Abroad
Activity: Lecture 1 Course Unit

COML 201 Topics in Film History
This topic course explores aspects of Film History intensively. Specific course topics vary from year to year. See the Comparative Literature website <http://ccat.sas.upenn.edu/Complit/ for a description of the current offerings> Course not offered every year Activity: Seminar 1 Course Unit
COML 203 Masterpieces-Italian Literature
This course surveys the history of Italian literature through its major masterpieces. Beginning with Dante’s Divine Comedy, Petrarca’s love poems, and Boccaccio’s Decameron, we will follow the development of Italian literary tradition through the Renaissance (Machiavelli’s political theory and Ariosto’s epic poem), and then through Romanticism (Leopardi’s lyric poetry and Manzoni’s historical novel), up to the 20th century (from D’annunzio’s sensual poetry to Calvino’s post-modern short stories). The course will provide students with the tools needed for analyzing the texts in terms of both form and content, and for framing them in their historical, cultural, and socio-political context. Classes and readings will be in Italian. ITAL 203 is mandatory for Minors in Italian Literature and Majors in Italian Literature. If necessary, ITAL 201 can be taken at the same time as ITAL 203.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COML 204 Tolstoy
This course consists of three parts. The first, How to read Tolstoy? deals with Tolstoy’s artistic stimuli, favorite devices, and narrative strategies. The second, Tolstoy at War, explores the authors provocative visions of war, gender, sex, art, social institutions, death, and religion. The emphasis is placed here on the role of a written word in Tolstoy’s search for truth and power. The third and the largest section is a close reading of Tolstoy’s masterwork The War and Peace (1863-68) a quintessence of both his artistic method and philosophical insights.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Ben Franklin Seminar

COML 205 The Religious Other
Course explores attitudes toward monotheists of other faiths, and claims made about these "religious Others" in real and imagined encounters between Jews, Christians and Muslims from antiquity to the present. Strategies of “othering” will be analyzed through an exploration of claims about the Other’s body, habits and beliefs, as found in works of scripture, law, theology, polemics, art, literature and reportage. Attention will be paid to myths about the other, inter-group violence, converts, cases of cross-cultural influence, notions of toleration, and perceptions of Others in contemporary life. Primary sources will be provided in English.
Taught by: Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

COML 206 Italian History on Screen; How Movies Tell the Story of Italy
How has our image of Italy arrived to us? Where does the story begin and who has recounted, rewritten, and rearranged it over the centuries? In this course, we will study Italy’s rich and complex past and present. We will carefully read literary and historical texts and thoughtfully watch films in order to attain an understanding of Italy that is as varied and multifaceted as the country itself. Group work, discussions and readings will allow us to examine the problems and trends in the political, cultural and social history from ancient Rome to today. We will focus on: the Roman Empire, Middle Ages, Renaissance, Unification, Turn of the Century, Fascist era, World War II, post-war and contemporary Italy.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Seminar
1 Course Unit

COML 209 Sustainability & Utopianism
This seminar explores how the humanities can contribute to discussions of sustainability. We begin by investigating the contested term itself, paying close attention to critics and activists who deplore the very idea that we should try to sustain our, in their eyes, dystopian present, one marked by environmental catastrophe as well as by an assault on the educational ideals long embodied in the humanities. We then turn to classic humanist texts on utopia, beginning with More’s fictive island of 1517. The "origins of environmentalism" lie in such depictions of island edens (Richard Grove), and our course proceeds to analyze classic utopian texts from American, English, and German literatures. Readings extend to utopian visions from Europe and America of the nineteenth and twentieth centuries, as well as literary and visual texts that deal with contemporary nuclear and flood catastrophes. Authors include: Bill McKibben, Jill Kerr Conway, Christopher Newfield, Thomas More, Francis Bacon, Karl Marx, Henry David Thoreau, Robert Owens, William Morris, Charlotte Perkins Gilman, Ayn Rand, Christa Wolf, and others.
For BA Students: Humanities and Social Science Sector
Taught by: Wiggin
Course not offered every year
Activity: Seminar
1 Course Unit

COML 212 Modern Middle Eastern Literature in Translation
The Middle East boasts a rich tapestry of cultures that have developed a vibrant body of modern literature that is often overlooked in media coverage of the region. While each of the modern literary traditions that will be surveyed in this introductory course-Arabic, Hebrew, Persian and Turkish-will be analyzed with an appreciation of the cultural context unique to each body of literature, this course will also attempt to bridge these diverse traditions by analyzing common themes such as modernity, social values, the individual and national identity as reflected in the genres of poery, the novel and the short story. This course is in seminar format to encourage lively discussion and is team-taught by four professors whose expertise in modern Middle Eastern literature serves to create a deeper understanding and aesthetic appreciation of each literary tradition. In addition to honing students’ literary analysis skills, the course will enable students to become more adept at discussing the social and political forces that are reflected in Middle Eastern literature, explore important themes and actively engage in reading new Middle Eastern works on their own in translation. All readings are in English.
For BA Students: Arts and Letters Sector
Taught by: Gold
Course usually offered in spring term
Activity: Lecture
1 Course Unit

COML 213 Saints and Devils in Russian Literature
This course is about Russian literary imagination, which is populated with saints and devils, believers and religious rebels, holy men and sinners. In Russia, where people’s frame of mind had been formed by a mix of Eastern Orthodox Christianity and earlier pagan beliefs, the quest for faith, spirituality, and the meaning of life has invariably been connected with religious matters. How can one find the right path in life? Is humility the way to salvation? Should one live for God or for the people? Does God even exist?
For BA Students: Arts and Letters Sector
Taught by: Verkholantsev
Course not offered every year
Activity: Seminar
1 Course Unit
COML 216 CU in India: Topics Course
C.U. in India is a hybrid, domestic/overseas course series which provides students with the opportunity to have an applied learning and cultural experience in India. The 2-CU course requires: 1) 15 classroom hours at Penn in the Fall term 2) A 12-Day trip to India with the instructor during the winter break to visit key sites and conduct original research (sites vary) 3) 15 classroom hours at Penn in the Spring term and 4) A research paper, due at the end of the spring term. Course enrollment is restricted to students admitted to the program. For more information, and the program application, go to http://sites.sas.upenn.edu/cuinindia
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

COML 218 Perspectives in French Literature
This basic course in literature provides an overview of French literature and acquaints students with major literary trends through the study of representative works from each period. Students are expected to take an active part in class discussion in French. French 231 has as its theme the presentation of love and passion in French literature.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

COML 219 Perspectives in French Literature: The Individual and Society
This basic course in literature provides an overview of French literature and acquaints students with major literary trends through the study of representative works from each period. Special emphasis is placed on close reading of texts in order to familiarize students with major authors and their characteristics and with methods of interpretation. Students are expected to take an active part in class discussion in French. French 232 has as its theme the Individual and Society.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Activity: Seminar
1 Course Unit

COML 220 Russia and the West
This course will explore the representations of the West in eighteenth- and nineteenth-century Russian literature and philosophy. We will consider the Russian visions of various events and aspects of Western political and social life - Revolutions, educational system, public executions, resorts, etc. - within the context of Russian intellectual history. We will examine how images of the West reflect Russia’s own cultural concerns, anticipations, and biases, as well as aesthetic preoccupations and interests of Russian writers. The discussion will include literary works by Karamzin, Pushkin, Gogol, Dostoevsky, Leskov, and Tolstoy, as well as non-fictional documents, such as travelers’ letters, diaries, and historiosophical treatises of Russian Freemasons, Romantic and Positivist thinkers, and Russian social philosophers of the late nineteenth century. A basic knowledge of nineteenth-century European history is desirable. The class will consist of lectures, discussions, short writing assignments, and two in-class tests.
For BA Students: Humanities and Social Science S
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 226 Hindi Nation and its Fragments
This course will trace the formation and contestation of a Hindi national public during the colonial and post-colonial periods, utilizing the post-colonial critical thought of writers in English like Partha Chatterjee, Gayatri Spivak, and Aijaz Ahmad, but also of critics writing in Hindi like Namvar Singh, Ashok Vajpevi, Rajendra Yadav, etc. Attention will be given to this manner in which the contours and character of this imagined community have been debated in the context of different literary, social, and political movements, with particular emphases given to aspects of gender, caste, and regional identity. Central to class discussions will be the question of what constitutes a languager literature, and consequently what relation those concepts can have to nation in a multilingual state such as India. Readings will be in translation.
Taught by: Williams
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 230 Words Are Weapons: Protests and Political Activism in South Asian Literature
This course focuses on the key themes of protest and resistance in contemporary South Asian literature. Most South Asian countries have been witnessing an endless wave of protests and resistance from various sections of public life for the last three decades. In India, for example, protest literature emerges not only from traditionally marginalized groups (the poor, religious and ethnic minorities, depressed castes and tribal communities), but also from upper-caste groups, whose protest literature expresses concerns over economic oppression, violence and the denial of fundamental rights. Literature is becoming an immediate tool to articulate acts of resistance and anger, as many writers and poets are also taking on new roles as political activists. In this class, we will read various contemporary works of short fiction, poetry and memoirs to comprehend shifts in public life toward political and social activism in South Asia. We will also watch two or three documentaries that focus on public protests and resistance. No pre-requisites or South Asian language requirements. All literary works will be read in English translations.
Taught by: Mohammad
Course not offered every year
Activity: Lecture
1 Course Unit

COML 235 Medieval Russia: Origins of Russian Cultural Identity
This course offers an overview of the cultural history of Rus from its origins to the eighteenth century, a period which laid the foundation for the Russian Empire. The course takes an interdisciplinary approach to the evolution of the main cultural paradigms of Russian Orthodoxy viewed in a broader European context. Although this course is historical in content, it is also about modern Russia. The legacy of Medieval Rus is still referenced, often allegorically, in contemporary social and cultural discourse as the Russian, Ukrainian and Belarusian societies attempt to reconstruct and reinterpret their histories. In this course, students learn that the study of the medieval cultural and political history explains many aspects of modern Russian society, its culture and mentality, understanding of the region and its people.
Taught by: Verkholantsev
Course not offered every year
Activity: Seminar
1 Course Unit
COML 236 Napoleonic Era and Tolstoy
In this course we will read what many consider to be the greatest book in world literature. This work, Tolstoy's War and Peace, is devoted to one of the most momentous periods in world history, the Napoleonic Era (1789-1815). We will study both the novel and the era of the Napoleonic Wars: the military campaigns of Napoleon and his opponents, the grand strategies of the age, political intrigues and diplomatic betrayals, the ideologies and human dramas, the relationship between art and history. How does literature help us to understand this era? How does history help us to understand this great novel?
Taught by: Holquist
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

COML 239 Topics in 18th Century Literature
This course explores an aspect of 18th-century literature intensively; specific course topics will vary from year to year.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 241 Global Sustainabilities
This research-oriented seminar focuses on the ways in which "sustainability" and "sustainable development" are linguistically and culturally translated into the world's languages. We may take the terms for granted, but they have only really been on the global stage since they were widely introduced in the 1987 United Nations report, Our Common Future. Seminar participants will first become acquainted with the cultural and conceptual history of the terms and the UN framework within which sustainability efforts directly or indirectly operate. Having established the significance of cultural and linguistic difference in conceiving and implementing sustainability, participants will collaboratively develop a research methodology in order to begin collecting and analyzing data. We will draw heavily on Penn's diverse language communities and international units. Seminar members will work together and individually to build an increasingly comprehensive website that provides information about the world's languages of sustainability.
Taught by: Richter
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar. All readings and lectures in English.

COML 245 Study of a Theme
This is an introduction to literary study through the works of a compelling literary theme. (For offerings in a given semester, please see the online course descriptions on the English Department website). The theme's function within specific historical contexts, within literary history generally, and within contemporary culture, are likely to be emphasized.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This is a topics course.

COML 247 Free Radicals: Marx, Marxism, and the Culture of Revolution
"A spectre is haunting Europe—the spectre of Communism": This, the famous opening line of The Communist Manifesto, will guide this course's exploration of the history, legacy, and potential future of Karl Marx's most important texts and ideas, even long after Communism has been pronounced dead. Contextualizing Marx within a tradition of radical thought regarding politics, religion, and sexuality, we will focus on the philosophical, political, and cultural origins and implications of his ideas. Our work will center on the question of how his writings seek to counter or exploit various tendencies of the time; how they align with the work of Nietzsche, Freud, and other radical thinkers to follow; and how they might continue to haunt us today. We will begin by discussing key works by Marx himself, examining ways in which he is both influenced by and appeals to many of the same fantasies, desires, and anxieties encoded in the literature, arts and intellectual currents of the time. In examining his legacy, we will focus on elaborations or challenges to his ideas, particularly within cultural criticism, postwar protest movements, and the cultural politics of the Cold War. In conclusion, we will turn to the question of Marxism or Post-Marxism today, asking what promise Marx's ideas might still hold in a world vastly different from his own.
For BA Students: Humanities and Social Science S
Course not offered every year
Activity: Lecture
1 Course Unit

COML 248 Topics in European History
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This is a topics course. Please see the Comparative Literature website for the each semester's topic: http://ccat/sas.upenn.edu/Complit/.

COML 253 Freud: The Invention of Psychoanalysis
No other person of the twentieth century has probably influenced scientific thought, humanistic scholarship, medical therapy, and popular culture as much as Sigmund Freud. This seminar will study his work, its cultural background, and its impact on us today. In the first part of the course, we will learn about Freud's life and the Viennese culture of his time. We will then move to a discussion of seminal texts, such as excerpts from his Interpretation of Dreams, case studies, as well as essays on psychoanalytic practice, human development, definitions of gender and sex, neuroses, and culture in general. In the final part of the course, we will discuss the impact of Freud's work. Guest lecturers from the medical field, history of science, psychology, and the humanities will offer insights into the reception of Freud's work, and its consequences for various fields of study and therapy.
For BA Students: Humanities and Social Science S
Taught by: Weissberg
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.
COML 254 Metropolis: Culture of the City

An exploration of modern discourses on and of the city. Topics include: the city as site of avant-garde experimentation; technology and culture; the city as embodiment of social order and disorder; traffic and speed; ways of seeing the city; the crowd; city figures such as the detective, the criminal, the flaneur, the dandy; film as the new medium of the city. Special emphasis on Berlin. Readings by, among others, Dickens, Poe, Baudelaire, Rilke, Doeblin, Marx, Engels, Benjamin, Kracauer. Films include Fritz Lang's Metropolis and Tom Tykwer's Run Lola Run.

For BA Students: Arts and Letters Sector
Taught by: MacLeod
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

COML 265 Jewish Films and Literature

This course will explore film and fiction written about Jewish culture, and the ways in which Jewish films and literature intersect and sometimes conflict. The course will consider films and literature that have been influential in the history of Jewish cinema, as well as more recent works that have been produced in the wake of the Holocaust and the rise of Israeli cinema.

COML 266 Jewish Films and Literature

This course will explore the cultural history of Jews in the lands of Islam from the time of Mohammed through the late 17th century (end of Ottoman expansion into Europe) --in Iraq, the Middle East, al-Andalus and the Ottoman Empire. Primary source documents (in English translation) illuminate minority-majority relations, internal Jewish tensions (e.g., Qaraism), and developments in scriptural exegesis, rabbinic law, philosophy, poetry, polemics, mysticism and liturgy. Graduate students have additional readings and meetings.

Taught by: Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 275 Russian Thinkers

This class focuses on the complex relations between philosophy, history, and art in Russia and offers discussions of works of major Russian authors (such as Dostoevsky, Tolstoy, Khlebnikov), religious and political thinkers (Chaadaev, Herzen, Berdiaev, Lenin, Bogdanov), avant-garde artists (Filonov, Malevich) and composers (Skriabin) who created and tested in their lives their own, sometimes very peculiar and radical, worldviews. We will consider these worldviews against a broad cultural background and will reenact them in class in the form of philosophical mini-dramas. The only prerequisite for this course is intellectual curiosity and willingness to embrace diverse, brave and often weird ideas.

Taught by: Vinitsky
Course not offered every year
Activity: Seminar
1 Course Unit

COML 256 Contemporary Fiction & Film in Japan

This course will explore fiction and film in contemporary Japan, from 1945 to the present. Topics will include literary and cinematic representation of Japan's war experience and post-war reconstruction, negotiation with Japanese classics, confrontation with the state, and changing ideas of gender and sexuality. We will explore these and other questions by analyzing texts of various genres, including film and film scripts, novels, short stories, manga, and academic essays. Class sessions will combine lectures, discussion, audio-visual materials, and creative as well as analytical writing exercises. The course is taught in English, although Japanese materials will be made available upon request. No prior coursework in Japanese literature, culture, or film is required or expected; additional secondary materials will be available for students taking the course at the 600 level. Writers and film directors examined may include: Kawabata Yasunari, Hayashi Fumiko, Abe Kobo, Mishima Yukio, Oe Kenzaburo, Yoshimoto Banana, Ozu Yasujiro, Naruse Mikio, Kurosawa Akira, Imamura Shohei, Koreeda Hirokazu, and Beat Takeshi.

For BA Students: Arts and Letters Sector
Taught by: Kano
Course not offered every year
Activity: Lecture
1 Course Unit

COML 259 Jewish Humor

In modern American popular culture Jewish humor is considered by Jews and non-Jews as a recognizable and distinct form of humor. Focusing upon folk-humor, in this course we will examine the history of this perception, and study different manifestations of Jewish humor as a particular case study of ethnic in general. Specific topics for analysis will be: humor in the Hebrew Bible, Jewish humor in Europe and America, JAP and Yiddish humor.

For BA Students: Arts and Letters Sector
Taught by: Ben-Amos
One-term course offered either term
Activity: Lecture
1 Course Unit

COML 260 Topics in German Literature

This course explores an aspect of 20th-century American literature intensively; specific course topics will vary from year to year. See the Comp Lit website for current course description at http://ccat.sas.upenn.edu/Complit/

COML 261 Topics in German Cinema

This is a topics course. Specific topics vary from year to year.

COML 262 Topics in 20th-Century American Literature

The course explores an aspect of 20th-century American literature intensively; specific course topics will vary from year to year. See the Comp Lit website for current course description at http://ccat.sas.upenn.edu/Complit/

COML 263 Jewish Films and Literature

This course will explore film and fiction written about Jewish culture, and the ways in which Jewish films and literature intersect and sometimes conflict. The course will consider films and literature that have been influential in the history of Jewish cinema, as well as more recent works that have been produced in the wake of the Holocaust and the rise of Israeli cinema.

COML 264 Jewish Humor

This course will explore the cultural history of Jews in the lands of Islam from the time of Mohammed through the late 17th century (end of Ottoman expansion into Europe) --in Iraq, the Middle East, al-Andalus and the Ottoman Empire. Primary source documents (in English translation) illuminate minority-majority relations, internal Jewish tensions (e.g., Qaraism), and developments in scriptural exegesis, rabbinic law, philosophy, poetry, polemics, mysticism and liturgy. Graduate students have additional readings and meetings.

Taught by: Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

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COML 267 Jewish Humor

This course will explore the cultural history of Jews in the lands of Islam from the time of Mohammed through the late 17th century (end of Ottoman expansion into Europe) --in Iraq, the Middle East, al-Andalus and the Ottoman Empire. Primary source documents (in English translation) illuminate minority-majority relations, internal Jewish tensions (e.g., Qaraism), and developments in scriptural exegesis, rabbinic law, philosophy, poetry, polemics, mysticism and liturgy. Graduate students have additional readings and meetings.

Taught by: Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 268 Jewish Films and Literature

This course will explore film and fiction written about Jewish culture, and the ways in which Jewish films and literature intersect and sometimes conflict. The course will consider films and literature that have been influential in the history of Jewish cinema, as well as more recent works that have been produced in the wake of the Holocaust and the rise of Israeli cinema.

COML 269 Jewish Humor

This course will explore the cultural history of Jews in the lands of Islam from the time of Mohammed through the late 17th century (end of Ottoman expansion into Europe) --in Iraq, the Middle East, al-Andalus and the Ottoman Empire. Primary source documents (in English translation) illuminate minority-majority relations, internal Jewish tensions (e.g., Qaraism), and developments in scriptural exegesis, rabbinic law, philosophy, poetry, polemics, mysticism and liturgy. Graduate students have additional readings and meetings.

Taught by: Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit
COML 266 Introduction to Modern Hebrew Literature
The objective of this course is to develop an artistic appreciation for literature through in-depth class discussions and text analysis. Readings are comprised of Israeli poetry and short stories. Students examine how literary language expresses psychological and cultural realms. The course covers topics such as: the short story reinvented, literature and identity, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students' literary understanding. For BA Students: Arts and Letters Sector Taught by: Gold Course not offered every year Prerequisites: Hebrew 054 or the equivalent, per instructor's evaluation Activity: Seminar 1 Course Unit

COML 269 Fascist Cinemas
Cinema played a crucial role in the cultural life of Nazi Germany and other fascist states. As cinema enthusiasts, Goebbels and Hitler were among the first to realize the important ideological potential of film as a mass medium and saw to it that Germany remained a cinema powerhouse producing more than 1000 films during the Nazi era. In Italy, Mussolini, too, declared cinema "the strongest weapon." This course explores the world of "fascist" cinemas ranging from infamous propaganda pieces such as The Triumph of the Will to popular entertainments such as musicals and melodramas. It examines the strange and mutually defining kinship between fascism more broadly and film. We will consider what elements mobilize and connect the film industries of the Axis Powers: style, genre, the aestheticization of politics, the creation of racialized others. More than seventy years later, fascist cinemas challenge us to grapple with issues of more subtle ideological insinuation than we might think. Weekly screenings with subtitles. For BA Students: Arts and Letters Sector Taught by: MacLeod Course not offered every year Activity: Lecture 1 Course Unit Notes: All discussions and readings in English.

COML 270 German Cinema
An introduction to the momentous history of German film, from its beginnings before World War One to developments following the fall of the Berlin Wall in 1989 and German reunification in 1990. With an eye to film's place in its historical and political context, the course will explore the "Golden Age" of German cinema in the Weimar Republic, when Berlin vied with Hollywood; the complex relationship between Nazi ideology and entertainment during the Third Reich; the fate of German film-makers in exile during the Hitler years; post-war film production in both West and East Germany; the call for an alternative to "Papa's Kino" and the rise of New German Cinema in the late 1960's. For BA Students: Arts and Letters Sector Taught by: MacLeod Course not offered every year Activity: Lecture 1 Course Unit

COML 271 Topics in 20th Century Literature
The course explores an aspect of 20th-century literature intensively; specific course topics will vary from year to year. Course not offered every year Activity: Seminar 1 Course Unit

COML 272 Topics: Twentieth Century Poetry
This course explores an aspect of 20th-century poetry intensively; specific course topics will vary from year to year. Course usually offered summer term only Activity: Seminar 1 Course Unit

COML 273 Topics in the Literature of Africa and the African Diaspora
This course explores an aspect of the literature of Africa and the African Diaspora intensively; specific course topics will vary from year to year. Course usually offered summer term only Activity: Seminar 1 Course Unit

COML 274 Topics: Twentieth Century Poetry
The course explores an aspect of 20th-century poetry intensively; specific course topics will vary from year to year. Activity: Seminar 1 Course Unit

COML 275 Jewish American Literature
What makes Jewish American literature Jewish? What makes it American? This course will address these questions about ethnic literature through fiction, poetry, drama, and other writings by Jews in America, from their arrival in 1654 to the present. We will discuss how Jewish identity and ethnicity shape literature and will consider how form and language develop as Jewish writers "immigrate" from Yiddish, Hebrew, and other languages to American English. Our readings, from Jewish American Literature: A Norton Anthology, will include a variety of stellar authors, both famous and less-known, including Isaac Mayer Wise, Emma Lazarus, Isaac Bashevis Singer, Celia Dropkin, Abraham Cahan, Anzia Yezierska, Saul Bellow, Philip Roth, Cynthia Ozick, and Allegra Goodman. Students will come away from this course having explored the ways that Jewish culture intertwines with American culture in literature. For BA Students: Arts and Letters Sector Taught by: Hellerstein One-term course offered either term Activity: Lecture 1 Course Unit

COML 277 Jewish American Literature
The course will consist of a broad and varied sampling of classic Italian films from WWII to the present. The curriculum will be divided into four units: (1) The Neorealist Revolution, (2) Metacinema, (3) Fascism and War Revisited, and (4) Postmodernism or the Death of the Cinema. One of the aims of the course will be to develop a sense of "cinematic literacy" - to develop critical techniques that will make us active interpreters of the cinematic image by challenging the expectations that Hollywood has implanted in us: that films be action-packed wish-fulfillment fantasies. Italian cinema will invite us to re-examine and revise the very narrow conception that we Americans have of the medium. We will also use the films as a means to explore the postwar Italian culture so powerfully reflected, and in turn, shaped, by its national cinema. Classes will include close visual analysis of films using video clips and slides. The films will be in Italian with English subtitles and will include works of Fellini, Antonioni, De Sica, Visconti, Pasolini, Wertoller, Rossellini, Rossellini, Bertolucci and Moretti. Course not offered every year Activity: Seminar 1 Course Unit

COML 278 Topics Poetry and Poetics
This course explores an aspect of poetry and poetics intensively; specific course topics will vary from year to year. Activity: Seminar 1 Course Unit
COML 282 Modern Hebrew Literature and Culture in Translation
This course follows and analyzes the transformations in Israeli literature cinema. The focus and the specific topic of the study changes from semester to semester. Topics include: The Holocaust; The Image of Childhood; Dream, Fantasy and Madness; Love and War; The Many Voices of Israel; The Image of City; and other topics. While Israeli works constitute much of the course' material, European and American film and fiction play comparative roles. 5 film screenings per semester; The content of this course changes from semesters to semester, and therefore, students may take it for credit more than once. This topic course explores aspects of Hebrew Literature, Film, and Culture. Specific course topics vary from semester to semester. See the Cinema and Media Studies (...NELC, JWST, ENGL, COML) website for a description of the current offerings.
For BA Students: Arts and Letters Sector
Taught by: Gold
Course usually offered in fall term
Activity: Lecture
1 Course Unit

COML 283 Jewish Folklore in Literature
The Jews are among the few nations and ethnic groups whose oral tradition occurs in literary and religious texts dating back more than two thousand years. This tradition changed and diversified over the years in terms of the migration of Jews into different countries and historical, social, and cultural changes that these countries underwent. The course attempts to capture their historical and ethnic diversity of Jewish folklore in a variety of oral literary forms.
Taught by: Ben-Amos
Course not offered every year
Activity: Lecture
1 Course Unit

COML 287 Ethnic Humor
Humor in ethnic societies has two dimensions: internal and external. The inside humor of an ethnic group is accessible to its members; it draws upon their respective social structures, historical and social experiences, languages, cultural symbols, and social and economic circumstances and aspirations. The external humor of an ethnic group targets members of other ethnic groups, and draws upon their stereotypes, and attributed characteristics by other ethnic groups. The external ethnic humor flourishes in immigrant and ethnically heterogenic societies. In both cases jokes and humor are an integral part of social interaction, and in their performance relate to the social, economic, and political dynamics of traditional and modern societies.
Taught by: Ben-Amos, D.
Course not offered every year
Activity: Lecture
1 Course Unit

COML 288 Topics in American Poetry
Sometimes limiting itself to the works of one or two authors, sometimes focusing on a particular theme such as "American Poetry and Democratic Culture," this course devotes itself to the study of twentieth-century America poetry.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 290 Topics In Gender, Sexuality, and Literature
The advanced women's studies course in the department, focusing on a particular aspect of literature by and about women. Topics might include: "Victorian Literary Women"; "Women, Politics, and Literature"; "Feminist Literary Theory"; and similar foci.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 291 Topics In Literary Theory
This course explores an aspect of literary theory intensively; specific course topics vary from year to year.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 292 Topics Film Studies
Specific course topics vary from year to year.
Taught by: Beckman
Course not offered every year
Activity: Seminar
1 Course Unit

COML 295 Topics in Cultural Studies
This course explores an aspect of cultural studies intensively; specific course topics vary from year to year.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 300 Topics in Italian History, Literature, and Culture
Topics vary. Please check the department's website for course description: http://www.sas.upenn.edu/complit/
Course not offered every year
Activity: Seminar
1 Course Unit

COML 301 Handschrift-Hypertext: Deutsche Medien
This course will provide an introduction to German-language literary studies through exemplary readings of short forms: fables, fairy tales, aphorisms, stories, novellas, feuilletons, poems, songs, radio plays, film clips, web projects and others. Paying particular attention to how emergent technology influences genre, we will trace an evolution from Minnesang to rock songs, from early print culture to the internet age and from Handschrift to hypertext. Students will have ample opportunity to improve their spoken and written German through class discussion and a series of internet-based assignments. Readings and discussions in German.
For BA Students: Arts and Letters Sector
Course usually offered summer term only
Prerequisites: GRMN 203 is a prerequisite.
Activity: Lecture
1 Course Unit
Notes: This course will be offered every spring semester. Taught in German.
COML 302 Odyssey & Its Afterlife
As an epic account of wandering, survival, and homecoming, Homer's Odyssey has been a constant source of themes and images with which to define and redefine the nature of heroism, the sources of identity, and the challenge of finding a place in the world.
Taught by: Murnaghan
Course usually offered in spring term
Activity: Lecture
1 Course Unit

COML 304 Topics in Literary Theory
This is a topics course. The topic could be "Freud" or "1913."
Taught by: Rabate
Course not offered every year
Activity: Seminar
1 Course Unit

COML 322 Advanced Topics in Global Gender and Sexuality Studies
How do sex and gender become sites of cultural production, identity-formation, and contentious politics? This seminar engages these questions in the context of the "Middle East" as a constructed geopolitical space for imperial politics and political intervention. The class is divided into three units. In the first unit, we engage feminist and queer theories to discuss the shifting meanings of "sex" and "gender" in transnational and postcolonial contexts. In the second unit we explore the contextual and shifting notions of "private" and "public" as they have been elaborated in political theory, feminist theory, and media studies. We also consider how different media technologies enable and constrain the performance and expression of gender and sexual identities. In the last unit, we examine the material and symbolic construction of sex and gender in the shadow of Orientalism, the War on Terror, Multiculturalism, and the recent Arab uprisings. In this unit, we consider how geopolitics are refracted in public controversies around issues like gay rights, female genital mutilation, the veil, and honor killing.
Activity: Seminar
1 Course Unit

COML 324 Sanskrit Literature in Translation
This course will focus solely on the specific genres, themes, and aesthetics of Sanskrit literature (the hymn, the epic, the lyric, prose, drama, story literature, the sutra, etc.) and a study of the history and specific topics of Sanskrit poetics and dramaturgy. All readings will be in translation.
Taught by: Patel
Course not offered every year
Activity: Seminar
1 Course Unit

COML 326 Dante's Divine Comedy
In this course we will read the Inferno, the Purgatorio and the Paradiso, focusing on a series of interrelated problems raised by the poem: authority, fiction, history, politics and language. Particular attention will be given to how the Commedia presents itself as Dante's autobiography, and to how the autobiographical narrative serves as a unifying thread for this supremely rich literary text. Supplementary readings will include Virgil's Aeneid and selections from Ovid's Metamorphoses. All readings and written work will be in English. Italian or Italian Studies credit will require reading Italian texts in the original language and writing about their themes in Italian. This course may be taken for graduate credit, but additional work and meetings with the instructor will be required.
Taught by: Brownlee
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 334 A Survey of Sanskrit, Pakrit, and Classical Tamil Literature in Translation
This course will cover most of the genres of literature in South Asia's classical languages through close readings of selections of primary texts in English translation. Special focus will be given to epics, drama, lyric poetry, satirical works, and religious literature.
Taught by: Patel
Course not offered every year
Activity: Seminar
1 Course Unit

COML 340 Descent to the Underworld in Ancient Near-Eastern and Western Literature

COML 341 Masculinity in French Literature

COML 342 Advanced Topics in Global Gender and Sexuality Studies

COML 343 Nineteenth Century European Intellectual History
Starting with the dual challenges of Enlightenment and Revolution at the close of the eighteenth century, this course examines the emergence of modern European thought and culture in the century from Kant to Nietzsche. Themes to be considered include Romanticism, Utopian Socialism, early Feminism, Marxism, Liberalism, and Aestheticism. Readings include Kant, Hegel, Burke, Marx, Mill, Wollstonecraft, Darwin, Schopenhauer, and Nietzsche.
Taught by: Breckman
Course usually offered in fall term
Activity: Lecture
1 Course Unit

COML 344 20th Century European Intellectual History
European intellectual and cultural history from 1870 to 1950. Themes to be considered include aesthetic modernism and the avant-garde, the rebellion against rationalism and positivism, Social Darwinism, Second International Socialism, the impact of World War One on European intellectuals, psychoanalysis, existentialism, and the ideological origins of fascism. Figures to be studied include Nietzsche, Freud, Woolf, Sartre, Camus, and Heidegger.
Taught by: Breckman
Course usually offered in spring term
Activity: Lecture
1 Course Unit
COML 353 Arabic Literature and Literary Theory
This course will explore different critical approaches to the interpretation and analysis of Arabic literature from pre-Islamic poetry to the modern novel and prose-poem. The course will draw on western and Arabic literary criticism to explore the role of critical theory not only in understanding and contextualizing literature but also in forming literary genres and attitudes. Among these approaches are: Meta-poetry and inter-Arts theory, Genre theory, Myth and Archetype, Poetics and Rhetoric, and Performance theory. This course is taught in translation.
Taught by: Fakhreddine
Course usually offered in fall term
Activity: Seminar
1 Course Unit

COML 355 Topics in Modernism
This course explores an aspect of literary modernism intensively; specific course topics will vary from year to year.
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 357 Myth In Society
In this course we will explore the mythologies of selected peoples in the Ancient Near East, Africa, Asia, and Native North and South America and examine how the gods function in the life and belief of each society. The study of mythological texts will be accompanied, as much as possible, by illustrative slides that will show the images of these deities in art and ritual.
Taught by: Ben-Amos
Course not offered every year
Activity: Lecture
1 Course Unit

COML 359 Seminar Modern Hebrew Literature
This course introduces students to selections from the best literary works written in Hebrew over the last hundred years in a relaxed seminar environment. The goal of the course is to develop skills in critical reading of literature in general, and to examine how Hebrew authors grapple with crucial questions of human existence and national identity. Topics include: Hebrew classics and their modern "descendants," autobiography in poetry and fiction, the conflict between literary generations, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students' literary understanding.
For BA Students: Arts and Letters Sector
Taught by: Gold
Course usually offered in spring term
Prerequisites: Hebrew 059 or the equivalent, per instructor's evaluation
Activity: Seminar
1 Course Unit

COML 372 Horror Cinema
The purpose of this course is to provide an introduction to the history and main themes of the supernatural/horror film from a comparative perspective. Films considered will include: the German expressionists' masterworks of the silent era, the Universal classics of the 30's and the low-budget horror films produced by Val Lewton in the 40's for RKO in the US, the 1950's color films of sex and violence by Hammer studios in England, Italian Gothic horror or giallo (Mario Brava) and French lyrical macabre (Georges Franju) in the 60's, and on to contemporary gore. In an effort to better understand how the horror film makes us confront our worst fears and our most secret desires alike, we will look at the genre's main iconic figures (Frankenstein, Dracula, Dr. Jekyll and Mr. Hyde, etc.) as well as issues of ethics, gender, sexuality, violence, spectatorship through a variety of critical lenses (psychoanalysis, socio-historial and cultural context, aesthetics,...).
Taught by: Met
Course not offered every year
Activity: Lecture
1 Course Unit

COML 378 Topics in Literature and Society
This course explores an aspect of Postcolonial literature intensively; specific course topics vary from year to year.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 380 The Bible in Translation
This course introduces undergraduates and graduate students to one specific Book of the Hebrew Bible. "The Bible in Translation" involves an in-depth reading of a biblical source against the background of contemporary scholarship. Depending on the book under discussion, this may also involve a contextual reading with other biblical books and the textual sources of the ancient Near East. No prerequisites are required.
Taught by: Cranz
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 383 Topics in Literary Theory
This is a course on the history of literary theory, a survey of major debates about literature, poetics, and ideas about what literary texts should do, from ancient Greece to examples of modern European thought. The first half of the course will focus on early periods: Greek and Roman antiquity, especially Plato and Aristotle; the medieval period (including St. Augustine, Dante, and Boccaccio), and the early modern period (such as Philip Sidney and Giambattista Vico). We'll move into modern and 20th century by looking at the literary (or "art") theories of some major philosophers, artists, and poets: Kant, Hegel, Shelley, Marx, the painter William Morris, Freud, and the critic Walter Benjamin. We'll end with a look at Foucault's work. The point of this course is to consider closely the Western European tradition which generated questions that are still with us, such as: what is the "aesthetic"; what is "imitation" or mimesis; how are we to know an author's intention; and under what circumstances should literary texts ever be censored.
Taught by: Copeland
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar
COML 384 Holocaust in Italian Literature and Film
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Holocaust in Italian Literature and Film

COML 385 Japanese Theatre
Japan has one of the richest and most varied theatrical traditions in the world. In this course, we will examine Japanese theatre in historical and comparative contexts. The readings and discussions will cover all areas of the theatrical experience (script, acting, stage, design, costumes, music, audience). Audio-visual material will be used whenever appropriate and possible. Requirements include short writing assignments, presentations, and one research paper. Reading knowledge of Japanese and/or previous course-work in literature/theatre will be helpful, but not required. The class will be conducted in English, with all English materials.
Taught by: Kano
Course usually offered in fall term
Activity: Seminar
1 Course Unit

COML 390 Introduction to Spanish American Literature
Topics vary.
Course usually offered in fall term
Prerequisite: SPAN 219
Activity: Seminar
1 Course Unit

COML 391 Topics Film Studies
This topic course explores aspects of Cinema Studies intensively. Specific course topics vary from year to year. See the COML website at <http://complit.upenn.edu/> for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 392 Topics in Postcolonial Lit
This course explores an aspect of Postcolonial literature intensively; specific course topics vary from year to year.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

COML 399 Independent Study
Supervised study for Juniors.
One-term course offered either term
Activity: Independent Study
1 Course Unit

COML 411 Introduction to Written Culture, 14th - 16th Centuries
This is a topics course. Please see the Comparative Literature website for each semester's topic: http://ccat.sas.upenn.edu/Complit/.
Taught by: Chartier/Stallybrass
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 415 Medieval Islamic Art and Architecture
An introduction to the major architectural monuments and trends, as well as to the best-known objects of the medieval (seventh-to fourteenth-century) Islamic world. Attention will be paid to such themes as the continuity of late antique themes, architecture as symbol of community and power, the importance of textiles and primacy of writing. Suitable for students of literature, history, anthropology as well as art history.
Taught by: Holod
One-term course offered either term
Activity: Lecture
1 Course Unit

COML 416 European Intellectual History in the 18th Century
A survey based solely on primary sources of the main currents of eighteenth-century European thought: the "Enlightenment," deism; natural religion; skepticism; evangelical revival; political reform; utilitarianism; naturalism; and materialism. The course will focus on works widely-read in the eighteenth century and of enduring historical significance. There are no prerequisites, and one of the goals of the course is to make eighteenth-century thought accessible in its context to the twenty-first century.
Taught by: Kors
Course usually offered in spring term
Activity: Lecture
1 Course Unit

COML 417 European Intellectual History Since 1945
This course concentrates on French intellectual history after 1945, with some excursions into Germany. We will explore changing conceptions of the intellectual, from Sartre's concept of the 'engagement' to Foucault's idea of the 'specific intellectual'; the rise and fall of existentialism; structuralism and poststructuralism; and the debate over 'postmodernity.'
Taught by: Breckman
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COML 418 European Intellectual History of the Seventeenth Century
A survey based solely on primary sources of the main currents of seventeenth-century European thought: the criticism of inherited systems and of the authority of the past; skepticism, rationalism; empiricism; and the rise of the new natural philosophy. We will study deep conceptual change as an historical phenomenon, examining works that were both profoundly influential in the seventeenth-century and that are of enduring historical significance. There are no prerequisites, and one of the goals of the course is to make seventeenth-century thought accessible in its context to the twenty-first century student.
Taught by: Kors
Activity: Lecture
1 Course Unit

COML 419 European Intellectual History of the Seventeenth Century
A survey based solely on primary sources of the main currents of seventeenth-century European thought: the criticism of inherited systems and of the authority of the past; skepticism, rationalism; empiricism; and the rise of the new natural philosophy. We will study deep conceptual change as an historical phenomenon, examining works that were both profoundly influential in the seventeenth-century and that are of enduring historical significance. There are no prerequisites, and one of the goals of the course is to make seventeenth-century thought accessible in its context to the twenty-first century student.
Taught by: Kors
Activity: Lecture
1 Course Unit

COML 498 Honors Thesis
One-term course offered either term
Activity: Independent Study
1 Course Unit

COML 499 Independent Study
Supervised study for Seniors.
One-term course offered either term
Activity: Independent Study
1 Course Unit
COML 501 History of Literary Theory  
Over the last three decades, the fields of literary and cultural studies have been reconfigured by a variety of theoretical and methodological developments. Bracing and often confrontational dialogues between theoretical and political positions as varied as Deconstruction, New Historicism, Cultural Materialism, Feminism, Queer Theory, Minority Discourse Theory, Colonial and Post-colonial Studies and Cultural Studies have, in particular, altered disciplinary agendas and intellectual priorities for students embarking on the professional study of literature. In this course, we will study key texts, statements and debates that define these issues, and will work towards a broad knowledge of the complex rewriting of the project of literary studies in process today. The reading list will keep in mind the Examination List in Comparative Literature. We will not work towards complete coverage but will ask how crucial contemporary theorists engage with the longer history and institutional practices of literary criticism.  
Course usually offered in fall term  
Activity: Seminar  
1 Course Unit

COML 504 Electronic Literary Studies Proseminar  
This course is designed to introduce advanced undergraduate and graduate students to the range of new opportunities for literary research afforded by recent technological innovation.  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 505 Arabic Literature and Literary Theory  
This course will explore different critical approaches to the interpretation and analysis of Arabic literature from pre-Islamic poetry to the modern novel and prose-poem. The course will draw on western and Arabic literary criticism to explore the role of critical theory not only in understanding and contextualizing literature but also in forming literary genres and attitudes. Among these approaches are: Meta-poetry and inter-Arts theory, Genre theory, Myth and Archetype, Poetics and Rhetoric, and Performance theory. This course is taught in translation.  
Taught by: Fakhreddine  
Course usually offered in fall term  
Activity: Lecture  
1 Course Unit

COML 506 Topics in Twentieth-Century Literature  
This course treats some aspect of literary and cultural politics in the 20th-Century with emphasis varying by instructor.  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 509 Modernist Jewish Poetry  
One version of this seminar considers works by Jewish women who wrote in Yiddish, Hebrew, English, and other languages in the late 19th through the 20th century. The texts, poetry and prose, will include both letters and popular writings, such as newspaper, as well as private works (letters and diaries) and devotional works. The course will attempt to define "Jewish writing," in terms of language and gender, and will consider each writer in the context of the aesthetic, religious, and national ideologies that prevailed in this period. Because students will come with proficiency in various languages, all primary texts and critical and theoretical materials will be taught in English translation. However, those students who can, will work on the original texts and share with the class their expertise to foster a comparative perspective. Because we will be discussing translated works, a secondary focus of the course will, in fact, be on literary translation's process and products.  
Taught by: Hellerstein  
One-term course offered either term  
Activity: Seminar  
1 Course Unit

COML 510 Medieval Education: History, Practices, Texts  
This course will cover various important aspects of education and intellectual culture from late antiquity (c. 400 A.D.) to the later Middle Ages (c. 1400 A.D.) across Europe. We will look especially at how the arts of language (grammar, rhetoric, dialectic) were formalized and "packaged" in late antique/early medieval encyclopedias (e.g., Martianus Capella's "Marriage of Mercury and Philology," Cassiodorus' "Institutes of Divine and Secular Learning," Boethius and Augustine on rhetoric, Donatus and Priscian on grammar, Boethius on dialectic, Isidore of Seville on all the sciences), and at how later theorists and systematizers recombined and reconfigured knowledge systems for new uses (especially monastic education, including notably Hugh of St. Victor's "Didascalicon"). We will also look at how the earlier and later Middle Ages differentiated between "primary" and "advanced" education, how children and childhood are represented in educational discourse, how women participate in (or are figured in) intellectual discourse (Eloise, Hildegard of Bingen, Christine de Pizan), how universities changed ideas of intellectual formation, and how vernacular learning in the later Middle Ages added yet another dimension to the representation of learning.  
Taught by: Copeland  
Course not offered every year  
Activity: Lecture  
1 Course Unit

COML 518 Old Church Slavonic: History, Language, Manuscripts  
Taught by: Verkholantsiev  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 519 Translating Literature: Theory and Practice  
Taught by: Hellerstein  
Activity: Seminar  
1 Course Unit

COML 522 Chaucer  
An advanced introduction to Chaucer's poetry and Chaucer criticism. Reading and discussion of the dream visions, Troilus and Criseyde, and selections from Canterbury Tales, from the viewpoint of Chaucer's development as a narrative artist.  
Taught by: Wallace  
Course not offered every year  
Activity: Seminar  
1 Course Unit
COML 523 The Trouble with Freud
For professionals in the field of mental care, Freud's work is often regarded as outdated, if not problematic. Psychologists view his work as non-scientific, dependent on theses that cannot be confirmed by experiments. In the realm of literary and cultural theory, however, Freud's work seems to have relevance still, and is cited often. How do we understand the gap between a medical/scientific reading of Freud's work, and a humanist one? Where do we locate Freud's relevance today? The graduate course will concentrate on Freud's descriptions of psychoanalytic theory and practice, as well as his writings on literature and culture.

Taught by: Weissberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Reading and discussions in English.

COML 524 Petrarch
This course will study Petrarch's lyric poetry with reference to its Italian roots (Sicilian school, dolce stil nuovo) and European posterity: Renaissance and Baroque Petrarchism as well as impingement on the Romantics.

Taught by: Brownlee
Course not offered every year
Activity: Seminar
1 Course Unit

COML 525 Theories: Gender, and Sexuality Studies
Theories in Gender and Sexuality: Objects, Ideas, Institutions foregrounds new works in feminist thinking which circumvent and resist stale modes of teaching, in learning and knowing difference and "the woman question." Our aim is to interrogate the normative directionality of feminist "waves" and additive and intersectional models of suturing gender and sexuality to minoritarian politics. We will conceptualize feminism as relational to studies of affect, object oriented ontology animality, feminist science, and aesthetics.

Course not offered every year
Activity: Seminar
1 Course Unit

COML 529 Black Cinema
This course treats some important aspect of African-American literature and culture. Some recent versions of the course have focused on the emergence of African-American women writers, on the relation between African-American literature and cultural studies, and on the Harlem Renaissance.

Course not offered every year
Activity: Seminar
1 Course Unit

COML 533 Dante's Divine Comedy I
"Divine Comedy" in the context of Dante's medieval worldview and culture.

Taught by: Brownlee, K.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 534 Words are Weapons
This course focuses on the key themes of protest and resistance in contemporary South Asian literature. Most South Asian countries have been witnessing an endless wave of protests and resistance from various sections of public life for the last three decades. In India, for example, protest literature emerges not only from traditionally marginalized groups (the poor, religious and ethnic minorities, depressed castes and tribal communities), but also from upper-caste groups, whose protest literature expresses concerns over economic oppression, violence and the denial of fundamental rights. Literature is becoming an immediate tool to articulate acts of resistance and anger, as many writers and poets are also taking on new roles as political activists. In this class, we will read various contemporary works of short fiction, poetry and memoirs that focus on public protests and resistance. No pre-requisites or South Asian language requirements. All literary works will be read in English translations.

Course not offered every year
Activity: Lecture
1 Course Unit

COML 535 The Hindi Nation and its Fragments
This course will trace the formation and contestation of a Hindi national public during the colonial and post-colonial periods, utilizing the post-colonial critical thought of writers in English like Partha Chatterjee, Gayatri Spivak, and Aijaz Ahmed, but also of critics writing in Hindi like Namvar Singh, Ashok Vajpevi, Rajendra Yadav, etc. Attention will be given to this manner in which the contours and character of this imagined community have been debated in the context of different literary, social, and political movements, with particular emphasis given to aspects of gender, caste, and regional identity. Central to class discussions will be the question of what constitutes a language literature, and consequently what relation those concepts can have to nation in a multilingual state such as India. Readings will be in translation.

Taught by: Williams
Course offered spring; odd-numbered years
Activity: Seminar
1 Course Unit

COML 537 Topics in Cultural History
An introduction to the practice and theory of epic in the early modern period. Specific texts vary with instructor.

Course not offered every year
Activity: Seminar
1 Course Unit

COML 543 The Elemental Turn
The unfolding effects of climate change—rising sea level, melting ice sheets, subsiding land masses, drought stricken regions, wild fires, air laden with greenhouse gases, and inundated cities—heighten our awareness of the elements: air, earth, fire and water. Within the context of the new materialism, philosophers, eco-critics, and writers are re-turning to the elements and encountering, at the same time, predecessor texts that assume new relevance. This seminar will place current thinking and writing about the elements into dialogue with older traditions ranging from the classical (Empedocles, Plato, Lucretius) to writers and thinkers of the eighteenth, nineteenth and twentieth centuries (e.g., Goethe, Novalis, Tieck, Stifter, Bachelard, Heidegger, Boehme).

Taught by: Richter
Course not offered every year
Activity: Seminar
1 Course Unit
COML 546 The Novel and Marriage
Historians have argued that early novels helped shape public opinion on many controversial issues. And no subject was more often featured in novels than marriage. In the course of the 18th and the 19th centuries, at a time when marriage as an institution was being radically redefined, almost all the best known novels explored happy as well as unhappy unions, individuals who decided not to marry as well as those whose lives were destroyed by the institution. They showcased marriage in other words in ways certain to provoke debate. We will both survey the development of the modern novel from the late 17th to the early 20th century and study the treatment of marriage in some of the greatest novels of all time. We will begin with novels from the French and English traditions, the national literatures in which the genre first took shape, in particular Laclos’ DANGEROUS LIAISONS, Austen’s PRIDE AND PREJUDICE, Bronte’s JANE EYRE, Flaubert’s MADAME BOVERY. We will then turn to works from the other European traditions such as Goethe’s ELECTIVE AFFINITIES and Tolstoy’s ANNA KARENINA. We will begin the course by discussing the novel often referred to as the first modern novel, THE PRINCESS DE CLEVES. This was also the first novel centered on an exploration of questions central to the debate about marriage for over two centuries.
Taught by: DeJean
Course not offered every year
Activity: Seminar
1 Course Unit

COML 550 Stalinist Culture
This course will explore the cultural context in which the so-called Romantic Movement prospered, and will pay special attention to the relationship between the most notorious popular genres of the period (Gothic fiction and drama) and the poetic production of both canonical and emerging poets.
Taught by: Platt
Course not offered every year
Activity: Seminar
1 Course Unit

COML 554 British Women Writers
A study of British women writers, often focusing on the women authors who came into prominence between 1775 and 1825.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 558 Major Renaissance Writers
This course will look at Renaissance images of the Author, both in the visual arts (portraits in manuscripts, cycles of famous men, statuary, medals) and in the literary tradition, especially lives of the poets and defenses of poetry. Focusing on Homer, Virgil, and Ovid; Dante, Petrarch, Boccaccio and Renaissance women poets, it will reconstruct the author as an ideal figure, the inspired sage and prophet. We shall discuss legend and literary canon formation, considering how poets are analogous to saints in their cults and the folkloristic anecdotes that grow up around them. The figure of the poet as constructed by different historical eras will be studied with reference to theories of literature as they developed from the Middle Ages to the early modern period.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 559 Topics in Philosophy and Literature
This a topics course. Please see the Comparative Literature website for the topic: http://ccat.sas.upenn.edu/Complit/.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COML 561 Studies in the 18th Century
Please check the Comp Lit website for the course descriptions.
Taught by: DeJean
Course not offered every year
Activity: Seminar
1 Course Unit

COML 562 Public Environmental Humanities
This broadly interdisciplinary course is designed for Graduate and Undergraduate Fellows in the Penn Program in Environmental Humanities (PPEH) who hail from departments across Arts and Sciences as well as other schools at the university. The course is also open to others with permission of the instructors. Work in environmental humanities by necessity spans academic disciplines. By design, it can also address and engage publics beyond traditional academic settings. This seminar, with limited enrollment, explores best practices in public environmental humanities. Students receive close mentoring to develop and execute cross-disciplinary, public engagement projects on the environment.
Taught by: Wiggin
Course not offered every year
Activity: Seminar
1 Course Unit

COML 564 Modern British Literature
An introduction to British Literary Modernism. Specific emphasis will depend on instructor.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 570 Topics in Criticism and Theory
Taught by: MacLeod
Course not offered every year
Activity: Seminar
1 Course Unit

COML 572 Art, Artists and Society
Course usually offered in spring term
Activity: Seminar
1 Course Unit

COML 575 Topics in African Literature
This course is based on a selection of representative texts written in English, as well as a few texts in English translation. It involves, a study of themes relating to social change and the persistence of cultural traditions, followed by an attempt at sketching the emergence of literary tradition by identifying some of the formal conventions established writers in their use of old forms and experiments with new.
Taught by: Barnard
Course not offered every year
Activity: Seminar
1 Course Unit
COML 577 20th Century Poetry
Taught by: Bernstein
Course not offered every year
Activity: Seminar
1 Course Unit

COML 579 Slavic Literary Theory in Western Context
This course will compare selected theoretical concepts advanced by Russian Formalists, Prague Structuralists, and the Bakhtin group (e.g., defamiliarization, aesthetic sign, dialogue) with similar or analogous notions drawn from Western intellectual tradition.
Taught by: Poggi
Course not offered every year
Activity: Seminar
1 Course Unit

COML 580 Introduction to Bibliography
This course offers an introduction to the principles of descriptive and analytic bibliography and textual editing. The history of authorship, manuscript production, printing, publishing, and reading will be addressed as they inform an understanding of how a particular text came to be the way it is. Diverse theories of editing will be studied and put into practice with short passages. The course is generally suitable for students working in any historical period, but particular emphases specified in the current offerings on the English website. www.english.upenn.edu
Course offered fall; even-numbered years
Activity: Seminar
1 Course Unit

COML 582 Topics in Aesthetics
This is a topics course. Please see the Comparative Literature website for descriptions.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: This is a topics course.

COML 584 Topics in Jewish-German Culture
Reading and discussion course on selected topics in Jewish history. The instructors are visiting scholars at the Center for Advanced Judaic Studies.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 586 Topics in Twentieth Century Art
This seminar will examine the ideas of a number of influential theorists in a variety of disciplines who have contributed to the ways in which we understand and evaluate art. A tentative and flexible list includes: Kant, Denis, Fry, Greenberg, Schapiro, de Bord, Derrida, Lacan, Kristeva, Baudrillard.
Taught by: Poggi
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 589 Fantastic Literature 19th/20th Centuries
This course will explore fantasy and the fantastic in short tales of 19th- and 20th-century French literature. A variety of approaches — thematic, psychoanalytic, cultural, narratological — will be used in an attempt to test their viability and define the subversive force of a literary mode that contributes to shedding light on the dark side of the human psyche by interrogating the "real," making visible the unseen and articulating the unsaid. Such broad categories as distortions of space and time, reason and madness, order and disorder, sexual transgressions, self and other will be considered. Readings will include "recits fantastiques" by Merime, Gautier, Nerval, Maupassant, Breton, Mandiargues, Jean Ray and others.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 590 Recent Issues in Critical Theory
This course is a critical exploration of recent literary and cultural theory, usually focusing on one particular movement or school, such as phenomenology, psychoanalysis, the Frankfurt School, or deconstruction.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 592 Topics in Contemporary Theory
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This is a topics course.

COML 593 Modern and Contemporary Italian Culture
This is a topics course. One topic may be "Futurism, Classicism, Fascism" or "Philology and History." Please see the Comparative Literature website for the description.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 596 Introduction to Francophone Studies
An introduction to major literary movements and authors from five areas of Francophonie: the Maghreb, West Africa, Central Africa, the Caribbean and Quebec.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 601 Topics Medieval Studies
An interdisciplinary course, it will utilize literary practices to "read" the ways specific texts produce sexuality at the same time as it will examine the relation between discourses and the material and political worlds in which those discourses are spoken. We will examine the role sexuality plays in the languages of Imperialism and in the sexualization of political rhetoric. The course will explore theoretical approaches to sexuality (and its discursive construction) proposed by Freud, Foucault, Sander Gilman, Gayle Rubin, Teresa de Lauretis, Mary Douglas, and examine a broad range of "primary materials" from eighteenth-century novels and pornography to nineteenth-century sexology to current feminist and political debates.
Taught by: Copeland
One-term course offered either term
Activity: Seminar
1 Course Unit
COML 602 Historiography and Methodologies
Theories and models of historical investigation. Analysis of historiographic writings and musicological works exemplifying particular approaches, such as transnational, environmental/landscape, gender/sexuality, critical race studies, performance studies, archives, and the digital humanities.
Taught by: Calcagno, Caldwell, Goodman
Course not offered every year
Activity: Seminar
1 Course Unit

COML 606 Ancient Literary Theory
Course not offered every year
Activity: Seminar
1 Course Unit

COML 608 Global France
Please see the Comparative Literature website for description.
Taught by: Richman
Course not offered every year
Activity: Seminar
1 Course Unit

COML 609 Italian Literary Theory
Course not offered every year
Activity: Seminar
1 Course Unit

COML 618 Medieval Poetics
This course may include some of the following fields: studies of medieval stylistic practices, formal innovations, and theories of form; medieval ideas of genre and form; medieval thought about the social, moral, and epistemological roles of poetry; interpretive theory and practice; technologies of interpretation; theories of fiction (fabula) and allegory; sacred and secular hermeneutics; theories of language and the histories of the language arts; vernacular(s) and Latinity; material texts.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 620 Semester in 18th Century Literature
This course varies in its emphases, but in recent years has explored the theory of narrative both from the point of view of eighteenth-century novelists and thinkers as well as from the perspective of contemporary theory. Specific attention is paid to issues of class, gender, and ideology. Course usually offered in fall term
Activity: Seminar
1 Course Unit

COML 621 Topics in European History
Reading and Discussion course on selected topics in European History.
Taught by: Verkholantsev
Course not offered every year
Activity: Seminar
1 Course Unit

COML 622 Postmodernism
An advanced seminar on postmodernist culture. Recently offered as a study of relationship between poetry and theory in contemporary culture, with readings in poststructuralist, feminist, marxist, and postcolonial theory and in poets of the Black Mountain and Language groups.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 623 Literary History and Aesthetics in South Asia
This seminar surveys the multiple components of literary culture in South Asia. Students will engage critically with selected studies of literary history and aesthetics from the past two millennia. In order to introduce students to specific literary cultures (classical, regional, contemporary) and to the scholarly practices that situate literature in broader contexts of culture and society, the course will focus both on the literary theories - especially from the nineteenth and twentieth centuries - that position South Asia's literary cultures within broader disciplinary frameworks that use literary documents to inform social, historical and cultural research projects. The aim is to open up contexts whereby students can develop their own research projects using literary sources.
Taught by: Patel
Activity: Seminar
1 Course Unit

COML 625 Global Perspectives in French Studies
This course explores the literal and literary landscapes of 19th-century Paris and Philadelphia, paying particular attention to the ways in which the built environment is shaped by and shapes shifting ideologies in the modern age. Although today the luxury and excesses of the "City of Light" may seem worlds apart from the Quaker simplicity of the "City of Brotherly Love," Paris and Philadelphia saw themselves as partners and mutual referents during the 1800s in many areas, from urban planning to politics, prisons to paleontology. This interdisciplinary seminar will include readings from the realms of literature, historical geography, architectural history, and cultural studies as well as site visits to Philadelphia landmarks, with a view to uncovering overlaps and resonances among different ways of reading the City. We will facilitate in-depth research by students on topics relating to both French and American architectural history, literature, and cultural thought.
Taught by: Goulet/Wunsch
Course not offered every year
Activity: Seminar
1 Course Unit

COML 627 South Asia Literature as Comparative Literature
This seminar surveys the multiple components of literary culture in South Asia. Students will engage critically with selected studies of literary history and aesthetics from the past two millennia. In order to introduce students to specific literary cultures (classical, regional, contemporary) and to the scholarly practices that situate literature in broader contexts of culture and society, the course will focus both on the literary theories - especially from the nineteenth and twentieth centuries - that position South Asia's literary cultures within broader disciplinary frameworks that use literary documents to inform social, historical and cultural research projects. The aim is to open up contexts whereby students can develop their own research projects using literary sources.
Taught by: Patel
Activity: Seminar
1 Course Unit

COML 630 Introduction to Medieval Literature
Topics vary. Previous topics include The Grail and the Rose, Literary Genres and Transformations, and Readings in Old French Texts. Please see the department's website for current course description:
One-term course offered either term
Activity: Seminar
1 Course Unit

Notes: This is a topics course.

COML 643 Studies in the Renaissance
Topics vary. Previous topics have included Rabelais and M. de Navarre, Montaigne, and Renaissance and Counter-Renaissance. Please see department's website for current course description:
Course not offered every year
Activity: Seminar
1 Course Unit
COML 653 Topics in Russian and Soviet Cultural History  
Course not offered every year  
Activity: Seminar  
1 Course Unit  
Notes: This is a topics course. Please see COML website for current description. http://ccat.sas.upenn.edu/Complit/

COML 675 Topics in Prague Structuralism  
A systematic exploration of the holistic, functional, and semiotic approach to literature and art practiced by the members of the Prague School.  
Taught by: Steiner  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 680 Topics: Literature and Film  
This is a topics course. Please see the Comparative Literature website for description.  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 682 Seminar on Literary Theory  
Topics vary from year to year.  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 683 Topics in Comparative Literature and Theory  
This course has valuable content, addressing specific topics of broad, interdisciplinary concern in an innovative, multi-instructor format. The goal is to bring Penn students and faculty from a wide range of topics together around the study of theories, methods, periods and other common areas of interest in a shared intellectual space. Past topics have been "Modernism Across Borders," "Collective Violence, Trauma and Representation," and "Global Cultural Formations." The experimental seminar format devotes the first two hours of each three-hour class to discussion of readings selected in consultation with guest instructors from a range of Penn departments and programs, as well as nearby campuses. The third hour is devoted to a presentation and discussion of a work in progress, a project either of a member of the course, or of a guest. Guest instructors may appear for one or a few meetings. The course is coordinated by the convener(s) who are present for all the class meetings along with the guests. Students are encouraged to bring work in progress, either on the basis of past seminars or independent projects, to form the basis for their projects in the seminar.  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 685 Literary Criticism and Theory in Japanese Literature  
While the focus of this seminar will shift from year to year, the aim is to enable students to gain 1) a basic understanding of various theoretical approaches to literature, 2) familiarity with the histories and conventions of criticism, literary and otherwise, in Japan; 3) a few theoretical tools to think in complex ways about some of the most interesting and controversial issues of today, such as nationalism, imperialism, colonialism, postmodernism, and feminism, with particular focus on Japan's position in the world. The course is primarily intended for graduate students but is also open to advanced undergraduates with permission of the instructor. The course is taught in English, and all of the readings will be available in English translation. An optional discussion section may be arranged for those students who are able and willing to read and discuss materials in Japanese.  
Taught by: Kano  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 694 Spanish and Latin American Cinema  
Topics vary from year to year.  
Activity: Seminar  
1 Course Unit

COML 696 Postcolonial Theory in Francophone Contexts  
This seminar will introduce students to key texts and influential figures coming from, focusing on, or relevant to Francophone postcolonial contexts. Following a brief review of Anglophone postcolonial criticism, readings for the course will fall under three categories: Authors from the 1940s to present who have focused exclusively on (post)colonial issues pertaining to Africa, the Caribbean and/or postcolonial France; contemporary European, African and North American literary critics; humanities scholars whose work would not necessarily be labeled "postcolonial" but is nevertheless relevant to postcolonial criticism.  
Taught by: Moudileno  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 700 African Literature and Society  
An advanced seminar in anglophone African literature, possibly including a few works in translation.  
One-term course offered either term  
Activity: Seminar  
1 Course Unit

COML 710 Political Economy and Social History of Africa and the African Diaspora  
This course provides the opportunity for students to investigate the relationship between the emergence of African peoples as historical subjects and their location within specific geopolitical and economic circumstances.  
Taught by: Hanchard  
Course not offered every year  
Activity: Seminar  
1 Course Unit

COML 714 Medieval Literature  
This is a topics course. The topic may be "Women and Writing,1220-1689," "Denationalizing the English Middle Ages," or "Anglo-French Literatures." or "Gloss and Commentary."  
Course not offered every year  
Activity: Seminar  
1 Course Unit
COML 715 Seminar in Ethnomusicology
Topics in Ethnomusicology.
Taught by: Muller
Course usually offered in fall term
Activity: Seminar
1 Course Unit

COML 730 Topics in 16th-Century History and Culture
This is an advanced course treating topics in 16th Century history and culture particular emphasis varying with instructor.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 734 Renaissance Drama
This is a topics course. For Spring 2015, the topic is Genre and Performative Media.
Taught by: Bushnell
Course not offered every year
Activity: Seminar
1 Course Unit

COML 736 Renaissance Studies
This is an advanced topics course treating some important issues in contemporary Renaissance studies.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This is a topics course.

COML 738 Victorian British Literature
An advanced seminar treating some topics in Victorian British Literature, usually focusing on non-fiction or on poetry. See the Comparative Literature and Literary Theory Program's website for descriptions of the current offerings at http://ccat.sas.upenn.edu/Complit/
Activity: Seminar
1 Course Unit

COML 753 Victorian British Literature
Specific topic varies. The seminar will bring together the study of early modern English literature and culture with histories and theories of gender, sexuality and race. Contact with 'the East' (Turkey, the Moluccas, North Africa and India) and the West (the Americas and the Caribbean) reshaped attitudes to identity and desire. How does this history allow us to understand, and often interrogate, modern theories of desire and difference? Conversely, how do postcolonial and other contemporary perspectives allow us to re-read this past?
Course not offered every year
Activity: Seminar
1 Course Unit

COML 780 Seminar in Theory
Seminar on selected topics in music theory and analysis.
Course offered spring; odd-numbered years
Activity: Seminar
1 Course Unit

COML 781 Writing Sound--Sounding Literature
Seminar on selected topics in sound studies. Please see department website http://ccat.sas.upenn.edu/Complit/ for current term course descriptions.
Taught by: Waltham-Smith
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 786 Topics in 20th Century Art
Topics vary from year to year.
Taught by: Poggi
Course not offered every year
Activity: Seminar
1 Course Unit

COML 787 Topics in Contemporary Art
Topics vary each semester. Fall 2018: Since it was not translated into English until the mid 1960s, Walter Benjamin's Work of Art essay was slow to arrive in the English-speaking world, and when it did, it seemed part of the same zeitgeist as Guy Debord's Society of the Spectacle, Roland Barthes The Rhetoric of the Image, and Louis Althusser's Ideology and Ideological State Apparatuses. This zeitgeist was deeply suspicious of popular images, and this suspicion was soon fortified from a feminist direction by Laura Mulvey's Visual pleasure and Narrative Cinema, and a postcolonial one by Frantz Fanon's Black Skin, White Masks. Benjamin's essay extended it to the kinds of images we generally find in museums, i.e., to what I will be calling pictures. This made the museum the primary target of institutional critique, and gave rise to what Hal Foster called the anti-aesthetic. It was against this backdrop that the so-called Pictures Generation emerged. This category was helpful at first, since it allowed us to look at things that would otherwise have been forbidden. It was based, however, on a misapprehension: the misapprehension that a picture means the same thing for Jeff Wall as it does for Cindy Sherman.
Taught by: Silverman
One-term course offered either term
Activity: Seminar
1 Course Unit

COML 790 Recent Issues in Critical Theory
Course varies with instructor.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This is a topics course.

COML 795 Poetics
Topics in poetics will vary in its emphasis depending on the instructor.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 981 M.A. Exam Prep
Course open to first-year Comparative Literature graduate students in preparation for required M.A. exam taken in spring of first year.
Course not offered every year
Activity: Seminar
1 Course Unit

COML 998 Independent Study and Research
Designed to allow students to pursue a particular research topic under the close supervision of an instructor.
One-term course offered either term
Activity: Independent Study
1 Course Unit

COML 999 Independent Reading and Research
May be taken for multiple course credit to a maximum of two for the M.A. and four for the Ph.D. Designed to allow students to broaden and deepen their knowledge of literary theory, a national literature, and/or an area of special interest.
One-term course offered either term
Activity: Independent Study
1 Course Unit
CIS 099 Undergraduate Research/Independent Study
An opportunity for the student to become closely associated with a professor (1) in a research effort to develop research skills and techniques and/or (2) to develop a program of independent in-depth study in a subject area in which the professor and student have a common interest. The challenge of the task undertaken must be consistent with the student’s academic level. To register for this course, the student must submit a detailed proposal, signed by the independent study supervisor, to the SEAS Office of Academic Programs (111 Towne) no later than the end of the “add” period.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: A maximum of 2 c.u. of CIS 099 may be applied toward the B.A.S. or B.S.E. degree requirements.

CIS 105 Computational Data Exploration
The primary goal of this course is to introduce computational methods of interacting with data. In this course, students will be introduced to the IPython programming environment. They will learn how to gather data, store it in appropriate data structures and then either write their own functions or use libraries to analyze and then display the salient information in that data. Data will be drawn from a variety of domains, including but not limited to travel, entertainment, politics, economics, biology etc.
For BA Students: Formal Reasoning and Analysis
One-term course offered either term
Activity: Lecture
1 Course Unit

CIS 106 Visualizing the Past
Most people’s information about the Past is drawn from coffee table picture books, popular movies, video games, documentaries about discoveries of “ancient, mysterious, and lost” civilizations, and tours often lead by guides of limited or even dubious credentials. How are these ideas presented, formed, and circulated? Who creates and selects the information presented in this diverse media? Are these presentations accurate? Do they promote or hurt scientific explanations? Can the artistic, aesthetic, and scientific realms be bridged to effectively promote and interpret the past? How can modern technologies be applied to do a better job at presenting what is difficult to experience firsthand? This class will focus on case studies, c and methods of how archaeology and the past are created, presented and used in movies, museums, games, the internet, and art. Each year, the studio-seminar focuses on a project. In addition to exploring general concepts of archaeology and the media, students will work in teams to produce an interactive, digital media exhibit using the latest modeling visualization programs for presenting the sacred landscape of the Inca capital of Cuzco, Peru. Cuzco is one of the most important UNESCO World Heritage sites and visited by nearly a million tourists a year. Potential class projectinclude fly-throughs of architectural and landscape renderings, simulations of astronomy and cosmology, modeling of human behavior within architectural and landscape settings, and study artifacts in the Penn Museum.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIS 110 Introduction to Computer Programming
Introduction to Computer Programming is the first course in our series introducing students to computer science. In this class you will learn the fundamentals of computer programming in Java, with emphasis on applications in science and engineering. You will also learn about the wider field of computer science and algorithmic thinking, the fundamental approach that computer scientists take to solving problems.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: See the CIS 110 website for information about registration in recitations and permission to register for closed sections of CIS 110. Counts as a Formal Reasoning course for College students.

CIS 120 Programming Languages and Techniques I
A fast-paced introduction to the fundamental concepts of programming and software design. This course assumes some previous programming experience, at the level of a high school computer science class or CIS110. (If you got at least 4 in the AP Computer Science A or AB exam, you will do great.) No specific programming language background is assumed: basic experience with any language (for instance Java, C, C++, VB, Python, Perl, or Scheme) is fine. If you have never programmed before, you should take CIS 110 first.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: This counts as a Formal Reasoning course for College students.

CIS 121 Programming Languages and Techniques II
This is a course about Algorithms and Data Structures using the JAVA programming language. We introduce the basic concepts about complexity of an algorithm and methods on how to compute the running time of algorithms. Then, we describe data structures like stacks, queues, maps, trees, and graphs, and we construct efficient algorithms based on these representations. The course builds upon existing implementations of basic data structures in JAVA and extends them for the structures like trees, studying the performance of operations on such structures, and the efficiency when used in real-world applications. A large project introducing students to the challenges of software engineering concludes the course.
Course usually offered in spring term
Prerequisites: CIS 120, CIS 160
Activity: Lecture
1 Course Unit

CIS 125 Technology and Policy
Have you ever wondered why sharing music and video generates such political and legal controversies? Is information on your PC safe and should law enforcement be able to access information you enter on the Web? Will new devices allow tracking of your every move and every purchase? CIS 125 is focused on developing an understanding of existing and emerging technologies, along with the political, societal and economic impacts of those technologies. The technologies are spread across a number of engineering areas and each of them raise issues that are of current concern or are likely to be a future issue.
Activity: Lecture
1 Course Unit
CIS 140 Introduction to Cognitive Science
How does mind work? This course surveys a wide range of answers to this question from disciplines ranging from philosophy to neuroscience. The course devotes special attention to the use of simple computational and mathematical models. Topics include perception, learning, memory, decision making, emotion and consciousness.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: This counts as a Formal Reasoning course for College students.

CIS 160 Mathematical Foundations of Computer Science
What are the basic mathematical concepts and techniques needed in computer science? This course provides an introduction to proof principles and logics, functions and relations, induction principles, combinatorics and graph theory, as well as a rigorous grounding in writing and reading mathematical proofs.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CIS 190 C++ Programming
This course will provide an introduction to programming in C++ and is intended for students who already have some exposure to programming in another language such as Java. C++ provides the programmer with a greater level of control over machine resources and are commonly used in situations where low level access or performance are important. This course will illuminate the issues associated with programming at this level and will cover issues such as explicit memory management, pointers, the compilation process and debugging. The course will involve several programming projects which will provide students with the experience they need to program effectively in these languages. This course assumes programming experience equivalent to CIS 110, CIS 120 or ESE 112.
One-term course offered either term
Prerequisite: CIS 240
Activity: Lecture
0.5 Course Units

CIS 191 Using and Understanding Unix and Linux
Unix, in its many forms, runs much of the world’s computer infrastructure, from cable modems and cell phones to the giant clusters that power Google and Amazon. This half-credit course provides a thorough introduction to Unix and Linux. Topics will range from critical basic skills such as examin and editing files, compiling programs and writing shell scripts, to higher level topics such as the architecture of Unix and its programming model. The material learned is applicable to many classes, including CIS 240, CIS 331, CIS 341, CIS 371, and CIS 380.
One-term course offered either term
Prerequisite: CIS 110 or equivalent
Activity: Lecture
0.5 Course Units

CIS 192 Python Programming
Python is an elegant, concise, and powerful language that is useful for tasks large and small. Python has quickly become a popular language for getting things done efficiently in many in all domains: scripting, systems programming, research tools, and web development. This course will provide an introduction to this modern high-level language using hands-on experience through programming assignments and a collaborative final application development project.
One-term course offered either term
Prerequisite: CIS 120 or ESE 112
Activity: Lecture
0.5 Course Units

CIS 193 C# Programming
C# is the premier programming language for the .NET framework. Over the last decade, the language has evolved to meet the needs of a variety of programming styles while supporting the ever-growing capabilities of the .NET runtime and libraries. This course provides a thorough introduction to the C# language and the .NET framework, building on the skills gained in the introductory programming courses (CIS 110, CIS 120, or ESE 112). In addition to providing the student with a solid background in C#, this course also explores topics that the .NET platform exposes such as object oriented design, .NET runtime internals, and others based on class interest. A series of short, weekly homework assignments reinforces the concepts introduced in class and a group-based final project of the students’ design allows them to apply their C# knowledge toward a substantial problem.
One-term course offered either term
Prerequisite: CIS 110
Activity: Lecture
0.5 Course Units

CIS 194 Haskell
Haskell is a high-level purely functional programming language with a strong static type system and elegant mathematical underpinnings. It is being increasingly used in industry by organizations such as Facebook, AT&T, and NASA, along with several financial firms. We will explore the joys of function programming, using Haskell as a vehicle. The aim of the course will be to allow you to use Haskell to easily and conveniently write practical programs. All ar welcome, including those with no programming experience. Evaluation will be based on regular homework assignments and class participation.
One-term course offered either term
Activity: Lecture
0.5 Course Units

CIS 195 Mobile App Development
This project-oriented course is centered around application development on current mobile platforms like iOS and Android. The first half of the course will involve fundamentals of mobile app development, where students learn about mobile app lifecycles, event-based programming, efficient resource management, and how to interact with the range of sensors available on modern mobile devices. In the second half of the course, students work in teams to conceptualize and develop a significant mobile application. Creativity and originality are highly encouraged!
One-term course offered either term
Prerequisites: CIS 120 and CIS 240. Students should come with a strong understanding of the fundamentals of programming.
Activity: Lecture
0.5 Course Units
CIS 196 Ruby on Rails Web Development
This course will teach the fundamentals of developing web applications using Ruby on Rails, a rapid-development web framework developed by 37signals. The topics covered will start with Ruby, the language that powers Rails, and include all topics required to develop and deploy production-ready web applications with Rails. During the entire course, students will be working on a project of their own choosing which will develop as they learn additional concepts. Upon completion of the course this application will be deployed and accessible to the public. Students will be encouraged to continue building their applications even after the course given support from the Philadelphia Ruby community.
Activity: Lecture
0.5 Course Units

CIS 197 Javascript
This course provides an introduction to modern web development frameworks, techniques, and practices used to deliver robust client side applications on the web. The emphasis will be on developing JavaScript programs that run in the browser. Topics covered include the JavaScript language, web browser internals, the Document Object Model (DOM), HTML5, client-side app architecture and compile-to-JS languages like (CoffeeScript, TypeScript, etc.). This course is most useful for students who have some programming and web development experience and want to develop moderate JavaScript skills to be able to build complex, interactive applications in the browser.
One-term course offered either term
Activity: Lecture
0.5 Course Units

CIS 198 Rust Programming
Rust is a new, practical, community-developed systems programming language that runs blazingly fast, prevents almost all crashes, and eliminates data races (rust-lang.org). Rust derives from a rich history of languages to create a multi-paradigm (imperative/functional), low-level language that focuses on high-performance, zero-cost safety guarantee in concurrent programs. It has begun to gain traction in industry even before official 1.0 release in May 2015, showing a recognized need for a new low-level systems language. In this course, we will cover what makes Rust so unique and apply it to practical systems programming problems. Topics covered will include traits and generics; memory safety (move semantics, borrowing, and lifetimes); Rust’s rich macro system; closures; and concurrency. Evaluation is based on regular homework assignments as well as a final project and class participation.
One-term course offered either term
Activity: Lecture
0.5 Course Units

CIS 240 Introduction to Computer Systems
You know how to program, but do you know how computers really work? How do millions of transistors come together to form a complete computing system? This bottom-up course begins with transistors and simple computer hardware structures, continues with low-level programming using primitive machine instructions, and finishes with an introduction to the C programming language. This course is a broad introduction to all aspects of computer systems architecture and serves as the foundation for subsequent computer systems courses, such as Digital Systems Organization and Design (CIS 371), Computer Operating Systems (CIS 380), and Compilers and Interpreters (CIS 341).
Course usually offered in fall term
Prerequisite: CIS 110 or equivalent
Activity: Lecture
1 Course Unit

CIS 260 Automata, Computability, and Complexity
This course explores questions fundamental to computer science such as which problems cannot be solved by computers, can we formalize computing as a mathematical concept without relying upon the specifics of programming languages and computing platforms, and which problems can be solved efficiently. The topics include finite automata and regular languages, context-free grammars and pushdown automata, Turing machines and undecidability, tractability and NP-completeness. The course emphasizes rigorous mathematical reasoning as well as connections to practical computing problems such as test processing, parsing, XML query languages, and program verification.
Course usually offered in fall term
Prerequisite: CIS 160
Activity: Lecture
1 Course Unit

CIS 261 Discrete Probability, Stochastic Processes, and Statistical Inference
The purpose of this course is to provide a 1 CU educational experience which tightly integrates the theory and applications of discrete probability, discrete stochastic processes, and discrete statistical inference in the study of computer science. The intended audience for this class is both those students who are CS majors as well as those intending to be CS majors. Specifically, it will be assumed that the students will know: Set Theory, Mathematical Induction, Number Theory, Functions, Equivalence Relations, Partial-Order Relations, Combinatorics, and Graph Theory at the level currently covered in CIS 160. This course could be taken immediately following CIS 160. Computation and Programming will play an essential role in this course. The students will be expected to use the Maple programming environment in homework exercises which will include: numerical and symbolic computations, simulations, and graphical displays.
Course usually offered in fall term
Prerequisite: CIS 160
Activity: Lecture
1 Course Unit

CIS 320 Introduction to Algorithms
How do you optimally encode a text file? How do you find shortest paths in a map? How do you design a communication network? How do you route data in a network? What are the limits of efficient computation? This course gives a comprehensive introduction to design and analysis of algorithms, and answers along the way to these and many other interesting computational questions. You will learn about problem-solving; advanced data structures such as universal hashing and red-black trees; advanced design and analysis techniques such as dynamic programming and amortized analysis; graph algorithms such as minimum spanning trees and network flows; NP-completeness theory, and approximation algorithms.
Course usually offered in spring term
Prerequisites: CIS 120, 121, 160, 262
Activity: Lecture
1 Course Unit
CIS 334 Advanced Topics in Algorithms
Can you check if two large documents are identical by examining a small number of bits? Can you verify that a program has correctly computed a function without ever computing the function? Can students compute the average score on an exam without ever revealing their scores to each other? Can you be convinced of the correctness of an assertion without ever seeing the proof? The answer to all these questions is in the affirmative provided we allow the use of randomization. Over the past few decades, randomization has emerged as a powerful resource in algorithm design. This course would focus on powerful general techniques for designing randomized algorithms as well as specific representative applications in various domains, including approximation algorithms, cryptography and number theory, data structure design, online algorithms, and parallel and distributed computation.
Course not offered every year
Prerequisite: CIS 320
Activity: Lecture
1 Course Unit

CIS 341 Compilers and Interpreters
You know how to program, but do you know how to implement a programming language? In CIS 341 you'll learn how to build a compiler. Topics covered include: lexical analysis, grammars and parsing, intermediate representations, syntax-directed translation, code generation, type checking, simple dataflow and control-flow analyses, and optimizations. Along the way, we study objects and inheritance, first-class functions (closures), data representation and runtime-support issues such as garbage collection. This is a challenging, implementation-oriented course in which students build a full compiler from a simple, typed object-oriented language to fully operational x86 assembly. The course projects are implemented using OCaml, but no knowledge of OCaml is assumed.
Course not offered every year
Prerequisites: Two semesters of programming courses, e.g., CIS 120, CIS 121, and CIS 240
Activity: Lecture
1 Course Unit

CIS 350 Software Design/Engineering
You know how to write a "program". But how do you create a software "product" as part of a team, with customers that have expectations of functionality and quality? This course introduces students to various tools (source control, automated build systems, programming environments, test automation, etc.) and processes (design, implementation, testing, and maintenance) that are used by professionals in the field of software engineering. Topics will include: software development lifecycle; agile and test-driven development; source control and continuous integration; requirements analysis; object-oriented design and testability; mobile and/or web application development; software testing; refactoring; and software quality metrics.
Course not offered every year
Prerequisite: CIS 121
Activity: Lecture
1 Course Unit

CIS 371 Computer Organization and Design
This is the second computer organization course and focuses on computer hardware design. Topics covered are: (1) basic digital system design including finite state machines, (2) instruction set design and simple RISC assembly programming, (3) quantitative evaluation of computer performance, (4) circuits for integer and floating-point arithmetic, (5) datapath and control, (6) micro-programming, (7) pipelining, (8) storage hierarchy and virtual memory, (9) input/output, (10) different forms of parallelism including instruction level parallelism, data-level parallelism using both vectors and message-passing multi-processors, and thread-level parallelism using shared memory multiprocessors. Basic cache coherence and synchronization.
Course usually offered in spring term
Prerequisite: CIS 240
Activity: Lecture
1 Course Unit

CIS 380 Computer Operating Systems
This course surveys methods and algorithms used in modern operating systems. Concurrent distributed operation is emphasized. The main topics covered are as follows: process synchronization; interprocess communication; concurrent/distributed programming languages; resource allocation and deadlock; virtual memory; protection and security; distributed operation; distributed data; performance evaluation.
Course usually offered in fall term
Prerequisite: CIS 240
Activity: Lecture
1 Course Unit

CIS 390 Robotics: Planning Perception
This introductory course will present basic principles of robotics with an emphasis to computer science aspects. Algorithms for planning and perception will be studied and implemented on actual robots. While planning is a fundamental problem in artificial intelligence and decision making, robot planning refers to finding a path from A to B in the presence of obstacles and by complying with the kinematic constraints of the robot. Perception involves the estimation of the robots motion and path as well as the shape of the environment from sensors. In this course, algorithms will be implemented in Python on mobile platforms on ground and in the air. No prior experience with Python is needed but we require knowledge of data structures, linear algebra, and basic probability.
Course not offered every year
Prerequisites: CIS 121 and MATH 240 or equivalent
Activity: Lecture
1 Course Unit

CIS 398 Quantum Computer and Information Science
The purpose of this course is to introduce undergraduate students in computer science aspects. Algorithms for quantum computers (QC) and quantum information science (QIS). This course is meant primarily for juniors and seniors in Computer Science. No prior knowledge of quantum mechanics (QM) is assumed. Enrollment is by permission of the instructor.
One-term course offered either term
Prerequisites: PHYS 151, MATH 240, MATH 312, MATH 314, CIS 160 and CIS 262
Activity: Lecture
1 Course Unit
CIS 400 Senior Project
Design and implementation of a significant piece of work: software, hardware or theory. In addition, emphasis on technical writing and oral communication skills. Students must have an abstract of their Senior Project, which is approved and signed by a Project Adviser, at the end of the second week of Fall classes. The project continues during two semesters; students must enroll in CIS 401 during the second semester. At the end of the first semester, students are required to submit an intermediate report and give a class presentation describing their project and progress. Grades are based on technical writing skills (as per submitted report), oral presentation skills (as per class presentation) and progress on the project. These are evaluated by the Project Adviser and the Course Instructor.
Course usually offered in fall term
Prerequisite: Senior standing or permission of instructor
Activity: Lecture
1 Course Unit

CIS 401 Senior Project
Continuation of CIS 400. Design and implementation of a significant piece of work: software, hardware or theory. Students are required to submit a final written report and give a final presentation and demonstration of their project. Grades are based on the report, the presentation and the satisfactory completion of the project. These are evaluated by the Project Adviser and the Course Instructor.
Course usually offered in spring term
Prerequisites: CIS 400, senior standing or permission of instructor
Activity: Lecture
1 Course Unit

CIS 419 Applied Machine Learning
Machine learning has been essential to the success of many recent technologies, including autonomous vehicles, search engines, genomics, automated medical diagnosis, image recognition, and social network analysis, among many others. This course will introduce the fundamental concepts and algorithms that enable computers to learn from experience, with an emphasis on their practical application to real problems. This course will introduce supervised learning (decision trees, logistic regression, support vector machines, Bayesian methods, neural networks and deep learning), unsupervised learning (clustering, dimensionality reduction), and reinforcement learning. Additionally, the course will discuss evaluation methodology and recent applications of machine learning, including large scale learning for big data and network analysis.
One-term course offered either term
Also Offered As: CIS 519
Prerequisite: CIS 121 or an equivalent course in data structures
Activity: Lecture
1 Course Unit

CIS 421 Artificial Intelligence
This course investigates algorithms to implement resource-limited knowledge-based agents which sense and act in the world. Topics include, search, machine learning, probabilistic reasoning, natural language processing, knowledge representation and logic. After a brief introduction to the language, programming assignments will be in Python.
Also Offered As: CIS 521
Prerequisites: CIS 121, ESE 301 or STAT 430 recommended
Activity: Lecture
1 Course Unit

CIS 436 Intro Comp Bio&Bio Model
One-term course offered either term
Activity: Lecture
1 Course Unit

CIS 441 Embedded Software for Life-Critical Applications
The goal of this course is to give students greater design and implementation experience in embedded software development and to teach them how to model, design, verify, and validate safety critical systems in a principled manner. Students will learn the principles, methods, and techniques for building life-critical embedded systems, ranging from requirements and models to design, analysis, optimization, implementation, and validation. Topics will include modeling and analysis methods and tools, real-time programming paradigms and languages, distributed real-time systems, global time, time-triggered communications, assurance case, software architecture, evidence-based certification, testing, verification, and validation. The course will include a series of projects that implements life-critical embedded systems (e.g., pacemaker, infusion pumps, closed-loop medical devices).
One-term course offered either term
Also Offered As: CIS 541
Activity: Lecture
1 Course Unit

CIS 450 Database and Information Systems
This course provides an introduction to the broad field of database and information systems, covering a variety of topics relating to structured data, ranging from data modeling to logical foundations and popular languages, to system implementations. We will study the theory of relational and XML data design; the basics of query languages; efficient storage of data, execution of queries and query optimization; transactions and updates; web-database development; and "big data" and NoSQL systems. The course assumes mathematical and programming experience equivalent to CIS160 and CIS121.
Course usually offered in fall term
Also Offered As: CIS 550
Prerequisites: CIS 121, 160
Activity: Lecture
1 Course Unit
CIS 455 Internet and Web Systems
This course focuses on the challenges encountered in building Internet and web systems: scalability, interoperability (of data and code), security and fault tolerance, consistency models, and location of resources, services, and data. We will examine how XML standards enable information exchange; how web services support cross-platform interoperability (and what their limitations are); how to build high-performance application servers; how "cloud computing" services work; how to perform Akamai-like content distribution; and how to provide transaction support in distributed environments. We will study techniques for locating machines, resources, and data (including directory systems, information retrieval indexing, ranking, and web search); and we will investigate how different architectures support scalability (and the issues they face). We will also examine ideas that have been proposed for tomorrow's Web, and we will see some of the challenges, research directions, and potential pitfalls. An important goal of the course is not simply to discuss issues and solutions, but to provide hands-on experience with a substantial implementation project. This semester's project will be a peer-to-peer implementation of a Google-style search engine, including distributed, scalable crawling; indexing with ranking; and even PageRank. As a side-effect of the material of this course you will learn about some aspects of large-scale software development assimilating large APIs.
One-term course offered either term
Also Offered As: CIS 555
Prerequisites: Familiarity with threads and concurrency, strong Java programming skills.
Activity: Lecture
1 Course Unit

CIS 460 Interactive Computer Graphics
This course focuses on programming the essential mathematical and geometric concepts underlying modern computer graphics. Using 3D interactive implementations, it covers fundamental topics such as mesh data structures, transformation sequences, rendering algorithms, and curve interpolation for animation. Students are also introduced to two programming languages widely used in the computer graphics industry: C++ and GLSL. The curriculum is heavily project-based, and culminates in a group project focused on building an interactive first-person world exploration application using the various real-time interaction and rendering algorithms learned throughout the semester.
Course usually offered in fall term
Also Offered As: CIS 560
Prerequisites: CIS 120, CIS 121 and CIS 240 are useful pre- or co- prereq
Activity: Lecture
1 Course Unit

CIS 461 Advanced Computer Graphics
This course is designed to provide a comprehensive overview to computer graphics techniques in 3D modeling, image synthesis, and rendering. Topics covered: geometric transformations, geometric algorithms, software systems, 3D object models (surface, volume and implicit), visible surface algorithms, image synthesis, shading, mapping, ray tracing, radiosity, global illumination, sampling, anti-aliasing, Monte Carlo path tracing, and photon mapping.
One-term course offered either term
Also Offered As: CIS 561
Prerequisites: A working knowledge of C++ programming is required (one year programming experience in general). Knowledge of vector geometry is useful.
Activity: Lecture
1 Course Unit

CIS 462 Computer Animation
This course covers core subject matter common to the fields of robotics, character animation and embodied intelligent agents. The intent of the course is to provide the student with a solid technical foundation for developing, animating and controlling articulated systems used in interactive computer game virtual reality simulations and high-end animation applications. The course balances theory with practice by "looking under the hood" of current animation systems and authoring tools and examines the technologies and techniques used from both a computer science and engineering perspective. Topics covered include: geometric coordinate systems and transformations; quaternions; parametric curves and surfaces; forward and inverse kinematics; dynamic systems and control; computer simulation; keyframe, motion capture and procedural animation; behavior-based animation and control; facial animation; smart characters and intelligent agents.
One-term course offered either term
Also Offered As: CIS 562
Prerequisites: Previous exposure to major concepts in linear algebra (i.e. vector matrix math), curves and surfaces, dynamical systems (e.g. 2nd order mass-spring-damper systems) and 3D computer graphics has also been assumed in the preparation of the course materials.
Activity: Lecture
1 Course Unit

CIS 482 Logic In Computer Science
Logic has been called the calculus of computer science as it plays a fundamental role in computer science, similar to that played by calculus in the physical sciences and traditional engineering disciplines. Indeed, logic is useful in areas of computer science as disparate as architecture (logic gates), software engineering (specification and verification), programming languages (semantics, logic programming), databases (relational algebra and SQL), artificial intelligence (automatic theorem proving), algorithms (complexity and expressiveness), and theory of computation (general notions of computability). CIS 482 provides the students with a thorough introduction to mathematical logic, covering in depth the topics of syntax, semantics, decision procedures, formal proof systems, and soundness and completeness for both propositional and first-order logic. The material is taught from a computer science perspective, with an emphasis on algorithms, computational complexity, and tools. Projects will focus on problems in circuit design, specification and analysis and protocols, and query evaluation in databases.
One-term course offered either term
Prerequisite: CIS 160
Activity: Lecture
1 Course Unit

CIS 497 DMD Senior Project
The goal of this course is to provide an opportunity for seniors to define, design and execute a project of your own choosing that demonstrates the technical skills, abilities that you have acquired during your 4 years as undergraduates. Evaluation is based on selecting an interesting topic, completing appropriate research on the state of the art in that area, communicating your objectives, writing and in presentations, accurately estimating what resources will be req to complete your chosen task, coding necessary functionality, and executing your plan.
One-term course offered either term
Prerequisite: Senior Standing or Permission of the Instructor
Activity: Lecture
1 Course Unit
CIS 500 Software Foundations
This course introduces basic concepts and techniques in the foundational study of programming languages. The central theme is the view of programs and programming languages as mathematical objects for which precise claims may be made and proved. Particular topics include operational techniques for formal definition of language features, type systems and type safety properties, polymorphism, constructive logic, and the Coq proof assistant. This course is appropriate as an upper-level undergraduate CIS elective. Undergraduates who have satisfied the prerequisites are welcome to enroll. No permission from the instructor is needed.

One-term course offered either term
Prerequisites: CIS 121, 160, and CIS 262 (or equivalents); plus substantial mathematical maturity (at least two additional undergraduate courses in math or theoretical CS). Undergraduate-level coursework in programming languages, compilers, functional programming, or logic is helpful but not required.

Activity: Lecture
1 Course Unit

CIS 501 Computer Architecture
This course is an introductory graduate course on computer architecture with an emphasis on a quantitative approach to cost/performance design tradeoffs. The course covers the fundamentals of classical and modern uniprocessor design: performance and cost issues, instruction sets, pipelining, superscalar, out-of-order, and speculative execution mechanisms, caches, physical memory, virtual memory, and I/O. Other topics include: static scheduling, VLIW and EPIC, software speculation, long (SIMD) and short (multimedia) vector execution, multithreading, and an introduction to shared memory multiprocessors.

One-term course offered either term
Prerequisites: Knowledge of computer organization and basic programming skills

Activity: Lecture
1 Course Unit

CIS 502 Analysis of Algorithms
An investigation of paradigms for design and analysis of algorithms. The course will include dynamic programming, flows and combinatorial optimization algorithms, linear programming, randomization and a brief introduction to intractability and approximation algorithms. The course will include other advanced topics, time permitting.

One-term course offered either term
Prerequisites: Data Structures and Algorithms at the undergraduate level. Programming experience (CIT 594 or equivalent) is helpful but not necessary.

Activity: Lecture
1 Course Unit

CIS 505 Software Systems
This course provides an introduction to fundamental concepts of distributed systems, and the design principles for building large scale computational systems. Topics covered include communication, concurrency, programming paradigms, naming, managing shared state, caching, synchronization, reaching agreement, fault tolerance, security, middleware, and distributed applications. This course is appropriate as an upper-level undergraduate CIS elective.

One-term course offered either term
Prerequisites: Undergraduate-level knowledge of Operating Systems and Networking, programming experience (CIT 594 or equivalent)

Activity: Lecture
1 Course Unit

CIS 511 Theory of Computation
Review of regular and context-free languages and machine models. Turing machines and RAM models, Decidability, Halting problem, Reductions, Recursively enumerable sets, Universal TMs, Church/Turing thesis. Time and space complexity, hierarchy theorems, the complexity classes P, NP, PSPACE, L, NL, and co-NL. Reductions revisited, Cook-Levin Theorem, completeness, NL = co-NL. Advanced topics as time permits: Circuit complexity and parallel computation, randomized complexity, approximability, interaction and cryptography.

One-term course offered either term
Prerequisites: Discrete Mathematics, Automata theory or Algorithms at the undergraduate level.

Activity: Lecture
1 Course Unit

CIS 515 Fundamentals of Linear Algebra and Optimization
This course provides firm foundations in linear algebra and basic optimization techniques. Emphasis is placed on teaching methods and tools that are widely used in various areas of computer science. Both theoretical and algorithmic aspects will be discussed.

One-term course offered either term
Prerequisites: Undergraduate course in linear algebra, calculus

Activity: Lecture
1 Course Unit

CIS 518 Topics in Logic: Finite Model Theory and Descriptive Complexity
This course will examine the expressive power of various logical languages over the class of finite structures. The course begins with an exposition of some of the fundamental theorems about the behavior of first-order logic in the context of finite structures, in particular, the Ehrenfeucht-Fraisse Theorem and the Trakhtenbrot Theorem. The first of these results is used to show limitations on the expressive power of first-order logic over finite structures while the second result demonstrates that the problem of reasoning about finite structures using first-order logic is surprisingly complex. The course then proceeds to consider various extensions of first-order logic including fixed-point operators, generalized quantifiers, infinitary languages, and higher-order languages. The expressive power of these extensions will be studied in detail and will be connected to various problems in the theory of computational complexity. This last motif, namely the relation between descriptive and computational complexity, will be one of the main themes of the course.

One-term course offered either term

Activity: Seminar
1 Course Unit

CIS 519 Introduction to Machine Learning
Machine learning has been essential to the success of many recent technologies, including autonomous vehicles, search engines, genomics, automated medical diagnosis, image recognition, and social network analysis, among many others. This course will introduce the fundamental concepts and algorithms that enable computers to learn from experience, with an emphasis on their practical application to real problems. This course will introduce supervised learning (decision trees, logistic regression, support vector machines, Bayesian methods, neural networks and deep learning), unsupervised learning (clustering, dimensionality reduction), and reinforcement learning. Additionally, the course will discuss evaluation methodology and recent applications of machine learning, including large scale learning for big data and network analysis.

One-term course offered either term

Also Offered As: CIS 419
Prerequisite: CIS 121 or an equivalent course in data structures

Activity: Lecture
1 Course Unit
CIS 520 Machine Learning
This course covers the foundations of statistical machine learning. The focus is on probabilistic and statistical methods for prediction and clustering in high dimensions. Topics covered include linear and logistic regression, SVMs, PCA and dimensionality reduction, EM and HMMs, and deep learning.
Course usually offered in fall term
Prerequisites: Elementary probability, calculus, and linear algebra. Basic programming experience.
Activity: Lecture
1 Course Unit

CIS 521 Artificial Intelligence
This course investigates algorithms to implement resource-limited knowledge-based agents which sense and act in the world. Topics include search, machine learning, probabilistic reasoning, natural language processing, knowledge representation and logic. After a brief introduction to the language, programming assignments will be in Python.
One-term course offered either term
Also Offered As: CIS 421
Prerequisites: CIS 121, ESE 301 or STAT 430 recommended
Activity: Lecture
1 Course Unit

CIS 526 Machine Translation
Google translate can instantly translate between any pair of over fifty human languages (for instance, from French to English). How does it do that? Why does it make the errors that it does? And how can you build something better? Modern translation systems like Google Translate and Bing Translator learn how to translate by reading millions of words of already translated text, and this course will show you how they work.
The course covers a diverse set of fundamental building blocks from linguistics, machine learning, algorithms, data structures, and formal language theory, along with their application to a real and difficult problem in artificial intelligence.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIS 530 Computational Linguistics
Computational approaches to the problem of understanding and producing natural language text and speech, including speech processing, syntactic parsing, semantic interpretation, discourse meaning, and the role of pragmatics and world knowledge. The course will examine both rule-based and corpus-based techniques. It is recommended that students have some knowledge of logic, basic linguistics, and/or programming.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CIS 535 Introduction to Bioinformatics
The course covers methods used in computational biology, including the statistical models and algorithms used and the biological problems which they address. Students will learn how tools such as BLAST work, and will use them to address real problems. The course will focus on sequence analysis problems such as exom, motif and gene finding, and on comparative methods but will also cover gene expression and proteomics.
Course usually offered in fall term
Also Offered As: GCB 535
Prerequisites: The course will assume a solid knowledge of modern biology. An advanced undergraduate course such as BIOL 421 or a graduate course in biology such as BIOL 527 (Advanced Molecular Biology and Genetics), BIOL 540 (Genetic Systems, or equivalent, is a prerequisite.
Activity: Lecture
1 Course Unit

CIS 537 Biomedical Image Analysis
This course covers the fundamentals of advanced quantitative image analysis that apply to all of the major and emerging modalities in biological/biomaterials imaging and in vivo biomedical imaging. While traditional image processing techniques will be discussed to provide context, the emphasis will be on cutting edge aspects of all areas of image analysis (including registration, segmentation, and high-dimensional statistical analysis). Significant coverage of state-of-the-art biomedical research and clinical applications will be incorporated to reinforce the theoretical basis of the analysis methods.
One-term course offered either term
Also Offered As: BE 537
Prerequisites: Mathematics through multivariate calculus (MATH 241), programming experience, as well as some familiarity with linear algebra, basic physics, and statistics.
Activity: Lecture
1 Course Unit

CIS 540 Principles of Embedded Computation
This course is focused on principles underlying design and analysis of computational elements that interact with the physical environment. Increasingly, such embedded computers are everywhere, from smart cameras to medical devices to automobiles. While the classical theory of computation focuses on the function that a program computes, to understand embedded computation, we need to focus on the reactive nature of the interaction of a component with its environment via inputs and outputs, the continuous dynamics of the physical world, different ways of communication among components, and requirements concerning safety, timeliness, stability, and performance. Developing tools for approaching design, analysis, and implementation of embedded systems in a principled manner is an active research area. This course will attempt to give students a coherent introduction to this emerging area. This course is appropriate as an upper-level undergraduate CIS elective.
Course usually offered in fall term
Prerequisites: This course assumes mathematical maturity, commensurate with either ESE 210 (Introduction to Dynamical Systems), or CIS 262 (Introduction to Theory of Computation). It is suitable for students who have an undergraduate degree in computer science, or computer engineering, or electrical engineering. It is also suitable for Penn undergraduates in CIS or CE as an upper-level elective.
Activity: Lecture
1 Course Unit
CIS 541 Embedded Software for Life-Critical Applications
The goal of this course is to give students greater design and implementation experience in embedded software development and to teach them how to model, design, verify, and validate safety critical systems in a principled manner. Students will learn the principles, methods, and techniques for building life-critical embedded systems, ranging from requirements and models to design, analysis, optimization, implementation, and validation. Topics will include modeling and analysis methods and tools, real-time programming paradigms and languages, distributed real-time systems, global time, time-triggered communications, assurance case, software architecture, evidence-based certification, testing, verification, and validation. The course will include a series of projects that implements life-critical embedded systems (e.g., pacemaker, infusion pumps, closed-loop medical devices).
One-term course offered either term
Also Offered As: CIS 441
Activity: Lecture
1 Course Unit

CIS 542 Embedded Systems Programming
This course explores techniques for writing correct and efficient embedded code. Topics include C/C++ idioms, data abstraction, elementary data structures and algorithms, environment modeling, concurrency, hard real time, and modular program reasoning.
One-term course offered either term
Prerequisite: C fluency
Activity: Lecture
1 Course Unit

CIS 545 Big Data Analytics
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CIS 548 Operating Systems Design and Implementation
The purpose of this masters-level course is to teach the design and implementation of operating systems and operating systems concepts that appear in other advanced systems. The course divides into three major sections. The first part of the course discusses concurrency: how to manage multiple tasks that execute at the same time and share resources. Topics in this section include processes and threads, context switching, synchronization, scheduling, and deadlock. The second part of the course addresses the problem of memory management; it will cover topics such as linking, dynamic memory allocation, dynamic address translation, virtual memory, and demand paging. The third major part of the course concerns file systems, including topics such as storage devices, disk management and scheduling, directories, protection, and crash recovery. After these three major topics, the class will conclude with specialized topics such as virtual machines and case studies of different operating systems (e.g. Android, Windows, Linux, etc.).
One-term course offered either term
Prerequisite: Proficient knowledge of C/C++
Activity: Lecture
1 Course Unit
Notes: This is considered a faster-paced version of the CIS 380 taken by Penn undergraduates. Undergraduates who have taken CIS 380 will not get credit for taking this course. Undergraduates who have taken CIS 380 should directly proceed to take CIS 505 if they are submatriculating.
CIS 553 Networked Systems
This course provides an introduction to fundamental concepts in the
design and implementation of networked systems, their protocols, and
applications. Topics to be covered include: Internet architecture, network
applications, addressing, routing, transport protocols, network security,
and peer-to-peer networks. The course will involve written assignments,
examinations, and programming assignments. Students will work in
teams to design and implement networked systems in layers, from
routing protocols, transport protocols, to peer-to-peer networks.
One-term course offered either term
Prerequisites: CIS 121 or equivalent, or permission of the instructor
Activity: Lecture
1 Course Unit

CIS 554 Programming Paradigms
Achieving mastery in a new programming language requires more than
just learning a new syntax; rather, different languages support different
ways to think about solving problems. Not all programming languages
are inherently procedural or object-oriented. The intent of this course is
to provide a basic understanding of a wide variety of programming
paradigms, such as logic programming, functional programming,
current programming, rule-based programming, and others.
One-term course offered either term
Prerequisite: CIS 121 or CIT 594 or equivalent
Activity: Lecture
1 Course Unit

CIS 555 Internet and Web Systems
This course focuses on the challenges encountered in building Internet
and web systems: scalability, interoperability (of data and code),
security and fault tolerance, consistency models, and location of
resources, services, and data. We will examine how XML standards
enable information exchange; how web services support cross-platform
interoperability (and what their limitations are); how to build high-
performance application servers; how "cloud computing" services work;
how to perform Akamai-like content distribution; and how to
provide transaction support in distributed environments. We will study
techniques for locating machines, resources, and data (including
directory systems, information retrieval indexing, ranking, and web
search); and we will investigate how different architectures support
scalability (and the issues they face). We will also examine ideas that
have been proposed for tomorrow's Web, and we will see some of the
challenges, research directions, and potential pitfalls. An important goal
of the course is not simply to discuss issues and solutions, but to provide
hands-on experience with a substantial implementation project. This
semester's project will be a peer-to-peer implementation of a Google-
type search engine, including distributed, scalable crawling; indexing
with ranking; and even PageRank. As a side-effect of the material of
this course you will learn about some aspects of large-scale software
development assimilating large APIs, thinking about modularity, reading
other people's code, managing versions, debugging, etc.
One-term course offered either term
Also Offered As: CIS 455
Prerequisites: Familiarity with threads and concurrency, strong Java
programming skills.
Activity: Lecture
1 Course Unit

CIS 556 Cryptography
This course is a graduate-level introduction to cryptography, both theory
and applications. Topics covered include symmetric cryptography,
message authentication, public-key cryptography, digital signatures,
cryptanalysis, cryptographic security, and secure channels, as well as
a selection of more advanced topics such as zero-knowledge proofs,
secure multiparty computation, privacy-enhancing technologies, or
lattice-based cryptography.
One-term course offered either term
Prerequisites: CIS 262, 320 or equivalent
Activity: Lecture
1 Course Unit

CIS 557 Programming for the Web
This course will focus on web programming. The first half will focus
on the basics of the internet and the Web, HTML and CSS, and basic
and advanced Ruby. The second half will focus on Rails. Teams (of
size 2-3) will build a web application in the second half of the semester
as the class project. Through Rails, we’ll explore the "culture" of web
programming such as agile methodology, testing, key aspects of software
engineering, using web services and APIs, and deploying to the cloud.
Prerequisites: CIS 121, CIT 594, or equivalent, or permission of the
instructor
Activity: Lecture
1 Course Unit

CIS 558 Computer Analysis and Modeling of Biological Signals and
Systems
A graduate course intended to introduce the use of signal and image
processing tools for analyzing and modeling biological systems.
We present a series of fundamental examples drawn from areas of
speech analysis/synthesis, computer vision, and modeling of biological
perceptual systems. Students learn the material through lectures and via
a set of computer exercises developed in MATLAB.
Course usually offered in spring term
Prerequisite: Undergraduate-level knowledge of linear algebra
Activity: Lecture
1 Course Unit

CIS 559 Programming and Problem Solving
This course develops students problem solving skills using techniques
that they have learned during their CS training. Over the course
of the semester, students work on group projects in which they
use programming techniques to solve open-ended problems, e.g.
optimization, simulation, etc. There are no "correct" answers to
these problems; rather, the focus is on the four steps of the problem
solving process: algorithmic thinking; programming; analysis; and
communication.
One-term course offered either term
Prerequisites: Proficiency in Java. CIS 320 or CIS 502, or equivalent
Activity: Lecture
1 Course Unit
CIS 560 Interactive Computer Graphics
This course focuses on programming the essential mathematical and geometric concepts underlying modern computer graphics. Using 3D interactive implementations, it covers fundamental topics such as mesh data structures, transformation sequences, rendering algorithms, and curve interpolation for animation. Students are also introduced to two programming languages widely used in the computer graphics industry: C++ and GLSL. The curriculum is heavily project-based, and culminates in a group project focused on building an interactive first-person world exploration application using the various real-time interaction and rendering algorithms learned throughout the semester.
Course usually offered in fall term
Also Offered As: CIS 460
Prerequisites: CIS 120 (CIS 120 and CIS 240 are useful pre- or co-requisites)
Activity: Lecture
1 Course Unit

CIS 561 Advanced Computer Graphics
This course is designed to provide a comprehensive overview to computer graphics techniques in 3D modeling, image synthesis, and rendering. Topics cover: geometric transformations, geometric algorithms, software systems, 3D object models (surface, volume and implicit), visible surface algorithms, image synthesis, shading, mapping, ray tracing, radiosity, global illumination, sampling, anti-aliasing, Monte Carlo path tracing, and photon mapping.
One-term course offered either term
Also Offered As: CIS 461
Prerequisites: A working knowledge of C++ programming is required (one year programming experience in general). Knowledge of vector geometry is useful.
Activity: Lecture
1 Course Unit

CIS 562 Computer Animation
This course covers core subject matter common to the fields of robotics, character animation and embodied intelligent agents. The intent of the course is to provide the student with a solid technical foundation for developing, animating and controlling articulated systems used in interactive computer games, virtual reality simulations and high-end animation applications. The course balances theory with practice by "looking under the hood" of current animation systems and authoring tools and examines the technologies and techniques used from both a computer science and engineering perspective. Topics covered include: geometric coordinate systems and transformations; quaternions; parametric curves and surfaces; forward and inverse kinematics; dynamic systems and control; computer simulation; keyframe, motion capture and procedural animation; behavior-based animation and control; facial animation; smart characters and intelligent agents.
One-term course offered either term
Also Offered As: CIS 462
Prerequisites: Previous exposure to major concepts in linear algebra (i.e. vector matrix math), curves and surfaces, dynamical systems (e.g. 2nd order mass-spring-damper systems) and 3D computer graphics has also been assumed in the preparation of the course materials.
Activity: Lecture
1 Course Unit

CIS 563 Physically Based Animation
This course introduces students to common physically based simulation techniques for animation of fluids and gases, rigid and deformable solids, cloth, explosions, fire, smoke, virtual characters, and other systems. Physically based simulation techniques allow for creation of extremely realistic special effects for movies, video games and surgical simulation systems. We will learn state-of-the-art techniques that are commonly used in current special effects and animation studios and in video games community. To gain hands-on experience, students will implement basic simulators for several systems. The topics will include: Particle Systems, Mass spring systems, Deformable Solids & Fracture, Cloth, Explosions & Fire, Smoke, Fluids, Deformable active characters, Simulation and control of rigid bodies, Rigid body dynamics, Collision detection and handling, Simulation of articulated characters, Simulated characters in games. The course is appropriate for both upper level undergraduate and graduate students.
One-term course offered either term
Prerequisites: Basic understanding of 3D graphics and animation, or equivalent coursework.
Activity: Lecture
1 Course Unit

CIS 564 Game Design and Development
The intent of the course is to provide students with a solid theoretical understanding of the core creative principles, concepts, and game play structures/schemas underlying most game designs. The course also will examine game development from an engineering point of view, including: game play mechanics, game engine software and hardware architectures, user interfaces, design documents, playtesting and production methods.
One-term course offered either term
Prerequisites: Basic understanding of 3D graphics and animation principles, prior exposure to scripting and programming languages such as Python, C and C++
Activity: Lecture
1 Course Unit

CIS 565 GPU Programming and Architecture
This course examines the architecture and capabilities of modern GPUs. The graphics processing unit (GPU) has grown in power over recent years, to the point where many computations can be performed faster on the GPU than on a traditional CPU. GPUs have also become programmable, allowing them to be used for a diverse set of applications far removed from traditional graphics settings. Topics covered include architectural aspects of modern GPUs, with a special focus on their streaming parallel nature, writing programs on the GPU using high level languages like Cg and BrookGPU, and using the GPU for graphics and general purpose applications in the area of geometry modeling, physical simulation, scientific computing and games. Students are expected to have a basic understanding of computer architecture and graphics, and should be proficient in OpenGL and C/C++. This course is appropriate as an upper-level undergraduate CIS elective.
One-term course offered either term
Prerequisites: CIS 460 or CIS 560, and familiarity with computer hardware/systems. The hardware/systems requirement may be met by CIS 501; or CIT 593 and 595; or CIS 240 (with CIS 371 recommended); or equivalent coursework.
Activity: Lecture
1 Course Unit
CIS 566 Procedural Computer Graphics
Sprawling cities, dense vegetation, infinite worlds - procedural graphics empower technical artists to quickly create complex digital assets that would otherwise be unfeasible. This course is intended to introduce the mathematical and algorithmic foundations of procedural modeling and animation techniques, and to offer hands-on experience designing and implementing visual recipes in original graphics projects by applying these methods. Students should have a strong interest in both the creative and technical aspects of computer graphics, as well as a solid programming background.
One-term course offered either term
Prerequisite: CIS 460 or CIS 560
Activity: Lecture
1 Course Unit

CIS 568 Game Design Practicum
The objective of the game design practicum is to provide students with hands-on experience designing and developing 3D computer games. Working in teams of three or four, students will brainstorm an original game concept, write a formal game design document then develop a fully functional prototype consisting of a playable level of the game. In addition to creation of original art and animation assets for the game, technical features to be designed and implemented include a novel game mechanic and/or user interaction model, game physics (i.e. particle systems and rigid body dynamics), character animation, game AI (i.e. movement control, path planning, decision making, etc.), sound effects and effects and background music, 2D graphical user interface (GUI) design and optional multiplayer networking capabilities. Consistent with standard industry practices, game code and logic will be written using C++ and popular scripting languages such as Python and Lua. State-of-the-art game and physics engine middleware also will be used to expose students to commercial-grade software, production methodologies and art asset pipelines. As a result of their game development efforts, students will learn first hand about the creative process, design documentation, object-oriented software design and engineering, project management (including effective team collaboration and communication techniques), design iteration through user feedback and play-testing, and most importantly, what makes a game fun to play.
One-term course offered either term
Prerequisite: CIS 462/CIS 562, CIS 461/CIS 562, or CIS 460/CIS 560
Corequisite: CIS 564
Activity: Lecture
1 Course Unit

CIS 573 Software Engineering
Writing a "program" is easy. Developing a "software product", however, introduces numerous challenges that make it a much more difficult task. This course will look at how professional software engineers address those challenges, by investigating best practices from industry and emerging trends in software engineering research. Topics will focus on software maintenance issues, including: test case generation and test suite adequacy; code analysis verification and model checking; debugging and fault localization; refactoring and regression testing; and software design and quality.
Course usually offered in fall term
Prerequisites: CIT 594 or CIS 350, or equivalent; proficiency in Java
Activity: Lecture
1 Course Unit

CIS 580 Machine Perception
An introduction to the problems of computer vision and other forms of machine perception that can be solved using geometrical approaches rather than statistical methods. Emphasis will be placed on both analytical and computational techniques. This course is designed to provide students with an exposure to the fundamental mathematical and algorithmic techniques that are used to tackle challenging image based modeling problems. The subject matter of this course finds application in the fields of Computer Vision, Computer Graphics and Robotics. Some of the topics to be covered include: Projective Geometry, Camera Calibration, Image Formation, Projective, Affine and Euclidean Transformations, Computational Stereoepsis, and the recovery of 3D structure from multiple 2D images. This course will also explore various approaches to object recognition that make use of geometric techniques, these would include alignment based methods and techniques that exploit geometric invariants. In the assignments for this course, students will be able to apply the techniques to actual computer vision problems. This course is appropriate as an upper-level undergraduate CIS elective.
Course usually offered in fall term
Prerequisites: A solid grasp of the fundamentals of linear algebra. Some knowledge of programming in C and/or Matlab
Activity: Lecture
1 Course Unit

CIS 581 Computer Vision & Computational Photography
This is an introductory course to Computer Vision and Computational Photography. This course will explore three topics: 1) image morphing, 2) image matching and stitching, and 3) image recognition. This course is intended to provide a hands-on experience with interesting things to do on images/videos. The world is becoming image-centric. Cameras are now found everywhere, in our cell phones, automobiles, even in medical surgery tools. Computer vision technology has led to latest innovations in areas such as Hollywood movie production, medical diagnosis, biometrics, and digital library. This course is suited for students from all Engineering backgrounds, who have the basic knowledge of linear algebra and programming, and a lot of imagination.
Course not offered every year
Activity: Lecture
1 Course Unit

CIS 597 Master's Thesis Research
For students working on an advanced research leading to the completion of a Master's thesis.
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

CIS 599 Independent Study for Masters Students
For master's students studying a specific advanced subject area in computer and information science. Involves coursework and class presentations. A CIS 599 course unit will invariably include formally gradable work comparable to that in a CIS 500-level course. Students should discuss with the faculty supervisor the scope of the Independent Study, expectations, work involved, etc.
One-term course offered either term
Activity: Independent Study
1 Course Unit
CIS 601 Advanced Topics in Computer Architecture
This course will focus on research topics in computer architecture, and include reading and presenting research papers and an optional project. The content will differ with each offering, covering topics such as multicore programmability, datacenter and warehouse-scale computing, security, energy-efficient architectures, etc.
One-term course offered either term
Prerequisite: CIS 501 or strong performance in CIS 371
Activity: Lecture
1 Course Unit

CIS 610 Advanced Geometric Methods in Computer Science
The purpose of this course is to present some of the advanced geometric methods used in geometric modeling, computer graphics, computer vision, etc. The topics may vary from year to year, and will be selected among the following subjects (nonexhaustive list): Introduction to projective geometry with applications to rational curves and surfaces, control points for rational curves, rectangular and triangular rational patches, drawing closed rational curves and surfaces; Differential geometry of curves (curvature, torsion, osculating planes, the Frenet frame, osculating circles, osculating spheres); Differential geometry of surfaces (first fundamental form, normal curvature, second fundamental form, geodesic curvature, Christoffel symbols, principal curvatures, Gaussian curvature, mean curvature, the Gauss map and its derivative dN, the Dupin indicatrix, the Theorema Egregium equations of Codazzi-Mainardi, Bonnet’s theorem, lines of curvatures, geodesic torsion, asymptotic lines, geodesic lines, local Gauss-Bonnet theorem).
Course usually offered in spring term
Prerequisite: CIS 510 or coverage of equivalent material
Activity: Lecture
1 Course Unit

CIS 613 Nonlinear Control Theory
The course studies issues in nonlinear control theory, with a particular emphasis on the use of geometric principles. Topics include: controllability, accessibility, and observability, for nonlinear systems; Forbenius’ theorem; feedback and input/output linearization for SISO and MIMO systems; dynamic extension; zero dynamics; output tracking and regulation; model matching disturbance decoupling; examples will be taken from mechanical systems, robotic systems, including those involving nonholonomic constraints, and active control of vibrations.
Course not offered every year
Also Offered As: ESE 617
Prerequisites: A sufficient background to linear algebra (ENM 510,511 or equivalent) and a course in linear control theory (MEAM 513 or equivalent), or written permission of the instructor.
Activity: Lecture
1 Course Unit

CIS 620 Advanced Topics in Machine Learning
This course covers a variety of advanced topics in machine learning, such as the following: statistical learning theory (statistical consistency properties of surrogate loss minimizing algorithms); approximate inference in probabilistic graphical models (variational inference methods and sampling-based inference methods); structured prediction (algorithms and theory for supervised learning problems involving complex/structured labels); and online learning in complex/structured domains. The precise topics covered may vary from year to year based on student interest and developments in the field.
Course usually offered in spring term
Prerequisite: CIS 520 or equivalent
Activity: Seminar
1 Course Unit

CIS 625 Computational Learning Theory
This course is an introduction to Computational Learning Theory, a field which attempts to provide algorithmic, complexity-theoretic and statistical foundations to modern machine learning. The focus is on topics in computational learning theory for researchers and students in artificial intelligence, neural networks, theoretical computer science, and statistics.
One-term course offered either term
Prerequisites: Prior courses in algorithms, complexity and statistics would be helpful but are not necessary.
Activity: Seminar
1 Course Unit

CIS 630 Advanced Topics in Natural Language Processing
Different topics selected each offering; e.g., NL generation, question-answering, information extraction, machine translation, restricted grammar formalisms, computational lexical semantics, etc.
One-term course offered either term
Prerequisite: CIS 530 or equivalent or permission of instructor
Activity: Seminar
1 Course Unit

CIS 640 Advanced Topics in Software Systems
Different topics selected for each course offering.
Course usually offered in spring term
Prerequisite: CIS 505 or equivalent
Activity: Seminar
1 Course Unit

CIS 650 Advanced Topics in Databases
Advanced topics in databases: distributed databases, integrity constraints, failure, concurrency control, relevant relational theory, semantics of data models, the interface between programming of languages and databases. Object-oriented databases. New topics are discussed each year.
Course usually offered in spring term
Prerequisite: CIS 550
Activity: Seminar
1 Course Unit

CIS 655 Advanced Topics in Artificial Intelligence
Different topics selected each offering; e.g., knowledge representation and reasoning, machine learning, natural language processing, robotics, etc.
One-term course offered either term
Prerequisite: Prior courses in either artificial intelligence or computer science
Activity: Seminar
1 Course Unit

CIS 660 Advanced Topics in Computer Graphics and Animation
The goal of the course is to review state-of-the-art research in the fields of computer graphics and animation as well as provide students with working knowledge of how to convert theory to practice by developing an associated graphics/animation authoring tool. The course is comprised of primers, lectures, student presentations and the authoring tool group project. Each student will be responsible for presenting one primer and at least two SIGGRAPH papers to the class. Working in teams of two, students will design and develop an authoring tool that that facilitates the creation of a new type of user interaction, animation/simulation capability or 3D graphics special effect. Research papers published in the SigGraph Conference proceedings will provide the basis for the features/functionality/special effects that can be selected for implementation in the authoring tool. Each group will analyze the need and user requirements for the tool they plan to develop, prepare a formal software design document, construct a project work plan, develop the authoring tool functionality and user interface, test the design and demonstrate the authoring of associated content. A plug-in to standard authoring tools such as Maya or Houdini must also be developed to enable importing of appropriate assets and/or exporting of results.
Course usually offered in spring term
Prerequisite: CIS 560 or permission of the instructor
Activity: Seminar
1 Course Unit
CIS 670 Advanced Topics in Programming Languages
The details of this course change from year to year, but its purpose is to cover theoretical topics related to programming languages. Some central topics include: denotational vs operational semantics, domain theory and category theory, the lambda calculus, type theory (including recursive types, generics, type inference and modules), logics of programs and associated completeness and decidability problems, specification languages, and models of concurrency. The course requires a degree of mathematical sophistication.
One-term course offered either term
Prerequisite: CIS 500
Activity: Seminar
1 Course Unit

CIS 673 Computer-Aided Verification
This course introduces the theory and practice of formal methods for the design and analysis of concurrent and embedded systems. The emphasis is on the underlying logical and automata-theoretic concepts, the algorithmic solutions, and heuristics to cope with the high computational complexity. Topics: Models and semantics of reactive systems; Verification algorithms; Verification techniques. Topics may vary depending on instructor.
One-term course offered either term
Prerequisites: Basic knowledge of algorithms, data structures, automatata theory, propositional logic, operating systems, communication protocols, and hardware (CIS 262, CIS 380, or permission of the instructor).
Activity: Lecture
1 Course Unit

CIS 677 Advanced Topics in Algorithms and Complexity
This course covers various aspects of discrete algorithms. Graph-theoretic algorithms in computational biology, and randomization and computation; literature in dynamic graph algorithms, approximation algorithms, and other areas according to student interests.
Course usually offered in fall term
Prerequisite: Consent of the instructor
Activity: Lecture
1 Course Unit

CIS 680 Advanced Topics in Machine Perception
Graduate seminar in advanced work on machine perception as it applies to robots as well as to the modeling of human perception. Topics vary with each offering.
Course usually offered in spring term
Prerequisites: A previous course in machine perception or knowledge of image processing, experience with an operating system and language such as Unix and C, and aptitude for mathematics.
Activity: Seminar
1 Course Unit

CIS 682 Friendly Logics
The use of logical formalisms in Computer Science is dominated by a fundamental conflict: expressiveness vs. algorithmic tractability. Database constraint logics, temporal logics and description logics are successful compromises in this conflict: (1) they are expressive enough for practical specifications in certain areas, and (2) there exist interesting algorithms for the automated use of these specifications. Interesting connections can be made between these logics because temporal and description logics are modal logics, which in turn can be seen, as can database constraint logics, as certain fragments of first-order logic. These connections might benefit research in databases, computer-aided verification and AI. Discussion includes other interesting connections, eg., with SLD-resolution, with constraint satisfaction problems, with finite model theory and with automata theory.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIS 700 Special Topics
One time course offerings of special interest. Equivalent to a CIS 5XX level course.
Course not offered every year
Activity: Lecture
1 Course Unit

CIS 800 PhD Special Topics
One-time course offerings of special interest. Equivalent to CIS seminar course. Offerings to be determined.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIS 895 Teaching Practicum
Enrollment for students participating in Teaching Practicum.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIS 899 Doctoral Independent Study
For doctoral students studying a specific advanced subject area in computer and information science. The Independent Study may involve coursework, presentations, or formally gradable work comparable to that in a CIS 500 or 600 level course. The Independent Study may also be used by doctoral students to explore research options with faculty. prior to determining a thesis topic. Students should discuss with the faculty supervisor the scope of the Independent Study, expectations, work involved, etc. The Independent Study should not be used for ongoing research towards a thesis, for which the CIS 999 designation should be used.
One-term course offered either term
Activity: Independent Study
1 Course Unit

CIS 990 Masters Thesis
For master’s students who have taken ten course units and need only to complete the writing of a thesis or finish work for incompletes in order to graduate. CIS 990 carries full time status with zero course units and may be taken only once.
Activity: Masters Thesis
1 Course Unit
CIS 995 Dissertation
For Ph.D. candidates working exclusively on their dissertation research, having completed enrollment for a total of ten semesters (fall and spring). There is no credit or grade for CIS 995.
Activity: Dissertation
1 Course Unit

CIS 996 Research Seminar
Introduction to research being conducted in the department. Mandatory for first-year doctoral students. Taken as fifth course for no credit at no cost.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIS 999 Thesis/Dissertation Research
For students pursuing advanced research to fulfill PhD dissertation requirements.
One-term course offered either term
Activity: Independent Study
1 Course Unit
CIT 590 Programming Languages and Techniques.
Introduction to fundamental concepts of programming and computer science for students who have little or no experience in these areas. Principles of modern object-oriented programming languages: abstraction, types, polymorphism, encapsulation, and inheritance. Basic algorithmic techniques and informal complexity analysis. Graphical user interfaces. Substantial programming assignments in Python and Java. This course is for students who do not have an academic background in computer science and who are not pursuing the Master’s in Computer Information Technology and who are not graduate students in the CIS Department.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIT 591 Introduction to Software Development
Introduction to fundamental concepts of programming and computer science. Principles of modern object-oriented programming languages: abstraction, types, polymorphism, encapsulation, inheritance, and interfaces. This course will also focus on best practices and aspects of software development such as software design, software testing, pair programming, version control, and using IDEs. Substantial programming assignments.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIT 592 Mathematical Foundations of Computer Science
This course introduces you to math concepts that form the backbone of the majority of computer science. Topics covered include sets, functions, permutations and combinations, discrete probability, expectation, mathematical induction and graph theory. The goal of the course is to ensure that students are comfortable enough with the math required for most of the CIS electives. CIS 502 and CIT596 heavily rely on concepts taught in this course.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIT 593 Introduction to Computer Systems
This course provides an introduction to fundamental concepts of computer systems and computer architecture. You will learn the C programming language and an instruction set (machine language) as a basis for understanding how computers represent data, process information, and execute programs. The course also focuses on the Unix environment and includes a weekly hands-on lab session.
One-term course offered either term
Activity: Lecture
1 Course Unit

CIT 594 Data Structures and Software Design
This course will focus on data structures, software design, and advanced Java. The course starts off with an introduction to data structures and basics of the analysis of algorithms. Important data structures covered will include arrays, lists, stacks, queues, trees, hash maps, and graphs. The course will also focus on software design and advanced Java topics such as software architectures, design patterns, networking, multithreading, and graphics. We will use Java for the entire course.
One-term course offered either term
Prerequisite: CIT 591 or consent of the instructor
Activity: Lecture
1 Course Unit

CIT 595 Computer Systems Programming
This course builds on your knowledge of C and focuses on systems programming for Linux, specifically the libraries that programmers use for threading and concurrency, synchronization, inter-process communication, and networking. The course also introduces the C++ programming language, and covers important concepts in modern operating systems, including processes, scheduling, caching, and virtual memory. After completing this course, you will have the requisite knowledge and experience for systems-focused CIS graduate-level electives.
One-term course offered either term
Prerequisites: CIT 591 or equivalent.
Activity: Lecture
1 Course Unit

CIT 596 Algorithms and Computation
This course focuses primarily on the design and analysis of algorithms. We will begin with sorting and searching algorithms and then spend most of the course on graph algorithms. In order to study graph algorithms, general algorithm design patterns like dynamic programming and greedy algorithms will be introduced. A section of this course is also devoted to understanding NP-Completeness.
One-term course offered either term
Prerequisite: CIT 592 or equivalent
Activity: Lecture
1 Course Unit
CREATIVE WRITING (CRWR)

CRWR 101 Creative Writing
The Craft of Creative Writing is designed for students who are new to creative writing or who would like to return to the fundamentals of craft. Through frequent writing assignments, assigned readings and collaborative discussions, students familiarize themselves with a variety of styles and approaches, exploring a range of literary genres including poetry, fiction, creative nonfiction, memoir and journalistic prose. Students are expected to hone their skills in creative practice, to revise and take risks with their work and to cultivate their habits of close reading and peer workshop.
Activity: Online Course
1 Course Unit

CRWR 160 Modern and Contemporary US Poetry
In this fast-paced introductory course, students read and discuss a wide range of modern and contemporary American poets, beginning with Emily Dickinson and Walt Whitman and ending with 21st-century avant-garde poets like Tracie Morris. Questions central to this course include "How does experimental poetry help us understand the transition between modernism and postmodernism?" and "What is the relationship between experimental poetry and experimental teaching?" The poems and poets we study challenge students to read critically and think differently about what a poem is, about what art can be and about what poetry can teach us about reading, writing and learning. Students do not need to have any prior knowledge of poetry or poetics. The course operates primarily as a discussion. Rather than attending lectures, students participate in web-based discussions of the poems, accessible in text, audio and video formats. Requirements include active participation in the online discussion forums, in addition to five short papers, quizzes, creative exercises and a comprehensive final examination.
Activity: Online Course
1 Course Unit

CRWR 300 Writing About Place
This multi-genre, collaborative workshop is devoted to writing of and about place both literally writing about the city or the landscape, for example and figuratively writing that engages thematically and formally with location, with displacement and with the writing process itself as a form of mapping and belonging.
Activity: Online Course
1 Course Unit
CRIM 100 Criminology

This introductory course examines the multi-disciplinary science of law-making, law-breaking, and law-enforcing. It reviews theories and data predicting where, when, by whom and against whom crimes happen. It also addresses the prevention of different offense types by different kinds of offenders against different kinds of people. Police, courts, prisons, and other institutions are critically examined as both preventing and causing crime. This course meets the general distribution requirement.

For BA Students: Society Sector
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 200 Criminal Justice

This course examines how the criminal justice system responds to crime in society. The course reviews the historical development of criminal justice agencies in the United States and Europe and the available scientific evidence on the effect these agencies have on controlling crime. The course places an emphasis on the functional creation of criminal justice agencies and the discretionary role decision makers in these agencies have in deciding how to enforce criminal laws and whom to punish. Evidence on how society measures crime and the role that each major criminal justice agency plays in controlling crime is examined from the perspective of crime victims, police, prosecutors, jurors, judges, prison officials, probation officers and parole board members. Using the model of social policy evaluation, the course asks students to consider how the results of criminal justice could be more effectively delivered to reduce the social and economic costs of crime.

For BA Students: Society Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit

CRIM 240 Forensic Analysis

This course discusses the need for stronger scientific foundations in the analysis of forensic evidence from a scientific and a policy perspective. Forensic evidence, such as fingerprints, firearms, and hair, has been analyzed for hundreds of years to inform crime investigations and prosecutions. However, recent advances, especially the use of DNA technology, have revealed that a faulty forensic analyses may have contributed to wrongful convictions. These advances have demonstrated the potential danger of information and testimony derived from imperfect analysis, which can result not just in wrongful convictions but also in errors of impunity. In this course, students learn about the history of forensics, as well as about the recent advances that aim to improve current practices. It is an interdisciplinary course, but it focuses mostly on the statistical and scientific aspects of testing in forensics. Students discuss recent solutions that quantify the uncertainty, limitations, and errors associated with human factors, pattern evidence, and digital evidence. No prior statistical or forensic knowledge is expected. The course will be useful for students who wish to become forensic practitioners, law enforcement officers, lawyers, judges, researchers, or simply informed citizens.

Taught by: Cuellar
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CRIM 250 Statistics for the Social Sciences I

Statistical techniques and quantitative reasoning are essential tools for properly examining questions in the social sciences. This course introduces students to the concepts of probability, estimation, confidence intervals, and how to use the statistical concepts and methods to answer social science questions. The course will require the use of R, a free, open source statistical analysis program. This course has been approved for the quantitative data analysis requirement (QDA).

Taught by: Ridgeway
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 251 Statistics for the Social Sciences II

In this course, students learn to conduct quantitative data analyses for social sciences, with an emphasis on identifying causal relationships in data. Many social science analyses aim to answer causal questions: Do longer prison sentences reduce crime? Do tougher gun laws reduce homicides and suicides? Can summer jobs help keep youth safe? Students will learn about research designs and data analysis methods to answer these kinds of questions, and especially to learn to implement them in practice. The goal of this class is to help students conduct their own analyses, and to become critical readers of statistical analyses, both in social science publications and in public discourse. The focus will be on what to compute and how to interpret the results. The emphasis is on the intelligent use of statistics. We will be using R, an open-source programming language.

Course usually offered in spring term
Prerequisite: CRIM 250
Activity: Lecture
1 Course Unit

CRIM 250 Crime and Human Development

One of the central research problems in criminology is the relationship between human development and the likelihood of committing crime. This course will examine the tools for measuring the onset of crime, its persistence, intermittency, and desistence. These tools include the study of birth cohorts of everyone born in a certain time and place, life course studies of juvenile delinquents and non-delinquents, trajectory analysis of people studied from pre-school through middle age, and interviews with 70 year old former delinquents who reflect on how their life-course affected the crimes they committed. This course will also examine the research findings that have been produced using these tools. Students will be asked to consider what these findings imply for major theories of crime causation as well as policies for crime prevention.

Course usually offered in spring term
Activity: Lecture
1 Course Unit
CRIM 270 Biopsychosocial Criminology
Is there a "natural-born killer"? Why don't psychopaths have a conscience? And is it morally wrong for us to punish those who are biologically-wired for a life of crime? This interdisciplinary biosocial course argues that answers to these inscrutable questions can be found in the fledging field of "neurocriminology". This new sub-discipline brings together the social, clinical, and neurosciences to help us better understand, predict, and prevent future crime. We will explore the biosocial bases to crime and violence, analyze controversial neuroethical, legal and philosophical issues surrounding neurocriminology, and take a field trip to prison. This interdisciplinary course presents perspectives from the fields of psychology, neuroscience, criminology, sociology, law, business, public health, psychiatry, anthropology, neuroimaging, neuroendocrinology, forensics, nutrition, and pediatrics. It is suitable for those without a background in biology or criminology. It is particularly relevant for majors in Criminology, Psychology, Nursing, and Biological Basis of Behavior.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 280 Neighborhood Dynamics of Crime
Crime varies in time, space and populations as it reflects ecological structures and the routine social interactions that occur in daily life. Concentrations of crime can be found among locations, with antisocial activities like assaults and theft occurring at higher rates because of the demographic make-up of people (e.g. adolescents) or conflicts (e.g. competing gangs), for reasons examined by ecological criminology. Variation in socio-demographic structures (age, education ratios, and the concentration of poverty) and the physical environment (housing segregation, density of bars, street lighting) predicts variations between neighborhoods in the level of crime and disorder. Both ethnographic and quantitative research methods are used to explore the connections between the social and physical environment of areas and antisocial behavior.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CRIM 300 Law and Criminal Justice
This course explores constitutional criminal procedure or the law of the Fourth, Fifth, and Sixth Amendments to the United States Constitution. Topics included the laws and rules associated with search and seizure, arrest, interrogation, the exclusionary rule, and deprivation of counsel. Social science evidence that supports or raises questions about legal doctrine will be examined. No prerequisites are required.
One-term course offered either term
Activity: Lecture
1 Course Unit

CRIM 315 American Death Penalty in Theory and Practice
Over the past forty years, in response to controversy over the American death penalty, the Supreme Court has created a framework of rules designed to make the death penalty conform to current societal standards. In this course, we will identify the critical issues identified by the courts (and the critics) in light of the practical realities of capital litigation, and we will ask whether the efforts to address these issues have been successful. The class will use specific case examples to identify the critical points in a death penalty case: for example, the decision to designate a prosecution as "capital", the performance of defense counsel, the penalty decision, and the method of execution. These critical stages will provide a platform for discussing critical issues like the proper limits of discretion; bias; cruelty; and the decision to disqualify certain groups of people from capital punishment (the mentally disabled, minors).
Taught by: Dolgenos
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 400 Criminal Justice Data Analytics
This course covers the tools and techniques to acquire, organize, link and visualize complex data in order to answer questions about crime and the criminal justice system. The course is organized around key questions about police shootings, victimization rates, identifying crime hotspots, calculating the cost of crime, and finding out what happens to crime when it rains. On the way to answer these questions, the course will cover topics including data sources, basic programming techniques, SQL, regular expressions, webscraping, and working with geographic data. The course will use R, an open-source, object oriented scripting language with a large set of available add-on packages.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 410 Research Seminar in Experiments in Crime and Justice
This course covers the tools and techniques to acquire, organize, link and visualize complex data in order to answer questions about crime and the criminal justice system. The course is organized around key questions about police shootings, victimization rates, identifying crime hotspots, calculating the cost of crime, and finding out what happens to crime when it rains. On the way to answer these questions, the course will cover topics including data sources, basic programming techniques, SQL, regular expressions, webscraping, and working with geographic data. The course will use R, an open-source, object oriented scripting language with a large set of available add-on packages.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 410 Research Seminar in Experiments in Crime and Justice
This course covers the tools and techniques to acquire, organize, link and visualize complex data in order to answer questions about crime and the criminal justice system. The course is organized around key questions about police shootings, victimization rates, identifying crime hotspots, calculating the cost of crime, and finding out what happens to crime when it rains. On the way to answer these questions, the course will cover topics including data sources, basic programming techniques, SQL, regular expressions, webscraping, and working with geographic data. The course will use R, an open-source, object oriented scripting language with a large set of available add-on packages.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 450 Senior Research Thesis
Senior Research Thesis is for senior Criminology majors only. Students are assigned advisors with assistance from the Undergraduate Chair.
Course usually offered in spring term
Activity: Senior Thesis
1 Course Unit
Notes: CRIM:410
CRIM 474 Modern Regression for the Social, Behavioral and Biological Sciences
This course covers supervised learning: various forms of nonparametric regression and machine learning. It assumes at least one solid course in conventional linear regression, although that framework is discarded the first week of class. Intuitive explanations for key statistical concepts are provided with little dependence on formal mathematics. Grades are based on research reports in which modern statistical procedures are applied to real and challenging datasets. Some might call these exercises “analytics”. All class demonstrations are done with the programming language R, and R is required for the research reports. Course usually offered in spring term
Activity: Lecture
1 Course Unit

CRIM 535 Introduction to Quantitative Methods for Policy Analysis
This course provides an introduction to applied statistical techniques in the social sciences and is tailored, in particular, to students pursuing the master of science degree in the Department of Criminology. It is taught as a basic course in statistics and presumes minimal mathematical or statistical background. We’ll begin with a brief introduction to the research process. We’ll then cover the computation, interpretation and understanding of basic descriptive statistics, distribution, hypothesis testing, measures of association and finally regression analysis. Depending on how much time we have, we will cover several more advanced topics in regression analysis at the end of the semester. Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 600 Pro-Seminar in Criminology
This course provides an overview of the leading criminological theories of crime. The central focus is on the major theories of crime developed over the past century from the disciplines of economics, psychology, and sociology. The course will focus on the application of social science research as a way to evaluate theories of crime. Special attention is devoted to the issues of measurement of crime and what is known from the available empirical data. In addition, the course will focus on how these theoretical perspectives relate to public policy responses to crime. Course usually offered in fall term
Activity: Seminar
1 Course Unit

CRIM 601 Pro-Seminar in Criminal Justice
This course provides an overview of what we know about the criminal justice system in the United States and other developed nations. The central purpose of the course is to increase your knowledge about how the U.S. criminal justice system works but we will also spend a great deal of time thinking about the quality of the available evidence and how we know what we know. Topics covered will vary from year to year; recent topics have included police use of force, capital punishment, pre-trial detention, the use of predictive algorithms in the criminal justice system and the relationship between immigration and crime in the United States. Course usually offered in spring term
Prerequisite: CRIM 600
Activity: Seminar
1 Course Unit

CRIM 602 Criminal Justice Data Analytics
This course covers the tools and techniques to acquire, organize, link and visualize complex data in order to answer questions about crime and the criminal justice system. The course is organized around key questions about police shootings, victimization rates, identifying crime hotspots, calculating the cost of crime, and finding out what happens to crime when it rains. On the way to answer these questions, the course will cover topics including data sources, basic programming techniques, SQL, regular expressions, web scraping, and working with geographic data. The course will use R, an open-source, object oriented scripting language with a large set of available add-on packages. Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 603 Research Methods/Crime Analysis
This course provides an overview of the application of social science research methods and data analysis to criminology. Students will learn research design principles and statistical techniques for the analysis of social science data, including how to interpret results as part of the rigorous practice of evidence-based criminology. M.S. students will conduct a semester-long, data-intensive crime analysis project using quantitative methods to address a specific research question. Student projects culminate with a poster presentation, an oral defense, and the submission of a written research paper. Course usually offered in spring term
Activity: Seminar
1 Course Unit

CRIM 604 Criminology in Practice
In this capstone course, students will meet weekly with guests who work on or close to the front line of the criminal justice system. Past guests have included police chiefs, forensic scientists, lobbyists for gun rights and lobbyist for gun control, formerly incarcerated individuals, crime analysts, directors of sentencing commissions, prosecutors and defenders, politicians, and researchers at research organizations working closely with criminal justice agencies. Guests share their career paths, the roles of their organizations in the justice system, and key justice system challenges. Students interact with all guest speakers. Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

CRIM 634 Evidence-Based Crime Prevention
This course considers the use of evidence to identify effective crime prevention policies. The course will teach students to think critically about what constitutes convincing evidence, use benefit-cost analysis in comparing policy alternatives, and write effective policy memos that can translate research into practice. We will develop these skills by studying the effects of different policy approaches to crime prevention including incarceration, policing, gun control, drug regulation, and place-based interventions, as well as education, social programs, and labor market policies. Emphasis will be on the methodological challenges to identifying "what works" and the empirical methods to overcome those challenges. Course usually offered in fall term
Activity: Lecture
1 Course Unit
CRIM 671 Violence: A Clinical Neuroscience Approach
Developed for both Psychology and Criminology graduates in particular, this interdisciplinary course outlines a clinical neuroscience approach to understanding violence in which the tools of neuroscience-neuroanatomy, neurophysiology, neurocognition, neuroendocrinology, neuropharmacology, molecular and behavioral genetics- are used to help inform the etiology and treatment of violence. Clinical components include psychopathy, proactive and reactive aggression, homicide, domestic violence, conduct disorder, oppositional defiant disorder, antisocial personality disorder, crime, and delinquency as well as their comorbid conditions (schizophrenia, drug abuse, hyperactivity). The interaction between social, psychological, and neurobiological processes in predisposing to violence will be highlighted, together with neurodevelopmental perspectives on violence focusing on prospective longitudinal and brain imaging research. Key implications for the criminal justice system, neuroethics, forensics psychology, and intervention will also be outlined.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

CRIM 700 Advanced Pro-Seminar in Criminology
This second year doctoral course is a weekly discussion group designed to help students integrate their coursework from different disciplines around the unifying perspectives of criminology. It focuses on preparation for the doctoral comprehensive examination, detailed critiques of published research reports, and colloquia by leading guest lecturers presenting new research results. Students preparing for dissertation research on the causes and prevention of crime will report on their developing research ideas.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

CRIM 701 Advanced Pro-Seminar in Criminal Justice
This second year doctoral course is a weekly discussion group designed to help students integrate their coursework from different disciplines around the behavior and operation of criminal law systems. It focuses on preparation for the doctoral comprehensive examination, detailed critiques of published and unpublished research reports, and colloquia by leading guest lecturers presenting new research results. Students preparing for dissertation research on the behavior of criminal law will report on their developing research ideas.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

CRIM 999 Independent Study and Research
Primarily for advanced students who work with individual faculty upon permission. Intended to go beyond existing graduate courses in the study of specific problems or theories or to provide work opportunities in areas not covered by existing courses.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Both terms.
DEMOGRAPHY (DEMG)

DEMG 535 Quantitative Methods in Sociology I
This course is an introduction to the practice of statistics in social and behavioral sciences. It is open to beginning graduate students and—with the permission of the instructor—advanced undergraduates. Topics covered include the description of social science data, in graphical and non-graphical form; correlation and other forms of association, including cross-tabulation; bivariate regression; an introduction to probability theory; the logic of sampling; the logic of statistical inference and significance tests. There is a lecture twice weekly and a mandatory "lab." Taught by: Allison, Smith, Kohler
Course usually offered in fall term
Prerequisite: Basic algebra
Activity: Lecture
1 Course Unit

DEMG 536 Quantitative Methods in Sociology II
As the second part of a two-semester sequence, this graduate course focuses on regression analysis as used in social science research. In particular, we discuss features and assumptions of linear regression and logistic regression models. We learn how to apply regression models to real social science data using Stata and how to interpret the results. Taught by: Allison, Kohler, Park, Schnittker, Smith
Course usually offered in spring term
Prerequisite: SOCI 535 or permission of instructor
Activity: Lecture
1 Course Unit

DEMG 541 Gender, Lbr Frce & Mkts
Course not offered every year
Activity: Seminar
1 Course Unit

DEMG 604 Methodology of Social Research
This course will give students familiarity with the common research methods social scientists use to conduct research. Ethnographic, interview, survey, experimental and historical/comparative research methods will be covered. Four themes will be explored: 1) the basics of solid research design, 2) the various advantages and disadvantages of each method, 3) when the use of a method is appropriate or inappropriate for the research question, and 4) how to evaluate researchers' claims on the basis of the evidence they present. These themes will be explored by reading examples of and conducting exercises designed to give students hands-on experience in each of the methods. Students will conduct the exercises on a topic of their choice, which together will culminate in their final paper. The course is required and restricted to second year students in sociology and demography.
Taught by: Smith, Wilde, Zuberi
Course usually offered in spring term
Activity: Lecture
1 Course Unit

DEMG 607 Introduction to Demography
A nontechnical introduction to fertility, mortality and migration and the interrelations of population with other social and economic factors.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

DEMG 609 Basic Methods of Demography
The course is designed to introduce students to basic concepts of demographic measurement and modeling used to study changes in population size and composition. The course covers basic measures of mortality, fertility and migration; life table construction; multiple decrement life tables; stable populations; population projections; and age patterns of vital events. Students will learn to apply demographic methods through a series of weekly problem sets.
Taught by: Elo, Guillot, Smith
Course usually offered in fall term
Activity: Lecture
1 Course Unit

DEMG 611 Struct Equation Model
Statistical modeling with multiple equations and latent variables. The first part of the course will focus on linear models that could be estimated with any of the well-known SEM programs (e.g., LISREL, EQS, or Amos). Both Mplus and SAS will be used exclusively in this part of the course.
The second part will focus on Mplus models for variables that are categorical, count, or censored. Maximum likelihood methods for missing data will also be covered.
Taught by: Allison
Course not offered every year
Activity: Lecture
1 Course Unit

DEMG 612 Categorical Data Analysis
This course deals with techniques for analyzing multivariate data which the dependent variable is a set of categories (a dichotomy or polytomy). Topics will include linear probability models, logit (logistic) regression models, probit models, logit analysis of contingency tables, cumulative logit and probit (for ordinal data), multinomial logit, conditional logit (discrete choice), unobserved heterogeneity, log-linear models, square tables, response-based sampling, and repeated measures. Methods will be illustrated using the Stata System. There will be several assignments using Stata to analyze data provided by the instructor.
Taught by: Allison
Course not offered every year
Activity: Lecture
1 Course Unit

DEMG 613 Event History Analysis
An applications-oriented course on statistical methods for the analysis of longitudinal data on the occurrence of events, also known as survival analysis, failure-time analysis, hazard analysis or duration analysis. Emphasis on regression-like models in which the risk of event occurrence is a function of a set of explanatory variables. Topics include accelerated failure-time models, hazard models, censoring, Cox regression models, time-dependent covariates, completing risks, repeated events, unobserved heterogeneity, discrete-time methods.
Taught by: Allison
Course not offered every year
Prerequisite: SOCI 536 or equivalent
Activity: Lecture
1 Course Unit
**DEMG 621 Health, Mortality & Population Aging**
The course focuses on the description and explanation of health and mortality in human populations and their variability across several dimensions such as age, time, place, social class, race etc. The course includes general theories of health, mortality and morbidity, investigations of mortality and related processes in developing and developed countries, and discussions of future mortality trends and their implications for individual lives and the society at large.

Taught by: Elo
Course not offered every year
Activity: Lecture
1 Course Unit

**DEMG 622 Fertility**
The biological, social and demographic factors explaining the levels, trends and differentials in human fertility. Data, measures, and methods used in the context of the more and the less developed countries, with an emphasis on the historical and current course of the fertility transition.

Taught by: Smith, Kohler, H
Course not offered every year
Activity: Seminar
1 Course Unit

**DEMG 630 Advanced Special Topics**
Topics vary from semester to semester. Course titles include: Race, Colonialism & Methods; Mistakes, Errors, Accidents & Disasters, Graduate Research Practicum, Sociology of Violence: Gangs & Organized Crime.

Course not offered every year
Activity: Seminar
1 Course Unit

**DEMG 634 Population Processes II**
Population Processes II is a two-course sequence designed to introduce students to the core areas of demography (fertility, mortality, and migration) and recent developments in the field. PP II is divided into two parts. The first focuses on family demography and the biological, social and demographic factors explaining levels, trends, and differentials in human fertility transition with an emphasis on the historical and current course of fertility transition in developed and developing countries. The second part of the course provides a comprehensive review of theories and research on international migration. Readings examine patterns and processes of global migration during the classic age from 1800-1914 as well as during the postwar period from 1945 to the present. The course also covers a history and evaluation of immigration policies around the world, and devotes significant attention to theoretical and empirical perspectives on immigrant adaptation. Within this larger topic, we will also discuss internal migration and urbanization; the relationship between gender and migration; the spatial distribution of immigrants within the United States, immigrant communities, and ethnic enclaves; and the undocumented population in the United States.

Taught by: Flippen
Course not offered every year
Activity: Seminar
1 Course Unit

**DEMG 643 Social Stratification**
This is an advanced level graduate seminar where we will review contemporary research on social stratification and mobility. We will examine empirical and theoretical studies not only in the US but also in other countries to address how the pattern of social stratification varies across societies and over time. The main topics to be discussed are social mobility, occupational attainment, educational inequality, gender and race, and family processes and stratification. We will also examine studies that address how national contexts mediate social stratification. Advanced undergraduate students will be admitted with permission.

Taught by: Jacobs, Park
Course not offered every year
Activity: Lecture
1 Course Unit

**DEMG 662 Panel Data Analysis**
Course not offered every year
Activity: Lecture
1 Course Unit

**DEMG 677 International Migration**
A comprehensive review of theories and research on international migration. The course introduces the basic concepts of neoclassical economics, the new economics of labor migration, segmented labor market theory, world systems theory, social capital theory and the theory of cumulative causation. Readings examine patterns and processes of global migration during the classic age from 1800-1914 as well as during the postwar period from 1945 to the present. The course also covers a history and evaluation of immigration policies around the world, and devotes significant attention to theoretical and empirical perspectives on immigrant adaptation. Within this larger topic, we will also discuss internal migration and urbanization; the relationship between gender and migration; the spatial distribution of immigrants within the United States, immigrant communities, and ethnic enclaves; and the undocumented population in the United States.

Taught by: Flippen
Course not offered every year
Activity: Seminar
1 Course Unit

**DEMG 707 Second-Year Research Seminar I**
This course is intended to hone the skills and judgment in order to conduct independent research in sociology and demography. We will discuss the selection of intellectually strategic research questions and practical research designs. Students will get experience with proposal writing, the process of editing successive drafts of manuscripts, and the oral presentation of work in progress as well as finished research projects. The course is designed to be the context in which master's papers and second year research papers are written. This is a required course for second year graduate students in Demography. Others interested in enrolling in only one of the courses may do so with the permission of the Chair of the Graduate Group in Demography.

Course usually offered in fall term
Activity: Seminar
1 Course Unit
DEM 708 Second-Year Research Seminar II
Demography 708 is the second part of a two-course sequence designed to introduce and familiarize second year students with current norms for academic research, presentation and publishing in the field of Demography. In DEM 708 students are expected to finalize the analyses and to complete their second year research paper. This is a required course for second year demography students. Others interested in enrolling in the course may do so with the permission of the Chair of the Graduate Group in Demography. Course usually offered in spring term
Activity: Seminar
1 Course Unit

DEM 731 Advanced Demographic Methods
This course considers a variety of procedures for measuring and modeling demographic processes. We will consider both deterministic (drawn from classic demographic methods, stable population theory, and the like) and stochastic (drawn from statistics) perspectives and methods, including their integration. Prerequisites: DEMG 609 and SOCI 536 (or its equivalent).
Taught by: Smith
Course not offered every year
Prerequisites: DEMG 609 and SOCI 536 (or its equivalent)
Activity: Seminar
1 Course Unit

DEM 796 Demographic, Economic, and Social Interrelations
The course investigates economic and social determinants of fertility, mortality, and migration, and it discusses the effects of population variables on economic and social conditions, including economic and social development. Topics discussed in the course include: How do economic changes affect marriage, divorce, and child bearing decisions? How do households make decisions about transfers and requests? How can economic and sociological approaches be combined in explanatory models of demography change? How does immigration to the US affect the ethnic composition of the population, the earnings of native workers, taxes on natives, and the macro-economy? What causes the aging of populations, and how will population aging affect the economies of industrial nations, and in particular, pension programs like Social Security? What accounts for the rise in women's participation in the wage labor force over the past century? How are family composition and poverty interrelated? Does rapid population growth slow economic development with low income countries? In addition to these topics, the course also covers selected methods not included in DEMG 535, DEMG 536 or DEMG 609.
Taught by: Kohler
Course not offered every year
Activity: Lecture
1 Course Unit

DEM 999 Independent Study
Primarily for advanced students who work with individual instructors upon permission. Intended to go beyond existing graduate courses in the study of specific problems or theories or to provide work opportunities in areas not covered by existing courses.
One-term course offered either term
Activity: Independent Study
1 Course Unit
DUTCH (DTCH)

DTCH 000 Dutch As A Foreign Language
Activity: Lecture
1 Course Unit

DTCH 101 Elementary Dutch I
A first semester language course covering the core Dutch grammar and vocabulary with the goal of providing the corner stone for developing overall linguistic proficiency in Dutch.
For BA Students: Language Course
Taught by: Naborn
Course usually offered in fall term
Activity: Lecture
1 Course Unit

DTCH 102 Elementary Dutch II
Continuation of DTCH 101.
For BA Students: Language Course
Taught by: Naborn
Course usually offered in spring term
Activity: Lecture
1 Course Unit

DTCH 103 Intermediate Dutch I
A third semester Dutch language course. The emphasis lies on vocabulary expansion through the use of audio-taped materials and readings. Grammar is expanded beyond the basics and focuses on compound sentences, features of text coherence and idiomatic language usage.
For BA Students: Language Course
Taught by: Naborn
Course usually offered in fall term
Prerequisites: Dutch 102 or equivalent.
Activity: Lecture
1 Course Unit

DTCH 104 Intermediate Dutch II
A fourth semester Dutch language course.
For BA Students: Last Language Course
Taught by: Naborn
Course usually offered in spring term
Prerequisites: Dutch 103 or equivalent.
Activity: Lecture
1 Course Unit

DTCH 230 Topics in Dutch Studies.
Topics vary annually.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Taught in English

DTCH 261 Netherlandish Art
Dutch and Flemish painting in the 15th and 16th centuries with special emphasis on the contributions of Robert Campin, Jan van Eyck and Roger van der Weyden, Bosch, and Bruegel.
Taught by: Silver
Course not offered every year
Activity: Lecture
1 Course Unit

DTCH 262 Topics in North Baroque
Taught by: Silver
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary.

DTCH 501 Elementary Dutch I
A first semester Dutch language course covering the core Dutch grammar and vocabulary with the goal of providing the corner stone for developing overall linguistic proficiency in Dutch.
For BA Students: Language Course
Taught by: Naborn
Course usually offered in fall term
Activity: Lecture
1 Course Unit

DTCH 502 Elementary Dutch II
Continuation of DTCH 501.
For BA Students: Language Course
Taught by: Naborn
Course usually offered in spring term
Activity: Lecture
1 Course Unit

DTCH 503 Intermediate Dutch I
A third semester Dutch language course. The emphasis lies on vocabulary expansion through the use of audio-taped materials and readings. Grammar is expanded beyond the basics and focuses on compound sentences, features of text coherence and idiomatic language usage.
For BA Students: Language Course
Taught by: Naborn
Course usually offered in fall term
Prerequisites: DTCH 502 or equivalent.
Activity: Lecture
1 Course Unit

DTCH 504 Intermediate Dutch II
For BA Students: Last Language Course
Taught by: Naborn
Course usually offered in spring term
Activity: Lecture
1 Course Unit

Topics vary annually. Topic for Spring 2016 is: “20th Century Paintings and Literature in the Low Countries”
Course not offered every year
Activity: Seminar
1 Course Unit

DTCH 601 The Title for Spring 2014 is: German Prints & Drawings.
Development of the major graphic media and subjects from Schongauer through the sixteenth century. Regular visits to Philadelphia Museum of Art.
Taught by Silver
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Topics change annually.
DTCH 661 Topics in N. Ren Art
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary.

DTCH 665 Topics in North Baroque
Taught by: Silver, Larry
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary.
EAST ASIAN LANGUAGES & CIVILIZATION (EALC)

EALC 001 Introduction to Chinese Civilization
Survey of the civilization of China from prehistoric times to the present.
For BA Students: History and Tradition Sector
Taught by: Goldin, Atwood, Smith, Cheng
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EALC 002 Introduction to Japanese Civilization
Survey of the civilization of Japan from prehistoric times to the present.
For BA Students: History and Tradition Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Fulfills Cross-Cultural Analysis

EALC 003 Introduction to Korean Civilization
This gateway course surveys the history of Korea from early times to the present. We will study the establishment of various sociopolitical orders and their characteristics alongside major cultural developments. Covered topics include: state formation and dissolution; the role of ideology and how it changes; religious beliefs and values; agriculture, commerce, and industry; changing family relations; responses to Western imperialism; and Korea's increasing presence in the modern world as well as its future prospects. Students will also be introduced to various interpretive approaches in the historiography.
For BA Students: History and Tradition Sector
Taught by: Park
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 007 East Asia: Past and Present
This course surveys the history of East Asia from early times to the present. We will study the establishment of various sociopolitical orders and their characteristics alongside major cultural developments. Covered topics include: state formation and dissolution; the role of ideology and how it changes; religious beliefs and values; agriculture, commerce, and industry; changing family relations; responses to Western imperialism; and East Asia's growing stature in the modern world as well as future prospect. Although a main focus will be on understanding how the regions we now know as China, Japan, and Korea emerged with their respective identities, the course will also give attention to various groups that are rarely noticed in the contemporary world but nonetheless historically important, such as the Tibetans, Khitans, Jurchens, Mongols, and Manchus.
Taught by: Park
Activity: Lecture
1 Course Unit

EALC 008 East Asian Religions
This course introduces religious traditions in China, Japan, and Taiwan from ancient to contemporary times, with emphases on their sociopolitical contexts, visual and material dimensions, and entanglement with gender, sexuality, and the body. We will examine the history of Confucianism, Daoism, Buddhism, Shinto, as well as the practices, thoughts, and institutions that do not fall squarely into those categories. We will pay attention to the relationship between textual and oral traditions, and that between canons, rituals, and popular practices from both historical and anthropological perspectives.
Taught by: Cheng H
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EALC 013 Art and Civilization in East Asia
Survey of the major artistic traditions of East Asia from Neolithic times through the 18th century. Will serve as an introduction to upper level lecture courses that deal with the arts and civilizations of China, Korea, and Japan. Students study and handle objects during weekly session in the Museum.
For BA Students: Arts and Letters Sector
Taught by: Davis, Steinhardt
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

EALC 015 Introduction to Buddhism
This course seeks to introduce students to the diversity of doctrines held and practices performed by Buddhists in Asia. By focusing on how specific beliefs and practices are tied to particular locations and particular times, we will be able to explore in detail the religious institutions, artistic, architectural, and musical traditions, text production and legal and doctrinal developments of Buddhism over time and within its socio-historical context. Religion is never divorced from its place and its time. Furthermore, by geographically and historically grounding the study of these religions we will be able to examine how their individual ethnic, cosmological and soteriological systems effect local history, economics, politics, and material culture. We will concentrate first on the person of the Buddha, his many biographies and how he has been followed and worshipped by a variety of ways from Lhasa, Tibet to Phrae, Thailand. From there we touch on the foundational teachings of the Buddha with an eye to how they have evolved and transformed over time. Finally, we focus on the practice of Buddhist ritual, magic and ethics in monasteries and among lay communities in Asia and in the West. This section will confront the way Buddhists have thought of issues such as "Just-War," Women's Rights and Abortion. While no one quarter course could provide a detailed presentation of the beliefs and practices of Buddhism, my hope is that we will be able to look closely at certain aspects of these religions by focusing on how they are practiced in places like Nara, Japan or Vietnam, Laos.
Taught by: McDaniel
One-term course offered either term
Activity: Lecture
1 Course Unit
EALC 034 What is Taoism?
Our main goal in this course will be to answer the question, what is Daoism? Students will be introduced to a wide variety of ideas, practices that have at one time or another been labeled as Daoist, in order to sort out the different senses of the term, and consider whether they have any common features. The course will begin with the Laozi, the most translated work in world literature beside the Bible and the one text affirmed by virtually all Daoist traditions as foundational. We will also survey several other bio-spiritual practices, such as the meditational techniques of Internal Alchemy and the self-cultivation methods known today as Qigong and Tai-chi, and familiarize ourselves with theoretical and ritual foundations of the organized religious tradition known as Daoism, which is still widely practiced across East Asia. No knowledge of Chinese is presumed. All readings will be in English.
Taught by: Goldin
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EALC 041 Late Imperial China
From an Eurasian empire ruled by Mongols to an ethnically defined Han Chinese Ming dynasty, then again to a multi-ethnic empire ruled by a minority group of Manchus, the disruptions and transformations in the idea of "China" in the past seven centuries defies our modern notion of China as a unitary nation with the world's longest continuous cultural tradition. How to understand the continuities and discontinuities of the last three imperial dynasties of China will be the central focus of our survey. How did these different ethnic groups adjust to each other's way of life? Did complicated cultural interaction prompt different visions of empires? How did the meaning of China change over this time period? How did international politics shape the fate of Chinese empires? With no assumption of prior knowledge, lectures open with an overview of Chinese society before the eve of the Mongolian invasion, and then trace the changing visions of ethnic and social orders in the subsequent regimes ruled by three different ethnic groups (Mongolian, Han Chinese, and Manchurian). We will examine and compare bureaucratic operations, cultural ideals, domestic and international policies from above as well as the daily life experiences from below. The course will conclude with an analysis of the collapse of the imperial order at the beginning of the twentieth century, after it was severely challenged by a semi-Christian Utopian movement from within and global drug trade imperialist attacks from without.
Taught by: Fei
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 055 Monsters of Japan
Godzilla! Mothra! Rodan! Totoro! Pikachu! If you know who they are, join us to discover the deeper meanings of monstrosity in Japan. If you don't know who they are, learn the literal, metaphorical, and cinematic implications of these giant (and not so giant) beasts. Watch Tokyo go down in flames, and discuss what that means for New York and Philadelphia! Explore the history, literature, and films of Japanese monsters in this undergraduate seminar.
Taught by: Chance, F
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 064 Sushi & Ramen: Making Japanese Food Global
Who defines Japanese food? Is it the chef at a top establishment in Tokyo, a home cook in Osaka, a tea master in Kyoto, the ancient capital? Or is it the midwestern American who thinks sushi means raw fish? Is it the person who scarfs cup noodles, or the devotee of artisan ramen stock? Perhaps it is the Japanese government, which in 2006 sent undercover agents abroad to guard against inferior Japanese food outlets. In this class we will consider how Japanese food came to be defined in distinction to Western and Chinese foods beginning in the nineteenth century, and how Japanese food became a global cuisine. Among our questions: What makes a dish Japanese? How did Portuguese or Spanish frying habits (tempura) and Chinese lamian (ramen) become hallmarks? How traditional is the diet of rice and fish, and in what ways does it interact with the environment? How did Buddhist vegetarians justify sukiyaki? What relationship does food have to the longevity of Japanese today? How does gender affect Japanese food cultures? What are the origins of Iron Chef and bento? We will survey the Philadelphia Japanese food scene and learn to make our own sushi. Some controversies we will discuss include the consumption of whale meat in Japan. We will also investigate Japanese government controls of food to combat obesity and to make food safe. after the Fukushima nuclear catastrophe. Materials include essays, films, novellas, menus, and cookbooks.
Taught by: Chance, L.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Freshmen Seminar

EALC 069 Japanese Popular Culture
Today, Japanese manga, anime, J-pop, and film have a global audience. But these exports can only be truly understood in light of longstanding domestic anxieties about sex, violence, gender, and "the kids these days." More recent concerns about the country's declining birthrate, weakening geopolitical position, and vulnerability to natural and anthropogenic disaster also deeply influence Japanese media products. This course explores some of these anxieties through critical examinations of manga, anime, video games, television, music, and fashion in Japan. Film screenings include work by directors Kon Satoshi, Otomo Katsuhiro, Takahata Isao, Miyazaki Hayao; Itami Juzo, and Takita Yojiro; manga excerpts include work by Tezuka Osamu, Urasawa Naoki, and Yazawa Ai. Secondary readings include scholarship in anthropology, history, sociology, literature, film studies and religious studies.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 071 Modern Japanese History
This course will survey the major political, economic, social and intellectual trends in the making of modern Japan. Special emphasis will be given to the turbulent relationship between state and society from 1800 to the present.
For BA Students: History and Tradition Sector
Taught by: Dickinson
One-term course offered either term
Activity: Recitation
1 Course Unit
EALC 086 Korean Popular Culture

"Korean Wave" (Hallyu) is currently raging throughout non-Western parts of the world, especially Asia, and may be making its way to the West. From South Korean tele-dramas and K-pop music to their respective celebrity icons, these popular cultural forms from Korea are increasingly becoming part of the everyday landscape and vocabulary. We will attempt to understand and evaluate this cultural phenomenon—its promises and limitations as well as its popularity and backlash against it. More specifically, this course explores the ways in which television, music, manhwa (comic books), and the internet participate in the transnational production and circulation of culture, modernity, tradition, ideology, and politics. Some of the more specific topics covered may include: Korean emotions and melodramas; imitation versus innovation in K-pop; fictions of history in period dramas; the marketing of new masculinity; revival of folk culture; preservation of traditional values in postmodern times; repatriation of Korean American pop stars to Korea; and youth culture. Requires outside viewing and listening.

Course not offered every year
Activity: Lecture
1 Course Unit

EALC 105 East Asian Diplomacy

This course will survey the history of relations among the great powers in East Asia from the sixteenth century to the present. Special emphasis will be given to regional and global developments from the perspective of the three principal East Asian states—China, Japan, and Korea. We will explore the many informal, as well as formal, means of diplomacy in East Asia over the past 400 plus years.

Taught by: Dickinson
Course usually offered in fall term
Activity: Recitation
1 Course Unit

EALC 108 Sports in East Asia

This course will examine sports in East Asia from the nineteenth century to the present. Recently, East Asia plays an important role in transforming the global geopolitics of sport. The post-war East Asian Olympic Games—1964 Tokyo Olympics, 1972 Sapporo Winter Olympics, 1988 Seoul Olympics, 1998 Nagano Winter Olympics, and 2008 Beijing Olympics—and the 2002 FIFA World Cup Korea/Japan illustrate the fact that a new global sports order led by East Asia has emerged. East Asia nations will play hosts to other major sporting events, including the 2018 Pyeongchang Winter Olympics, 2020 Tokyo Olympics, and 2022 Beijing Winter Olympics. Chinese, Japanese, and Korean athletes have been highly active in MLB, NBA, English Premier League, and LPGA. The popularity of the various martial arts proves that East Asian sports seem to be everywhere these days. This class will focus on helping students understand how sports have affected and transformed East Asia exploring various issues: imperialism, colonialism, race, class, gender, foreign policy, nationalism, religion, economics, industrialization, tourism, and urbanization. Course contents include lecture, discussions, secondary readings, primary source readings, documentaries, and films.

Course not offered every year
Activity: Lecture
1 Course Unit

EALC 111 East Asian Digital Humanities

"Are you interested in cutting-edge digital methods for the humanities in East Asia, but don’t know where to start? This course covers a wide range of current and emerging digital projects and topics in East Asian studies. Students will engage with digital projects focused on East Asia (encompassing Japan, China, Korea, and Taiwan) as well as research being done on Digital methodologies for the humanities in those areas. Coursework consists of project and research analysis, active discussion, and learning about the implementation of various digital projects. Example topics include text analysis, APIs, network analysis, digital literary studies, and mapping. Notechnical expertise is required but students must have reading knowledge of Chinese, Japanese, or Korean at the high-intermediate or advanced level. Class presentations, discussions, and all course readings will be in English, but midterm and final projects involve reading articles and midterm and final projects involve reading articles and/or critiquing projects in East Asia.

Taught by: Des Jardin
Course not offered every year
Prerequisites: Reading knowledge (intermediate or above) of East Asian language required.
Activity: Lecture
1 Course Unit

EALC 115 Buddhist Arts of East Asia: Sources, Iconography and Styles

Survey of art and architecture created for Buddhist religious purposes in China, Japan, and to a lesser extent Korea, Tibet, and Central Asia. The course will include a brief overview of Buddhist monuments in South Asia, study of the iconography of Buddhist images in graphic and sculptural media, and analysis of a variety of Buddhist styles in painting, sculpture, and architecture.

Taught by: Chance, F
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 116 East Asian Gardens

Explore the beauty of gardens (and associated buildings) in Japan, China, and Korea from ancient times to the present. Lectures will be illustrated by photographs from dozens of sites in East Asia, and by a field trip to the Japanese House and Garden in Fairmount Park. The main body of the course will be a historical survey of the evolution of East Asian garden art forms from the sixth century to the present. Discussion will touch on geographic and climatic parameters, spiritual and aesthetic principles, practical limitations and creative innovations of East Asian gardens. There will be an additional fee for the Japanese House visit, and possibly for other field trips.

Taught by: Chance, F
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 119 East Asian Ceramics

History of ceramic forms, techniques, and aesthetic principles in China, Korea, and Japan from neolithic times to the present century, illustrated by slides and examples, augmented by readings, field trips, and student presentations. Aimed at students with general interest in Japan and/or ceramics history; particularly but not exclusively those majoring in Asian and Middle Eastern Studies, East Asian Area Studies or History of Art; also art majors interested in ceramics.

Taught by: Chance, F
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 121 Chinese Poetry & Prose: In translation
A wide variety of poetic & prose genres from the earliest times to the 19th century is introduced through English translation. A few selections will also be studied in Chinese characters with romanized transcriptions. There are no prerequisites for this course.
Taught by: Mair
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EALC 122 Chinese Fiction and Drama in Translation
This course explores Romance of Three Kingdoms, the most popular classical novel in East Asia and an important source for understanding Chinese culture, politics, history, and military strategy. We propose to read this work not only as a textbook of Chinese literature and culture, but also as a guidebook for career development and risk assessment. Why didn’t Pang Tong have a career as successful as Zhuge Liang? Why did Ma Su volunteer in a project that he is not good at? If Cao Cao, Liu Bei, Sun Quan run for presidency in the U.S., who would you vote for and why? These are some of the questions that we will explore alongside our inquiry into the historical development of various genres of Chinese fiction. In addition to Romance of Three Kingdoms, this course introduces Sun Tsu’s The Art of War and other classical Chinese novels such as Dream of the Red Chamber and Strange Tales from a Chinese Studio, as well as classical literary criticism such as Cao Pi’s On the Standard of Literature (Dian lun), Lu Ji’s Essays on Literature (Wen lun), and Liu Xie’s The Literary Mind and the Carving of Dragons.
For BA Students: Arts and Letters Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EALC 125 Cultural Chinas: 20th Century Chinese Literature and Film
This course serves as a thematic introduction to modern Chinese literature and cinema in China, Hong Kong, Taiwan and other transnational Chinese communities in the twentieth century. By discussing a wide range of key literary and filmic texts, this class looks into major issues and discourses in China’s century of modernization: enlightenment and revolution, politics and aesthetics, sentimental education and nationalism, historical trauma and violence, gender and sexuality, social hygiene and body politics, diaspora and displacement, youth sub-culture and urban imagination.
For BA Students: Arts and Letters Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EALC 126 Seminar in Modern Chinese Literature
Modern Chinese writers are known for their efforts in creating a literary revolution that sought to reformulate the paradigm of Chinese writing. However, these Chinese writers also endeavored to learn from other cultures such as the European and Indian civilizations. For example, Tagore was invited to visit to China in 1923 and was considered a cultural model by many Chinese cultural elites. Hu Shi, a leading Chinese intellectual, wrote the Indianization of China: A Case Study in Cultural Borrowing and India Our Great Teacher, to emphasize the Indian elements in Chinese culture. Other Chinese writers also sought to compare the European with Chinese cultures in different occasions in order to find a path for the rise of modern China. This course explores the ways in which foreign cultures were introduced and how they influence the way Chinese see themselves in their search for a cultural identity free from the constraints of classical tradition. We will read a variety of writers from the Peoples Republic of China, Hong Kong, Taiwan, and Malaysia, in order to examine how modern Chinese literature thrives on cross-cultural elements. All readings will be in English. No prior knowledge is required. Those who are proficient in Chinese are invited to read some of the texts in Chinese.
Taught by: Lin
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 127 Arts of China
A broad survey of Chinese architecture, sculpture, and painting from the Neolithic age through the nineteenth century. Topics include excavated material from China’s Bronze Age, Chinese funerary arts, Buddhist caves and sculpture (including works in the University Museum), the Chinese city, the Chinese garden, and major masterpieces of Chinese painting.
Taught by: Steinhardt
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Graduate students may take this course as EALC 527 and should see the instructor to discuss additional requirements for graduate credit.

EALC 129 CRITICAL THEORY CHINA
This course is intended as an introduction to the foundational thinkers of Chinese civilization, who flourished from the fifth to the second centuries B.C. No knowledge of Chinese is presumed, and there are no prerequisites, although EALC 001 (Introduction to Chinese Civilization) is recommended. Graduate students may take this course as EALC 531 and should see the instructor to discuss requirements for graduate credit. (Undergraduates must enroll in the courses as EALC 131.)
For BA Students: History and Tradition Sector
Taught by: Goldin
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit

EALC 141 Topics in Asian History
Topics Vary
Taught by: Fei
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 151 Contemporary Fiction & Film in Japan
This course will explore fiction and film in contemporary Japan, from 1945 to the present. Topics will include literary and cinematic representation of Japan's war experience and post-war reconstruction, negotiation with Japanese classics, confrontation with the state, and changing ideas of gender and sexuality. We will explore these and other questions by analyzing texts of various genres, including film and film scripts, novels, short stories, manga, and academic essays. Class sessions will combine lectures, discussion, audio-visual materials, and creative as well as analytical writing exercises. The course is taught in English, although Japanese materials will be made available upon request. No prior coursework in Japanese literature, culture, or film is required or expected; additional secondary materials will be available for students taking the course at the 600 level. Writers and film directors examined may include: Kawabata Yasunari, Hayashi Fumiko, Abe Kobo, Mishima Yukio, Oe Kenzaburo, Yoshimoto Banana, Ozu Yasujiro, Naruse Mikio, Kurosawa Akira, Imamura Shohei, Koreeda Hirokazu, and Beat Takeshi.
For BA Students: Arts and Letters Sector
Taught by: Kano
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Fulfills Cross-Cultural Analysis

EALC 152 Love and Loss in Japanese Literary Traditions: In Translation
How do people make sense of the multiple experiences that the simple words "love" and "loss" imply? How do they express their thoughts and feelings to one another? In this course, we will explore some means Japanese culture has found to grapple with these events and sensations. We will also see how these culturally sanctioned frameworks have shaped the ways Japanese view love and loss. Our materials will sample the literary tradition of Japan from earliest times to the early modern and even modern periods. Close readings of a diverse group of texts, including poetry, narrative, theater, and the related arts of calligraphy, painting, and music will structure our inquiry. The class will take an expedition to nearby Woodlands Cemetery to experience poetry in nature. By the end of the course, you should be able to appreciate texts that differ slightly in their value systems, linguistic expressions, and aesthetic sensibilities from those that you may already know. Among the available project work that you may select, if you have basic Japanese, is learning to read a literary manga. All shared class material is in English translation. For BA Students: Arts and Letters Sector
Taught by: Chance
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EALC 155 Modern Japanese Literature
This course surveys Japanese literature (novels, short stories, poetry, drama, essays) from 1868 to World War II. The purpose is not only to read some of the most important and interesting literary texts of this period, but also to reflect on the ways we read and study literature, and how we draw connections between literature, self, and society. The reading material will be entirely in English.
Taught by: Kano
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 156 Post War Japanese Cinema
Mizoguchi Kenji, Ozu Yasujiro, and Kurosawa Akira are recognized today as three of the most important and influential directors in Japanese cinema. In their films of the late 1940s and 1950s, these directors focused upon issues surrounding the human condition and the perception of truth, history, beauty, death, and other issues of the postwar period. This course places their films in period context, and pays particular attention to the connections to other visual media, and to how "art" and "history" are being defined in the cinematic context. How other directors also took up these issues, and referred to the "big three" is also be discussed.
Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 157 Arts of Japan
This course introduces the major artistic traditions of Japan, from the Neolithic period to the present, and teaches the fundamental methods of the discipline of art history. Special attention will be given to the places of Shinto, the impact of Buddhism, and their related architectures and sculptures; the principles of narrative illustration; the changing roles of aristocratic, monastic, shogunal and merchant patronage; the formation of the concept of the artist over time; and the transformation of tradition in the modern age.
Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Graduate students may take this course as EALC 557 and should see the instructor to discuss additional requirements for graduate credit.

EALC 160 Introduction to Japanese Thought
This class integrates the Japanese archaeological artifacts (ca. 240 items) and drawings (ca. 16 sheets) that were given to the Penn Museum at the World's Columbian Exposition of 1893 as a gift from the Tokyo National Museum/Meiji Government. In this course, as students learn the basic knowledge on Japanese archaeology, they participate in the basic background research on the exposition objects. Students are then to choose his/her research topic based on this collection, and their projects and resulting research papers will be presented possibly on a newly-established website. Through their individual research projects using this collection, students will learn how to handle the archaeological artifacts, investigate the relevant data in the Penn Museum archives, and acquire the basic curatorial knowledge and skills for dating, classifying, specifying the provenience of the objects.
For BA Students: History and Tradition Sector
Course usually offered in fall term
Activity: Lecture
1 Course Unit
EALC 162 City & Citizenship: Samurai Politics and Commoner Culture in Early Modern Japan
In the early modern period (1600-1867), Japan underwent a staggering urban transformation. Edo, the shogunal capital, grew in barely a century from a new settlement to a sprawling metropolis of over a million. Indeed, most of Japan's current urban centers descend directly from the castle towns built by regional warlords in the late sixteenth and early seventeenth centuries in an effort keep the peace after over a hundred years of civil war. As a result, Japanese cities in the early modern period became a central component of what historians have called a "re-feudalization" of society, and retained strong vestiges of their military origins. At the same time the samurai-centered space of the new cities created opportunities for the development of alternative cultural practices and values by urban commoners. The juxtaposition of the regimented, honor-driven society designed and longed for by samurai and the fluid, money-driven society that grew out of the burgeoning cities' commoner quarters is one of the animating forces of the early modern period. Through study of scholarship and contemporary sources (laws and sumptuary regulations, codes of conducts, but also diaries, novels, plays), this course will explore the many facets of early modern urban society, its medieval antecedents, and its legacies in contemporary Japan.
Taught by: Spafford
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 170 Japanese Archaeology in the Penn Museum
Taught by: Nishimura
Activity: Lecture
1 Course Unit

EALC 176 Japan: The Age of the Samurai
Who (or what) where the samurai? What does it mean to say that Japan had an "Age of the Samurai"? In popular imagination, pre-modern Japan has long been associated with its hereditary warrior class. Countless movies have explored the character and martial prowess of these men. Yet warriors constituted but a tiny portion of the societies they inhabited and ruled, and historians researching medieval Japan have turned their attentions to a great range of subjects and to other classes (elite and commoner alike). This class is designed to acquaint students with the complex and diverse centuries that have been called the "Age of the Samurai"-roughly, the years between ca. 1110 and 1850. In the course of the semester, we will explore the central themes in the historiography of warrior society, while introducing some of the defining texts that have shaped our imagination of this age (from laws to epic poems, from codes of conduct to autobiographies).
Taught by: Spafford
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 183 Readings in Korean History
Topic varies.
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 184 Two Koreas: The Politics of Division
In today's world, the inter-Korean border or DMZ (demilitarized zone) is widely regarded as one of the most impermeable and conflictual frontiers. The purpose of this course is to explore the dynamics of its formation between, and impact within, the two Koreas. The course therefore proposes to analyze how the division of the Korean peninsula not only came into being but also how it has shaped the socio-political trajectories of both the North and the South since 1945. The course also aims at introducing students to conceptual frameworks and comparative debates relevant to understanding the Korean case(s) from a social science perspective.
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 192 Arts of Korea
The goal of this course is understanding the development of visual, performing, and literary arts in Korea and the historical, religious, and social contexts in which they flourished. It serves as an introduction to the arts of Korea, with emphasis on painting, sculpture, ceramics, and architecture and additional consideration of dance, drama, poetry, and culinary arts. Covers the whole history of Korea, from prehistoric times to the twenty-first century.
Taught by: Chance, F
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 211 Life and Death in Han China
Using maps, city-planning, architecture, wall painting, sculpture, and minor arts as evidence, the course will examine the attitudes toward life and death in Han (206 BCE-AD 220) China.
Taught by: Steinhardt
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 216 Chinese Art Under the Mongols
The Yuan Dynasty (1257-1368), the period of Mongolilan rule, was the only time in Chinese history when China was part of a larger empire that spanned the Asian continent. Using architecture, sculpture, painting, and excavated evidence, this course examines the attitudes toward life and death in Han (206 BCE-AD 220) China.
Taught by: Steinhardt
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 221 First Year Classical Chinese
Introduction to the classical written language, beginning with Shadick, First Course in Literary Chinese. Students with a background in Japanese, Korean, Cantonese, Taiwanese, and other East Asian languages are welcome; it is not necessary to know Mandarin. The course begins from scratch, and swiftly but rigorously develops the ability to read a wide variety of classical and semi-classical styles. Original texts from the 6th century BC to the 20th century AD are studied. This course is taught in English and there are no prerequisites.
Taught by: Mair
Course usually offered in fall term
Activity: Lecture
1 Course Unit
EALC 222 1st Year Classical Chin II
Continuation of CHIN491 EALC221/621, which is the only prerequisite for this course. Upon completion of Shadick, readings in a wide selection of texts with Chinese commentaries may be taken up. These readings are in part chosen to reflect student interest. This is the second half of a year-long course. Those who enroll must take both semesters.
Taught by: Mair
Course usually offered in spring term
Prerequisite: EALC 221
Activity: Lecture
1 Course Unit

EALC 223 Language, Script and Society in China
The Chinese writing system is the only major surviving script in the world that is partially picto-ideographic, Egyptian hieroglyphic and Sumero-Akkadian cuneiform having passed out of use about two millennia ago. Partly because it is so unique, a tremendous number of myths have grown up around the Chinese script. In an attempt to understand how they really function, this seminar will examine the nature of the sinographs and their relationship to spoken Sinitic languages, as well as their implications for society and culture. We will also discuss the artistic and technological aspects of the Chinese characters and the ongoing efforts to reform and simplify them. The use of sinographs in other East Asian countries than China will be taken into account. There are no prerequisites for this class.
Taught by: Mair
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 225 Topics in Chinese Cinema
This course is an introduction to Chinese cinema in mainland China, Taiwan, and Hong Kong, with emphasis on the way it represents or negotiates notions of China and Chinese-ness, as well as national and cultural identity. We will examine Chinese cinematic traditions in light of significant topics such as: the foundation of Chinese cinema and the rise of nationalism; film’s relationship to literary and popular cultural discourses; the pursuit of modernization; aesthetic responses to political and historical upheavals and transformations; the aesthetics of revolution, diaspora and transnationalism; visualized sexualities, violence, and youth subculture; collective desires to imagine and reinvent the cultural past; the politics of memory, mourning and amnesia, among others.
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 227 Chinese Painting
Study of Chinese painting and practice from the earliest pictorial representation through the late twentieth century. Painting styles are analyzed, but themes such as landscape and narrative are considered with regard to larger social, cultural, and historical issues. The class will pay particular attention to the construction of the concepts of the ”artist” and ”art criticism” and their impact on the field into the present. Visits to study paintings at the University of Pennsylvania Museum and Philadelphia Museum of Art.
Taught by: Steinhardt
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 228 Chinese Architecture
Survey of Chinese buildings and building technology from the formative period in the second millennium BCE through the twentieth century. The course will deal with well-known monuments such as the Buddhist monasteries of Wutai, imperial palaces in Changan and Beijing, the Ming tombs and the Temple of Heaven, and less frequently studied buildings. Also covered will be the theory and principles of Chinese construction.
Taught by: Steinhardt
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 229 Chinese Aesthetics
This seminar investigates classical Chinese conceptions of art and beauty as exemplified in philosophy, literature, music, painting, calligraphy, and architecture. All readings will be in English, and no knowledge of Chinese is presumed. Graduate students should see the instructor to discuss requirements for graduate credit.
Taught by: Goldin
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 230 Gender and Religion in China
This course examines gender in Chinese religious culture from ancient to contemporary times. We will explore topics including the Buddhist accommodation of Chinese family system, Chinese transformation of the bodhisattva Guanyin, female deities in Daoist and popular religious pantheons, writings about religious women, female ghosts and fox spirits in literary imagination and folk tales, and the significance of yin force in Chinese medicine and Daoist alchemy. Through the case of China, we will look at how gender plays critical and constitutive roles in religious traditions, and how religion can be used both to reinforce and to challenge gender norms.
Taught by: Cheng, H
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 233 Chinese Aesthetics
This course examines the history of various intellectual and religious traditions that came to be known as Daoist (or Taoist in the Wade-Giles Romanization). We will begin with a critical review of the twentieth-century reinvention of Daoism and the new classification of religious versus philosophical Daoism, before tracing chronologically the textual, institutional, and social history of Daoist traditions from the fourth century B.C.E. While familiarizing students with the key concepts, practices, and organizations developed in the history of Daoism, this class emphasizes the specific socio-political context of each of them. Throughout the course, we will think critically about the labeling of Daoist (as well as Confucian and Buddhist) in Chinese history and in modern scholarship. We will also question modern demarcations between philosophy, religion, and science, as well as that between the spiritual and the physical.
Taught by: Cheng
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 239 Sex and Society in Ancient China
Ancient Chinese writers considered sexual activity to be an essential component of humanity, and the study of human sexuality to be essential to the study of human history. Sexuality constituted a fundamental source of imagery and categories that informed the classical Chinese conceptions of social, political, and military relationships. This course will survey the major sources dealing with sex and society in ancient China. There are no prerequisites, and no knowledge of Chinese is presumed.
Taught by: Goldin
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 240 Early Chinese History
This seminar covers the span of Chinese history from the Bronze Age to the end of the Han dynasty in A.D. 220. No knowledge of Chinese is presumed, but EALC 001 (Introduction to Chinese Civilization) is a prerequisite. Graduate students who wish to enroll should meet with the instructor to discuss additional requirements for graduate credit.
Taught by: Goldin
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EALC 241 Law in Pre-Modern China
This course, intended for graduate students and advanced undergraduates, offers a survey of the sources and research problems of pre-modern Chinese law. For reasons to be examined in the course, traditional Sinological education has neglected law as a legitimate field of inquiry; consequently, the secondary literature is surprisingly meager. Our readings will take us from the Warring States Period to the Qing dynasty—an interval of over two millennia—and will cover several varieties of legal documents, including statutes, handbooks, court records, and theoretical treatises. All the readings will be in English, and no knowledge of Chinese is presumed. Graduate students should see the instructor to discuss requirement for graduate credit.
Taught by: Goldin
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 242 Medicine and Healing in China
This course explores Chinese medicine and healing culture, its diversity, and its change over time. We will discuss topics including the establishment of canonical medicine, Daoist approaches to healing and longevity, diverse views of the body and disease, the emergence of treatments for women, medical construction of sex difference and imagination of female sexuality, the thriving and decline of female healers, the identity of scholar physicians, the transmission of medical knowledge, domestic and cross-regional drug market, healer-patient relations, and new visions of traditional Chinese medicine in modern China.
Taught by: Cheng,H
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 243 Pastoralism & Mobility
"Pastoralism and Mobility" will examine the society and history of mobile pastoralists (nomads) in Inner Asia from earliest times to the present. Peoples covered will include Mongols, Tibetans, Turkic nomads (such as Kazakhs, Kyrgyz, and Turkmen), and their ancestors and predecessors. The class will focus on questions such as: Is there a distinctive form of Inner Asian pastoralist society? At the grass roots level? At the elite level? How have states (native and foreign) influenced Inner Asian pastoralist society in pre-modern and modern contexts? How have Inner Asian pastoralists influenced neighboring states? What role does kinship play in governing group formation, property, and status in Inner Asian pastoralist society? Does this role vary over time, space, or ethnic background? If so, how? What purposes does mobility serve in Inner Asian societies? How have various forms of livestock lease-holding changed and shaped wealth in Inner Asian pastoralist society? How did class differentiation emerge & function in pre-modern pastoralist societies? What happens when pastoralists become farmers? How have modern schemes of social improvement and productivity, especially collectivization and decollectivization, shaped pastoralist lives?
Taught by: Atwood
Course offered fall; odd-numbered years
Activity: Seminar
1 Course Unit

EALC 243 The Politics of Shinto
Shinto-derived images and ideas frequently appear in Japanese anime and film, and journalists and academics frequently mobilize the term Shinto as a way of explaining Japan’s past or envisioning its future. The environmentalist left champions a green Shinto while Shinto-derived ideas serve as red meat for politicians pandering to Japan’s nationalist right. While the influential position Shinto occupies in Japanese sociopolitical life is therefore clear, the term Shinto itself is actually not. Depending on who one asks, Shinto is either the venerable indigenous religion of the Japanese archipelago, the irreplaceable core of Japanese culture, a tiny subset of Japanese Buddhism, an oppressive political ideology linked to the emperor system, an environmentalist ethic, or some combination of these. This course investigates the multifarious types of Shinto envisioned by these competing interest groups.
Taught by: Thomas,J
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 251 Readings in Classical Japanese I
Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods. Introduction to the different styles of classical Japanese, and to classical Japanese as a whole.
For BA Students: Advanced Language Course
Taught by: Chance
Course usually offered in fall term
Prerequisite: JPAN 212 or equivalent
Activity: Lecture
1 Course Unit

EALC 253 The Politics of Shinto
Shinto-derived images and ideas frequently appear in Japanese anime and film, and journalists and academics frequently mobilize the term Shinto as a way of explaining Japan’s past or envisioning its future. The environmentalist left champions a green Shinto while Shinto-derived ideas serve as red meat for politicians pandering to Japan’s nationalist right. While the influential position Shinto occupies in Japanese sociopolitical life is therefore clear, the term Shinto itself is actually not. Depending on who one asks, Shinto is either the venerable indigenous religion of the Japanese archipelago, the irreplaceable core of Japanese culture, a tiny subset of Japanese Buddhism, an oppressive political ideology linked to the emperor system, an environmentalist ethic, or some combination of these. This course investigates the multifarious types of Shinto envisioned by these competing interest groups.
Taught by: Thomas,J
Course not offered every year
Activity: Lecture
1 Course Unit
EALC 254 War and Literature in Japan: Tales of the Heike
Our subject is Tale of the Heike, a multifaceted narrative of the twelfth-century battles that brought the Taira clan down and led to the establishment of Japan’s first military government. We will read the Heike tales with an eye toward how they fictionalize history and idealize certain types, most notably loyal women and warriors; the development of the warrior tale genre; central aspects of the Japanese ethos; and later works of literature based on episodes and characters from the Tale of the Heike. All material is in English translation. (Students of Japanese language may learn to read a famous section in the original.) There are no prerequisites.
Taught by: Chance, L
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 255 Japanese Theater
Japan has one of the richest and most varied theatrical traditions in the world. In this course, we will examine Japanese theater in historical and comparative contexts. The readings and discussions will cover all areas of the theatrical experience (script, acting, stage design, costumes, music, and audience). Audio-visual material will be used whenever appropriate and possible. The class will be conducted in English, with all English materials.
Taught by: Kano
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 256 The Tale of Genji
"Crowning masterpiece of Japanese literature," "the world’s first novel," "fountainhead of Japanese literary and aesthetic culture," "a great soap opera in the vein of Jacqueline Susann." Readers over the centuries have praised the Tale of Genji, the monumental prose tale finished just after the year 1000, in a variety of ways. In this course we will read the latest English translation of Murasaki Shikibu’s work. We will watch as Genji loses his mother at a tender age, is cast out of the royal family, and begins a quest to fill the void she left. Along the way, Genji’s loyalty to all the women he encounters forges his reputation as the ideal lover. We will consider gender issues in the female author’s portrayal of this rake, and question the changing audience, from bored court women to censorious monks, from adoring nationalists to comic book adaptors. Study of the tale requires consideration of poetry, imagery, costume, music, history, religion, theater, political and material culture, all of which will be components of the course. We will also trace the effect of the tale’s many motifs, from flora and fauna to murderously jealous spirits, on later literature and conceptions of human emotions. All material is in English translation. There are no prerequisites.
Taught by: Chance, L.
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 259 Gender and Sexuality in Japan
If you have ever wondered about the following questions, then this is the right course for you: Is Japan a hyper-feminine nation of smiling geisha and obedient wives? Is it a hyper-masculine nation of samurai and economic warriors? Is it true that Japanese wives control the household? Is it true that Japanese men suffer from over-dependence on their mothers? What do young Japanese women and young men worry about? What does the government think about the future of Japanese women and men? Assuming that expressions of gender and sexuality are deeply influenced by cultural and social factors, and that they also show profound differences regionally and historically, this course examines a variety of texts—historical, biographical, autobiographical, fictional, non-fictional, visual, cinematic, analytical, theoretical—in order to better understand the complexity of any attempts to answer the above questions.
Taught by: Kano
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 260 History of the Book in East Asia
Spring 2018: From handscrolls to manga, books play a vital role in East Asian societies. In this course we will introduce the spread of book cultures across East Asia and reconsider the role and impact of material texts on societies in China, Korea, and Japan. Among the questions we'll engage are: What is a book, an author, or an edition? How do readers affect books? How do publishers decide when to use illustrations, woodblock printing, or movable type? How has the history of books differed in China, Japan, and Korea from the history of the book in the West? We will consider various media (bamboo, paper, silk, and the digital), formats (scrolls, folded books, bound books, small to oversize), and the tensions between handwritten manuscript and printed pages. Hands-on sessions may include paper-making, bookbinding, and printing. This is an Objects-Based Learning course, using materials from the Kislak Center for Special Collections, Rare Books and Manuscripts, and the Penn Museum, with visits to the Philadelphia Museum of Art and the Free Library of Philadelphia. Requires no knowledge of any Asian language.
Taught by: Davis, Chance
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 264 Lawlessness and Violence in Pre-Modern Japan
This course will be an exploration of premodern Japanese history through the lens of violence. The centuries under consideration (roughly, the eighth thought nineteenth) were characterized by greatly varying levels of violence, both of the state-sanctioned variety (war, punishments for law-breakers and political losers) and of the non-sanctioned variety (piracy, banditry, warrior and peasant rebellions). Examining a wide variety of translated sources, from diaries to chronicles, from legal codes to fiction, we shall examine the changing social, political, economic, and cultural contexts of violence, in order to interrogate not only why certain periods were remarkably peaceful while others were not, but also why violence took different forms in relation to different circumstances. We shall consider how contemporaries made sense of the violence that surrounded them (or didn’t) and how they divided the acceptable use of force from the wanton and society-threatening abuse of it. The course will feature presentations and severl (very short) papers.
Taught by: Spafford, D.
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 270 From Shamans to Shoguns: The Texts that Made Pre-Modern Japanese History
This course tackles about a millennium of pre-modern Japanese political, social, and cultural history (roughly, 700-1700). Instead of attempting to cover the period chronologically, as an introductory survey might, this class is structured as a series of case studies. Each of these will take a primary source as its point of departure and explore one or more facets of Japanese history and writing. In the course of each case study, lectures and discussions will branch out from the main source to examine its historical context as well as the (political, cultural, textual) traditions that informed that source s composition. In general, students will read the entire texts of the main sources (or significant portions of them), along with scholarly articles and shorter excerpts from other sources, composed at the same time or in the same vein/genre. During lectures and discussions alike, students will be asked to engage the readings, so as to grasp the specifics of Japanese history and practice the analytical skills required of historical discourse.
Taught by: Spafford, D.
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 291 Archaeology of Central Asia
A site by site investigation of Buddhist and non-Buddhist ruins in Central Asia. Included are Nisa, Khwarezm, Pyandzhikent, Khalchayan, Ay-Khanum, Bamiyan, Miran, Tumshuk, Kizil, Kucha, Khotan, Adzhina-Tepe, Khocho, Khara-Khoto, and Bezeklik.
Taught by: Steinhardt
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 301 Major Seminar on China
This is a seminar required for all Chinese majors in the Department of East Asian Languages and Civilization. Topic varies year to year.
Taught by: Mair
One-term course offered either term
Prerequisites: EALC001, no language required for undergraduates.
Activity: Seminar
1 Course Unit

EALC 302 Major Seminar on Japan
This is a seminar required for all Japanese majors in the Department of East Asian Languages and Civilization. Topic varies year to year.
Course usually offered in fall term
Prerequisites: EALC 002. No language required for undergraduates
Activity: Seminar
1 Course Unit

EALC 303 Major Seminar on Korea
This is a seminar required for all Korean majors in the Department of East Asian Languages and Civilization. Topic varies year to year.
Taught by: Park
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 340 International Relations in Ancient East Asia: Cross-Cultural Relations between Ancient China, Korea, and Japan.
Taught by: Nishimura,Y
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 371 Intermediate Chinese
Activity: Lecture
1 Course Unit

EALC 501 Chinese History and Civilization
This seminar offers a thematic overview of the academic study of Chinese history from the Neolithic period to the 21st century. Over the course of the semester, students will be introduced to different scholarly approaches to the study of history through a close reading and analysis of the work of leading scholars in the field of Sinology. We will learn about the various subfields in the study of history, such as cultural history, social history, administrative and legal history, intellectual history, history of religion, literary history, history of gender, world history, and historiography, examine their different methodological frameworks and tools, and draw on them in order to problematize and enrich our understanding of Chinese culture. In addition, this seminar will provide incoming students with the relevant tools to produce original graduate-level research on all aspects of Chinese history, society, and culture and present it in a clear and persuasive fashion orally and in written form. While original-language research for the final project is encouraged, all course materials will be in English.
Course usually offered in fall term
Prerequisites: Course intended for first year MA and PhD students.
Undergraduates need permission.
Activity: Seminar
1 Course Unit

EALC 502 Japanese History and Civilization
This seminar introduces students to the graduate-level study of Japan. In addition to getting a broad overview of Japanese culture, students in the course will develop familiarity with major debates in the history of the field of Japanese studies. The course also provides basic training in using primary and secondary sources in Japanese, Japanese bibliographic conventions, and other skills necessary for pursuing advanced research or a teaching career in the field. Open to all graduate students and to undergraduates with permission from the instructor.
Familiarity with Japanese language is a plus but is not required.
Taught by: Thomas J
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates need permission from instructor.

EALC 503 Korean History & Civilization
This graduate-level seminar focuses on the political, social, and cultural history of the Korean Peninsula and the vicinity from early times to the contemporary era. Readings will consist of primary and secondary sources, including influential modern studies of Korean history and civilization. All course materials are in English and no knowledge of Korean is presumed.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
EALC 504 Introduction to Inner Asian Civilizations
This class is intended for new graduate students and upper-division undergraduates with some prerequisites who wish to get a solid grounding in the study of Inner Asia. The class will introduce Inner Asia as a coherent civilizational network, focusing on: 1) the steppe-imperial tradition; 2) the Tibetan-rite Buddhist commonwealth that developed from the Tibetan and Mongol empires; and 3) the increasing integration of these two Inner Asian civilizational patterns with that of imperial China. There will also be some consideration of the Islamic Turco-Mongolian synthesis that developed in the post-Mongol period. Regionally, the class introduce: 1) core Inner Asia (the Mongolian plateau, the Tarim Basin, the Tibetan plateau, the Manchuria) and 2) the main dynasties of China that formed in the Mongolia and Manchuria (Liao, Jin, Yuan and Qing). There will also be some consideration of historically Inner Asian populations in Hexi (Gansu-Qinghai), and the North China plains and the Shaanxi-Shanxi-Rehe uplands. Chronologically, the class will touch on prehistory and the contemporary period, but will mostly cover the period from the emergence of historical records on the Mongolian plateau and the Tarim basin to roughly 1950. Prehistory and the contemporary period will be give less detailed coverage.

Taught by: Atwood
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Graduate Seminar

EALC 505 East Asian Diplomacy
This course will survey recent scholarship on East Asian diplomacy from the sixteenth century to the present. We will engage several fundamental debates about the relationship between China, Japan, Korea and the outer world and introduce not only orthodox diplomatic analyses but also newer approaches to modern China, Japan and Korea by international and global historians.

Taught by: Dickinson
Course usually offered in fall term
Activity: Lecture
0 Course Units

EALC 508 SPORTS IN EAST ASIA
This course will examine sports in East Asia from the nineteenth century to the present. Recently, East Asia plays an important role in transforming the global geopolitics of sport. The post-war East Asian Olympic Games-1964 Tokyo Olympics, 1972 Sapporo Winter Olympics, 1988 Seoul Olympics, 1998 Nagano Winter Olympics, and 2008 Beijing Olympics-and the 2002 FIFA World Cup Korea/Japan illustrate the fact that a new global sports order led by East Asia has emerged. East Asia nations will play hosts to other major sporting events, including the 2018 Pyeongchang Winter Olympics, 2020 Tokyo Olympics, and 2022 Beijing Winter Olympics. Chinese, Japanese, and Korean athletes have been highly active in MLB, NBA, English Premier League, and LPGA. The popularity of the various martial arts proves that East Asian sports seem to be everywhere these days. This class will focus on helping students understand how sports have affected and transformed East Asia exploring various issues: imperialism, colonialism, race, class, gender, foreign policy, nationalism, religion, economics, industrialization, tourism, and urbanization. Course contents include lecture, discussions, secondary readings, primary source readings, documentaries, and films.

Course not offered every year
Activity: Lecture
1 Course Unit

EALC 506 East Asian Digital Humanities
"Are you interested in cutting-edge digital methods for the humanities in EastAsia, but don't know where to start? This course covers a wide range of current and emerging digital projects and topics in East Asian studies. Students will engage with digital projects focused on East Asia (encompassing Japan, China, Korea, and Taiwan) as well as research being done on digital methodologies for the humanities in those areas. Coursework consists of project and research analysis, active discussion, and learning about the implementation of various digital projects. Example topics include text analysis, APIs, network analysis, digital literary studies, and mapping. Note that technical expertise is required but students must have reading knowledge of Chinese, Japanese, or Korean at the high-intermediate or advanced level. Class presentations, discussions, and all course readings will be in English, but midterm and final projects involve reading articles and mid-semester and final projects involve reading articles and critiquing projects ise."

Taught by: Des Jardin
Prerequisites: Reading knowledge (intermediate or above) of East Asian language required.
Activity: Lecture
1 Course Unit

EALC 515 Buddhist Arts of East Asia: Sources, Iconography and Styles
Survey of art and architecture created for Buddhist religious purposes in China, Japan, and to a lesser extent Korea, Tibet, and Central Asia. The course will include a brief overview of Buddhist monuments in South Asia, study of the iconography of Buddhist images in graphic and sculptural media, and analysis of a variety of Buddhist styles in painting, sculpture, and architecture.

Taught by: Chance, F
Course not offered every year
Prerequisites: Research in an East Asian language required for graduate credit.
Activity: Lecture
1 Course Unit

EALC 516 East Asian Gardens
Explore the beauty of gardens (and associated buildings) in Japan, China, and Korea from ancient times to the present. Lectures will be illustrated by photographs from dozens of sites in East Asia, and by a field trip to the Japanese House and Garden in Fairmount Park. The main body of the course will be a historical survey of the evolution of East Asian garden art forms from the sixth century to the present. Discussion will touch on geographic and climatic parameters, spiritual and aesthetic principles, practical limitations and creative innovations of East Asian gardens. There will be an additional fee for the Japanese House visit, and possibly for other field trips.

Taught by: Chance, F
Course not offered every year
Activity: Lecture
1 Course Unit
EALC 519 East Asian Ceramics
History of ceramic forms, techniques, and aesthetic principles in China, Korea, and Japan from neolithic times to the present century, illustrated by slides and examples, augmented by readings, field trips, and student presentations. Aimed at students with general interest in Japan and/or ceramics history; particularly but not exclusively those majoring in East Asian Languages & Civs, East Asian Area Studies or History of Art; also art majors interested in ceramics.
Taught by: Chance, F
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 521 Chinese Poetry & Prose: In translation
A wide variety of poetic & prose genres from the earliest times to the 19th century is introduced through English translation. A few selections will also be studied in Chinese characters with romanized transcriptions. There are no prerequisites for this course.
Taught by: Mair
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EALC 522 Chinese Fiction and Drama in Translation
This course explores Romance of Three Kingdoms the most popular classic novel in East Asia and an important source for understanding Chinese culture, politics, history, and military strategy. We propose to read this work not only as a textbook of Chinese literature and culture, but also as a guidebook for career development and risk assessment. Why didn’t Pang Tong have a career as successful as Zhuge Liang? Why did Ma Su volunteer in a project that he is not good at? If Cao Cao, Liu Bei, Sun Quan run for presidency in the U.S., who would you vote for and why? These are some of the questions that we will explore alongside our inquiry into the historical development of various genres of Chinese fiction. In addition to Romance of Three Kingdoms, this course introduces Sun Tsu’s The Art of War and other classical Chinese novels such as Dream of the Red Chamber and Strange Tales from a Chinese Studio, as well as classical literary criticism such as Cao Pi’s On the Standard of Literature (Dian lun), Lu Ji’s Essays on Literature (Wen lun), and Liu Xie’s The Literary Mind and the Carving of Dragons.
Taught by: Mair
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EALC 525 Cultural Chinas: 20th Century Chinese Literature and Film
This course serves as a thematic introduction to modern Chinese literature and cinema in China, Hong Kong, Taiwan and other transnational Chinese communities in the twentieth century. By discussing a wide range of key literary and filmic texts, this class looks into major issues and discourses in China’s century of modernization: enlightenment and revolution, politics and aesthetics, sentimental education and nationalism, historical trauma and violence, gender and sexuality, social hygiene and body politics, diaspora and displacement, youth sub-culture and urban imagination.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EALC 527 Arts of China
A broad survey of Chinese architecture, sculpture, and painting from the Neolithic age through the nineteenth century. Topics include excavated material from China’s Bronze Age, Chinese funerary arts, Buddhist caves and sculpture (including works in the University Museum), the Chinese city, the Chinese garden, and major masterpieces of Chinese painting. One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 529 CRITICAL THEORY CHINA
Activity: Lecture
1 Course Unit

EALC 531 Introduction to Classical Chinese Thought
This course is intended as an introduction to the foundational thinkers of Chinese civilization, who flourished from the fifth to the second centuries B.C. No knowledge of Chinese is presumed, and there are no prerequisites, although EALC 001 (Introduction to Chinese Civilization) is recommended. Graduate students may take this course as EALC 531 and should see the instructor to discuss requirements for graduate credit.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EALC 535 Classical Chinese Political Thought
Topic varies.
Taught by: King
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 536 Chinese Martial Arts
This course offers a thematic introduction to the history of martial arts in China. Throughout the semester, we will explore the social, political, and cultural contexts of martial arts practice, from the classical period to the 21st century. The course will take an interdisciplinary approach to situating martial arts practices in history through an examination of religious, literary, and visual sources, against the backdrop of theoretical approaches from across gender studies, anthropology, and cultural theory. The course will be divided into three units. The first unit will focus on the cultural background that led to the emergence of martial arts practices in the pre-modern period. We will examine classical discourses on the human body and its cultivation and the role of medical practices and religious institutions, such as the Shaolin Temple, in the development of martial arts regimens. In the second unit, we will discuss the spread and popularization of martial arts practices in late imperial and modern Chinese society through a close reading of literary sources, such as wuxia novels and other works of fiction. In addition, we will explore the modernization and re-invention of martial arts in the late 19th and early 20th century, when China attempts to re-establish itself as a modern nation. The third and final unit will be devoted to the global impact of Chinese martial arts in contemporary popular culture. Through a discussion and analysis of Kung Fu films, as well as video games, we will explore the role of martial arts narratives and practices in the construction of gender, cultural, and national identity and the various ways in which they are used by the current Chinese regime to assert its influence in the global arena. No knowledge of Chinese is presumed, and all readings will be available in English on the Canvas website in PDF form. Graduate students may take this course as EALC536 and should see the instructor to discuss requirements for graduate credit.

Taught by: Tavor
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 540 Intl Relatns Anc E.Asia: Cross-Cultural Relations Between Ancient China, Korea, and Japan
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 551 Contemporary Fiction & Film in Japan
Taught by: Kano
Course not offered every year
Prerequisites: This course will explore fiction and film in contemporary Japan, from 1945 to the present. Topics will include literary and cinematic representation of Japan s war experience and post-war reconstruction, negotiation with Japanese classics, confrontation with the state, and changing ideas of gender and sexuality. We will explore these and other questions by analyzing texts of various genres, including film and film scripts, novels, short stories, manga, and academic essays. Class sessions will combine lectures, discussion, audio-visual materials, and creative as well as analytical writing exercises. The course is taught in English, although Japanese materials will be made available upon request. No prior coursework in Japanese literature, culture, or film is required or expected; additional secondary materials will be available for students taking the course at the 600 level. Writers and film directors examined may include: Kawabata Yasunari, Hayashi Fumiko, Abe Kobo, Mishima Yukio, Oe Kenzaburo, Yoshimoto Banana, Ozu Yasujirou, Naruse Mikio, Kurosawa Akira, Imamura Shohei, Koreeda Hirokazu, and Beat Takeshi.
Activity: Lecture
1 Course Unit

EALC 552 Love and Loss in Japanese Literary Traditions: In Translation
How do people make sense of the multiple experiences that the simple words "love" and "loss" imply? How do they express their thoughts and feelings to one another? In this course, we will explore some means Japanese culture has found to grapple with these events and sensations. We will also see how these culturally sanctioned frameworks have shaped the ways Japanese view love and loss. Our materials will sample the literary tradition of Japan from earliest times to the early modern and even modern periods. Close readings of a diverse group of texts, including poetry, narrative, theater, and the related arts of calligraphy, painting, and music will structure our inquiry. The class will take an expedition to nearby Woodlands Cemetery to experience poetry in nature. By the end of the course, you should be able to appreciate texts that differ slightly in their value systems, linguistic expressions, and aesthetic sensibilities from those that you may already know. Among the available project work that you may select, if you have basic Japanese, is learning to read a literary manga. All shared class material is in English translation.

Taught by: Chance
Course usually offered in fall term
Prerequisites: Research in an East Asian language required for graduate credit.
Activity: Lecture
1 Course Unit

EALC 555 Modern Japanese Literature
This course surveys Japanese literature (novels, short stories, poetry, drama, essays) from 1868 to World War II. The purpose is not only to read some of the most important and interesting literary texts of this period, but also to reflect on the ways we read and study literature, and how we draw connections between literature, self, and society. The reading material will be entirely in English.

Taught by: Kano
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EALC 556 Post War Japanese Cinema
Mizoguchi Kenji, Ozu Yasujirou, and Kurosawa Akira are recognized today as three of the most important and influential directors in Japanese cinema. In their films of the late 1940s and 1950s, these directors focused upon issues surrounding the human condition and the perception of truth, history, beauty, death, and other issues of the postwar period. This course places their films in period context, and pays particular attention to the connections to other visual media, and to how "art" and "history" are being defined in the cinematic context. How other directors also took up these issues, and referred to the "big three" is also be discussed.

Taught by: Davis
Course not offered every year
Activity: Lecture
1 Course Unit
EALC 557 Arts of Japan
This course introduces the major artistic traditions of Japan, from the Neolithic period to the present, and teaches the fundamental methods of the discipline of art history. Special attention will be given to the places of Shinto, the impact of Buddhism, and their related architectures and sculptures; the principles of narrative illustration; the changing roles of aristocratic, monastic, shogunal and merchant patronage; the formation of the concept of the artist over time; and the transformation of tradition in the modern age.
Taught by: Davis
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 559 Topics in Japanese Art
Topic varies. Fall 2018: This course will consider Japanese woodblock prints, illustrated books, and paintings from the seventeenth through the twentieth century. Topics include: the formation of "Ukiyo-e" or "the pictures of the floating world" as a genre; the development of the publishing system and its audience; specific artists and their works; the reception of Japanese prints in Europe and America; the modern reinvention of the woodblock print; and others. We will also make extensive use of the collections held in the Kislak Center, the Philadelphia Museum of Art, and in other local collections. Assignments may include: close study of a single work; web page development; research paper; regular participation in discussions.
Taught by: Davis
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 570 Japanese Archaeology in the Penn Museum
This class integrates the Japanese archaeological artifacts (ca. 240 items) and drawings (ca. 16 sheets) that were given to the Penn Museum at the World's Columbian Exposition of 1893 as a gift from the Tokyo National Museum/Meiji Government. In this course, as students learn the basic knowledge on Japanese archaeology, they participate in the basic background research on the exposition objects. Students are then to choose his/her research topic based on this collection, and their projects and resulting research papers will be presented possibly on a newly-established website. Through their individual research projects using this collection, students will learn how to handle the archaeological artifacts, investigate the relevant data in the Penn Museum archives, and acquire the basic curatorial knowledge and skills for dating, classifying, specifying the provenience of the objects.
Taught by: Nishimura
Activity: Lecture
1 Course Unit

EALC 576 Japan: Age of the Samurai
This course deals with the samurai in Japanese history and culture and will focus on the period of samurai political dominance from 1185 to 1868, but it will in fact range over the whole of Japanese history from the development of early forms of warfare to the disappearance of the samurai after the Meiji Restoration of the 19th century. The course will conclude with a discussion of the legacy of the samurai in modern Japanese culture and the image of the samurai in foreign perceptions of Japan.
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 583 Readings in Korean History
Topic varies.
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 584 Two Koreas: The Politics of Division
In today's world, the inter-Korean border or DMZ (demilitarized zone) is widely regarded as one of the most impermeable and conflictual frontiers. The purpose of this course is to explore the dynamics of its formation between, and impact within, the two Koreas. The course therefore proposes to analyze how the division of the Korean peninsula not only came into being but also how it has shaped the socio-political trajectories of both the North and the South since 1945. The course also aims at introducing students to conceptual frameworks and comparative debates relevant to understanding the Korean case(s) from a social science perspective.
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 592 Arts of Korea
The goal of this course is understanding the development of visual, performing, and literary arts in Korea and the historical, religious, and social contexts in which they flourished. It serves as an introduction to the arts of Korea, with emphasis on painting, sculpture, ceramics, and architecture and additional consideration of dance, drama, poetry, and culinary arts. Covers the whole history of Korea, from prehistoric times to the twenty-first century. Students enrolled in this graduate number are expected to do research in an East Asian language.
Taught by: Chance, F
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 611 Life and Death in Han China
Using wall painting, sculpture, and minor arts as evidence, the course will examine the attitudes toward life and beliefs and death in Han (206 B.C.-A.D.220) China.
Taught by: Steinhardt
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 616 Chinese Arts Under the Mongols
The Yuan Dynasty (1257-1368), the period of Mongolian rule, was the only time in Chinese history when China was part of a larger empire that spanned the Asian continent. Using architecture, sculpture, painting, and excavated evidence, this course examines the unique results of an international Asian world centered in China.
Taught by: Steinhardt
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 621 First Year Classical Chinese I
Introduction to the classical written language, beginning with Shadick, First Course in Literary Chinese. Students with a background in Japanese, Korean, Cantonese, Taiwanese, and other East Asian languages are welcome; it is not necessary to know Mandarin. The course begins from scratch, and swiftly but rigorously develops the ability to read a wide variety of classical and semi-classical styles. Original texts from the 6th century BC to the 20th century AD are studied. This course is taught in English and there are no prerequisites.
Taught by: Mair
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EALC 622 1st Year Classical Chin II
Continuation of CHIN491 EALC221/621, which is the only prerequisite for this course. Upon completion of Shadick, readings in a wide selection of texts with Chinese commentaries may be taken up. These readings are in part chosen to reflect student interest. This is the second half of a year-long course. Those who enroll must take both semesters.
Taught by: Mair
Course usually offered in spring term
Prerequisite: EALC621
Activity: Lecture
1 Course Unit

EALC 623 Language, Script and Society in China
The Chinese writing system is the only major surviving script in the world that is partially picto-ideographic, Egyptian hieroglyphic and Sumero-Akkadian cuneiform having passed out of use about two millennia ago. Partly because it is so unique, a tremendous number of myths have grown up around the Chinese script. In an attempt to understand how they really function, this seminar will examine the nature of the sinographs and their relationship to spoken Sinitic languages, as well as their implications for society and culture. We will also discuss the artistic and technological aspects of the Chinese characters and the ongoing efforts to reform and simplify them. The use of sinographs in other East Asian countries than China will be taken into account. There are no prerequisites for this class.
Taught by: Mair
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 627 Chinese Painting
Study of Chinese painting and practice from the earliest pictorial representation through the late twentieth century. Painting styles are analyzed, but themes such as landscape and narrative are considered with regard to larger social, cultural, and historical issues. The class will pay particular attention to the construction of the concepts of the "artist" and "art criticism" and their impact on the field into the present. Visits to study paintings at the University of Pennsylvania Museum and Philadelphia Museum of Art.
Taught by: Steinhardt
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 629 Chinese Architecture
Survey of Chinese buildings and building technology from the formative period in the second millennium BCE through the twentieth century. The course will deal with well-known monuments such as the Buddhist monasteries of Wutai, imperial palaces in Chang'an and Beijing, the Ming tombs and the Temple of Heaven, and less frequently studied buildings. Also covered will be the theory and principles of Chinese construction.
Taught by: Steinhardt
One-term course offered either term
Activity: Lecture
1 Course Unit

EALC 630 Gender and Religion in China
This course examines gender in Chinese religious culture from ancient to contemporary times. We will explore topics including the Buddhist accommodation of Chinese family system, Chinese transformation of the bodhisattva Guanyin, female deities in Daoist and popular religious pantheons, writings about religious women, female ghosts and fox spirits in literary imagination and folk tales, and the significance of yin force in Chinese medicine and Daoist alchemy. Through the case of China, we will look at how gender plays critical and constitutive roles in religious traditions, and how religion can be used both to reinforce and to challenge gender norms.
Taught by: Cheng, H
Activity: Seminar
1 Course Unit

EALC 633 Chinese Aesthetics
This seminar investigates classical Chinese conceptions of art and beauty as exemplified in philosophy, literature, music, painting, calligraphy, and architecture. All readings will be in English, and no knowledge of Chinese is presumed. Graduate students should see the instructor to discuss requirements for graduate credit.
Taught by: Goldin
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 634 Daoist Traditions
This course examines the history of various intellectual and religious traditions that came to be known as Daoist (or Taoist in the Wade-Giles Romanization). We will begin with a critical review of the twentieth-century reinvention of Daoism and the new classification of religious versus philosophical Daoism, before tracing chronologically the textual, institutional, and social history of Daoist traditions from the fourth century B.C.E. While familiarizing students with the key concepts, practices, and organizations developed in the history of Daoism, this class emphasizes the specific socio-political context of each of them. Throughout the course, we will think critically about the labeling of Daoist (as well as Confucian and Buddhist) in Chinese history and in modern scholarship. We will also question modern demarcations between philosophy, religion, and science, as well as that between the spiritual and the physical.
Taught by: Wang
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 639 Sex and Society in Ancient China
Ancient Chinese writers considered sexual activity to be an essential component of humanity, and that study of human sexuality to be essential to the study of human history. Sexuality constituted a fundamental source of imagery and categories that informed the classical Chinese conception of social, political, and military relationships. This course will survey the major sources dealing with sex and society in ancient China. There are no pre-requisites, and no knowledge of Chinese is presumed.
Taught by: Goldin
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 640 Early Chinese History
This seminar covers the span of Chinese history from the Bronze Age to the establishment of the empire in 221 B.C. No knowledge of Chinese is presumed, but EALC 001 (Introduction to Chinese Civilization) is a prerequisite. Graduate students who wish to enroll should meet with the instructor to discuss additional requirements for graduate credit.
Taught by: Goldin
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EALC 641 Law in Pre-Modern China
This course, intended for graduate students and advanced undergraduates, offers a survey of the sources and research problems of pre-modern Chinese law. For reasons to be examined in the course, traditional Sinological education has neglected law as a legitimate field of inquiry; consequently, the secondary literature is surprisingly meager. Our readings will take us from the Warring States Period to the Qing dynasty—an interval of over two millennia—and will cover several varieties of legal documents, including statutes, handbooks, court records, and theoretical treatises. All the readings will be in English, and no knowledge of Chinese is presumed. Graduate students should see the instructor to discuss requirement for graduate credit.
Taught by: Goldin
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 642 Medicine and Healing in China
This course explores Chinese medicine and healing culture, its diversity, and its change over time. We will discuss topics including the establishment of canonical medicine, Daoist approaches to healing and longevity, diverse views of the body and disease, the emergence of treatments for women, medical construction of sex difference and imagination of female sexuality, the thriving and decline of female healers, the identity of scholar physicians, the transmission of medical knowledge, domestic and cross-regional drug market, healer-patient relations, and new visions of traditional Chinese medicine in modern China.
Taught by: Cheng, H
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 643 Pastoralism & Mobility
"Pastoralism and Mobility" will examine the society and history of mobile pastoralists (nomads) in Inner Asia from earliest times to the present. Peoples covered will include Mongols, Tibetans, Turkic nomads (such as Kazakhs, Kyrgyz, and Turkmen), and their ancestors and predecessors. The class on focus on questions such as: Is there a distinctive form of Inner Asian pastoralist society? At the grass roots level? At the elite level? How have states (native and foreign) influenced Inner Asian pastoralist society in pre-modern and modern contexts? How have Inner Asian pastoralists influenced neighboring states? What role does kinship play in governing group formation, property, and status in Inner Asian pastoralist society? Does this role vary over time, space, or ethnic background? If so, how? What purposes does mobility serve in Inner Asian societies? How have various forms of livestock lease-holding changed and shaped wealth in Inner Asian pastoralist society? How did class differentiation emerge & function in pre-modern pastoralist societies? What happens when pastoralists become farmers? How have modern schemes of social improvement and productivity, especially collectivization and decollectivization, shaped pastoralist lives?
Taught by: Atwood
Course offered fall; odd-numbered years
Activity: Seminar
1 Course Unit

EALC 651 Readings in Classical Japanese I
Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods. Introduction to the different styles of classical Japanese, and to classical Japanese as a whole.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: JPAN 212 or equivalent
Activity: Lecture
1 Course Unit

EALC 653 The Politics of Shinto
Shinto-derived images and ideas frequently appear in Japanese anime and film, and journalists and academics frequently mobilize the term Shinto as a way of explaining Japan’s past or envisioning its future. The environmentalist left champions a green Shinto while Shinto-derived ideas serve as red meat for politicians pandering to Japan’s nationalist right. While the influential position Shinto occupies in Japanese sociopolitical life is therefore clear, the term Shinto itself is actually not. Depending on who one asks, Shinto is either the venerable indigenous religion of the Japanese archipelago, the irreducible core of Japanese culture, a tiny subset of Japanese Buddhism, an oppressive political ideology linked to the emperor system, an environmentalist ethic, or some combination of these. This course investigates the multifarious types of Shinto envisioned by these competing interest groups.
Taught by: Thomas, J.
Course not offered every year
Activity: Lecture
1 Course Unit
EALC 654 Tales of the Heike
Our subject is Tale of the Heike, a multifaceted narrative of the twelfth-century battles that brought the Taira clan down and led to the establishment of Japan’s first military government. We will read the Heike tales with an eye toward how they fictionalize history and idealize certain types, most notably loyal women and warriors; the development of the warrior tale genre; central aspects of the Japanese ethos; and later works of literature based on episodes and characters from the Tale of the Heike. All material is in English translation. (Students of Japanese language may learn to read a famous section in the original.) There are no prerequisites.
Taught by: Chance, L
Course not offered every year
Prerequisites: Research in an East Asian language required for graduate credit.
Activity: Seminar
1 Course Unit

EALC 655 Japanese Theater
Japan has one of the richest and most varied theatrical traditions in the world. In this course, we will examine Japanese theater in historical and comparative contexts. The readings and discussions will cover all areas of the theatrical experience (script, acting, stage design, costumes, music, audience). Audio-visual material will be used whenever appropriate and possible. The class will be conducted in English, with all English materials.
Taught by: Kano
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 656 The Tale of Genji
"Crowning masterpiece of Japanese literature," "the world’s first novel," "fountainhead of Japanese literary and aesthetic culture," "a great soap opera in the vein of Jacqueline Susann." Readers over the centuries have praised the Tale of Genji, the monumental prose tale finished just after the year 1000, in a variety of ways. In this course we will read the latest English translation of Murasaki Shikibu’s work. We will watch as Genji loses his mother at a tender age, is cast out of the royal family, and begins a quest to fill the void she left. Along the way, Genji’s loyalty to all the women he encounters forges his reputation as the ideal lover. We will consider gender issues in the female author’s portrayal of this rake, and question the changing audience, from adoring nationalists to comic book adaptors. Readings will cover all of the tale's many motifs, from flora and fauna to murderously jealous spirits, on later literature and conceptions of human emotions. All material is in English translation. There are no prerequisites.
Taught by: Chance, L
Course not offered every year
Prerequisites: Research in an East Asian language required for graduate credit.
Activity: Seminar
1 Course Unit

EALC 659 Gender and Sexuality in Japan
Taught by: Kano
Course not offered every year
Activity: Lecture
1 Course Unit

EALC 661 History of the Book in East Asia
Spring 2018: From handscrolls to manga, books play a vital role in East Asian societies. In this course we will introduce the spread of book cultures across East Asia and reconsider the role and impact of material texts on societies in China, Korea, and Japan. Among the questions we will engage are: What is a book, an author, or an edition? How do readers affect books? How do publishers decide when to use illustrations, woodblock printing, or movable type? How has the history of books differed in China, Japan, and Korea from the history of the book in the West? We will consider various media (bamboo, paper, silk, and the digital), formats (scrolls, folded books, bound books, small to oversize), and the tensions between handwritten manuscript and printed pages. Hands-on sessions may include paper-making, bookbinding, and printing. This is an Objects-Based Learning course, using materials from the Kislak Center for Special Collections, Rare Books and Manuscripts, and the Penn Museum, with visits to the Philadelphia Museum of Art and the Free Library of Philadelphia. Requires no knowledge of any Asian language.
Taught by: Davis, Chance
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 664 Lawlessness and Violence in Pre-Modern Japan
This course will be an exploration of premodern Japanese history through the lens of violence. The centuries under consideration (roughly, the eighth through nineteenth) were characterized by greatly varying levels of violence, both of the state-sanctioned variety (war, punishments for law-breakers and political losers) and of the non-sanctioned variety (piracy, banditry, warrior and peasant rebellions). Examining a wide variety of translated sources, from diaries to chronicles, from legal codes to fiction, we shall examine the changing social, political, economic, and cultural contexts of violence, in order to interrogate not only why certain periods were remarkably peaceful while others were not, but also why violence took different forms in relation to different circumstances. We shall consider how contemporaries made sense of the violence that surrounded them (or didn’t) and how they divided the acceptable use of force from the wanton and society-threatening abuse of it. The course will feature presentations and several (very short) papers.
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 6670 From Shamans to Shoguns: The Texts that Made Pre-Modern Japanese History
This course tackles about a millennium of pre-modern Japanese political, social, and cultural history (roughly, 700-1700). Instead of attempting to cover the period chronologically, as an introductory survey might, this class is structured as a series of case studies. Each of these will take a primary source as its point of departure and explore one or more facets of Japanese history and writing. In the course of each case study, lectures and discussions will branch out from the main source to examine its historical context as well as the (political, cultural, textual) traditions that informed that source’s composition. In general, students will read the entire texts of the main sources (or significant portions of them), along with scholarly articles and shorter excerpts from other sources, composed at the same time or in the same vein/genre. During lectures and discussions alike, students will be asked to engage the readings, so as to grasp the specifics of Japanese history and practice the analytical skills required of historical discourse.
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 691 Archaeology of Central Asia
A site by site investigation of Buddhist and non-Buddhist ruins in Central Asia. Included are Nisa, Khwarezm, Pyandzhikent, Khalchayan, Ay-Khanum, Bamian, Miran, Tumshuk, Kizil, Kucha, Khotan, Adzhina-Tepe, Khocho, Khara-Khoto, and Bezeklik.
Taught by: Steinhardt
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 720 Topics in Chinese Studies
Topics vary semester to semester
Taught by: Mair
Course not offered every year
Prerequisite: 1 Year Classical Chinese
Activity: Seminar
1 Course Unit

EALC 721 Advanced Classical Chinese I
Close reading and interpretation of texts in various styles of classical Chinese drawn from the Han, Wei, Tang, and Song periods. Focus on strengthening students' reading ability in classical Chinese. Attention to questions of style, rhetoric, and syntax.
Course not offered every year
Prerequisite: EALC621/622 or equivalent
Activity: Seminar
1 Course Unit

EALC 722 Adv Classical Chinese II
Course not offered every year
Prerequisite: EALC721 or equivalent
Activity: Seminar
1 Course Unit

EALC 730 Survey Chinese History
One-term course offered either term
Activity: Seminar
1 Course Unit

EALC 731 Tang-Song Religious and Medical Texts
This seminar aims at developing the skill in reading religious and medical texts of a range of different genres from the Tang-Song period, including treatises in medical theory, no sological texts, recipe compilations, material medical, macrobiotic texts, Buddhist and Daoist meditation and ritual instructions, as well as case histories in anecdotal forms. There are a variety of topics we can choose to focus on the studying those texts, and the choice will be made on the students’ research interests. Each week we will look at one type of texts, consider its edition, textual history, chapter organization and genre (sometimes with background readings), read line-by-line a sample text assigned in advance, as well as sight-read short samples that students bring to class. At least one year Classical Chinese is required.
Taught by: Cheng, H
Course not offered every year
Prerequisites: At least one year Classical Chinese is required.
Activity: Seminar
1 Course Unit

EALC 733 Song Dynasty Texts
The goal of this course is to gain a practical ability in doing research concerning the Song dynasty by utilizing Chinese primary sources. Each session we will take a type of source, look at examples of it in the library, consider indexes and other reference aids, consider historiographical uses and limitations, and do some communal reading of a sample text distributed in advance, as well as sight-reading of short samples students bring to class, prepared to translate for the class. We will cover sources including standard histories (Song shi, Liao shi, Jin shi), narrative history (Xu zizhi tongjian changbian), biographical accounts (epithets, index of Song biographies), diaries, letters, inscriptions, anecdotes, regional histories/gazetteers, and government documents (Song hui yao).
Course not offered every year
Prerequisite: One year Classical Chinese
Activity: Seminar
1 Course Unit

EALC 738 Religion & Ethnicity in Inner Asia
Taught by: Atwood
Activity: Seminar
1 Course Unit

EALC 740 Sinological Methods
This seminar is designed to acquaint graduate students with the basic methods and resources of Sinological research. The course will begin with an overview of essential reference works and aids to study, such as dictionaries and concordances, and continue with a survey of the major primary sources for the study of traditional Chinese history. Students are required to demonstrate the use of the methods learned in the course in a research paper, to be presented to the class in the form of a brief lecture at the end of the semester. Only graduate students may enroll in this course. The prerequisites are reading knowledge of modern Chinese and two years of the classical language. Familiarity with Japanese, though not required, would prove helpful.
Taught by: Goldin
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 745 Topics Song Dynasty Hist
"This seminar will introduce graduate students to current scholarship on the Song dynasty (960-1276) by surveying both classic and recent work in the field. Students will gain a foundation in how historians have interpreted the Song period and learn the major debates within the field. Readings will be principally in English, and no background in Chinese studies is required." This seminar will introduce graduate students to current scholarship on the Song dynasty (960-1276) by surveying both classic and recent work in the field. Students will gain a foundation in how historians have interpreted the Song period and learn the major debates within the field. Readings will be principally in English, and no background in Chinese studies is required.
Taught by: Vivier
Course not offered every year
Activity: Seminar
1 Course Unit
EALC 747 Chinese Economic History
This seminar will introduce graduate students to current scholarship and major scholarly debates in the field of Chinese economic history, focusing on the imperial period up to 1900. The course will proceed chronologically, combining a survey of the historiography of the Chinese economy (principally in English) with extended discussion of the most significant disagreements within the field. No background in Chinese studies is required.
Taught by: Vivier
Activity: Seminar
1 Course Unit

EALC 749 Japanese for Sinologists
An accelerated course in scholarly Japanese for Sinologists and others with a knowledge of Chinese characters.
For BA Students: Advanced Language Course
Taught by: Chance, L
Course usually offered in fall term
Prerequisites: Completion of JPAN 112 or the equivalent. Or completion of Summer Intensive Japanese for Sinologists II. Knowledge of Chinese characters.
Activity: Seminar
1 Course Unit

EALC 750 Japanese Literature: Research Methods in the Classical Tradition
Introduction to bibliographic tools for research in pre-modern literature. Emphasis on hands-on library work, including how to use libraries in Japan. Covers history and terminology of bibliography. Students may attend lectures in EALC 152/552 simultaneously, when offered. Final project will use reference tools for substantive research in individual student’s area of interest.
Taught by: Chance
Course not offered every year
Prerequisites: Advanced Japanese language reading skills required.
Activity: Seminar
1 Course Unit
Notes: Requires Japanese Language

EALC 751 Topics in Early Modern Japanese History
Topic varies year to year for this seminar.
Taught by: Spafford
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 755 Literary Criticism and Theory in Japanese Literature
While the focus of this seminar will shift from year to year, the aim is to enable students to gain 1) a basic understanding of various theoretical approaches to literature, 2) familiarity with the histories and conventions of criticism, literary and otherwise, in Japan; 3) a few theoretical tools to think in complex ways about some of the most interesting and controversial issues of today, such as nationalism, imperialism, colonialism, postmodernism, and feminism, with particular focus on Japan's position in the world. The course is primarily intended for graduate students but is also open to advanced undergraduates with permission of the instructor. The course is taught in English, and all of the readings will be available in English translation. An optional discussion section may be arranged for those students who are able and willing to read and discuss materials in Japanese.
Taught by: Kano
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 760 Japanese Religions
A broad survey of Japanese religions from ancient times to the present. Topics include kami worship, Buddhism, Shinto, Shugendo, Onmyodo, “new religions”, and Japanese variants of Christianity and Islam. Students will make weekly presentations on reading material in class and will have two major written assignments. This course serves as preparation for a comprehensive exam in Japanese religions or for dissertation research on some aspect of Japanese religions.
Taught by: Thomas, J
Course not offered every year
Activity: Seminar
1 Course Unit

EALC 771 Current Japanology
Major trends in scholarship as reflected in important recent publications, especially formative books and periodical literatures. The trajectory within certain disciplines as well as the interaction among them will be critically evaluated in terms of gains and losses. Implications of these theses in the planning of graduate and postgraduate research.
Course not offered every year
Prerequisite: Knowledge of reading Japanese
Activity: Lecture
1 Course Unit

EALC 785 Sources in Korean Studies
Topic varies.
Course not offered every year
Prerequisites: Reading knowledge of Korean required; knowledge of Hanmun desirable but not required. Or permission of the instructor.
Activity: Seminar
1 Course Unit

EALC 790 Korean Studies: Methods
Topic varies.
Course not offered every year
Prerequisites: Knowledge of Korean helpful but not required.
Activity: Seminar
1 Course Unit

EALC 990 Masters Thesis
One-term course offered either term
Activity: Masters Thesis
1 Course Unit
EAST EUROPEAN (EEUR)

EEUR 009 INTRO TO RUSSIA AND EURASIA: HISTORIES, CULTURES, SOCIETIES
This course is designed as a broad introduction to the study of Russia and Eurasia that will offer students a multi-disciplinary overview of the cultures, histories and societies of this large and diverse region of the world. It is organized in units that illustrate the approaches of various disciplines to the study of the region, including history, literary studies, cinema studies, art history, and social scientific inquiry. At the conclusion of the course, students will be acquainted with these various disciplinary frameworks and the differences between them, with the modes of analysis and writing that pertain to them, and with fundamental knowledge of the region. They will be prepared for further study of the region in a variety of programs of study, including the Russian and East European Studies major, for which the course serves as a foundation.
Taught by: Platt/Staff
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EEUR 010 Central and Eastern Europe: Cultures, Histories, Societies
The reappearance of the concept of Central and Eastern Europe is one of the most fascinating results of the collapse of the Soviet empire. The course will provide an introduction into the study of this region - its cultures, histories, and societies - from the foundation of the Holy Roman Empire to the enlargement of the European Union. Students are encouraged to delve deeper into particular countries, disciplines, and sub-regions, such as Central Europe, Eastern Europe, and the Balkans, through an individual research paper and class presentations.
Taught by: Steiner/Orenstein/Verkholantsev
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: This course is one of two required core courses for the Russian and East European Studies (REES) Major.

EEUR 026 Behind the Iron Curtain
Course not offered every year
Activity: Seminar
1 Course Unit

EEUR 121 Elementary Hungarian I
The elementary Hungarian I course focuses on providing reading, writing, listening and reading-comprehension skills on basic level Hungarian. Interactive class activities and authentic Hungarian material will enable students to develop language skills so they could talk about themselves and their families, discuss every day and weekend routines, express likes and dislikes, converse about school and family activities, and get acquainted with Hungarian holidays and cultural traditions.
For BA Students: Language Course
Taught by: Mizsei
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

EEUR 122 Elementary Hungarian II
Continuation of EEUR121. The second semester of elementary Hungarian course continues on providing functional language competency in basic grammar, vocabulary, comprehension, reading, writing and speaking in Hungarian. Students will continue to learn communicating in everyday life situations as well as in organizing a trip to Hungary, staying in a hotel, ordering meals, buying goods, and participating in cultural activities by using authentic Hungarian online resources and interactive class activities.
For BA Students: Language Course
Taught by: Mizsei
Two terms. student may enter either term.
Prerequisite: EEUR 121 or a placement test
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

EEUR 123 Intermediate Hungarian I
The Intermediate Hungarian I course builds on and continues the course material in Elementary Hungarian I-II. Course activities, authentic audio and video material along with Hungarian online resources will enable students to further develop their reading, writing, listening comprehension and conversational skills. Students will practice their skills by discussing and writing about their interests, student lives, travel and cultural experiences, life on campus as well as learning about Hungarian seasonal traditions, cultural events, and Hungarian student life.
For BA Students: Language Course
Taught by: Mizsei
Two terms. student may enter either term.
Prerequisite: EEUR 121-122 or a placement test
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

EEUR 124 Intermediate Hungarian II
The intermediate Hungarian II course continues EEUR123. Class documents and activities enable students to develop functional intermediate Hungarian competency by exploring Hungary and its culture, reading authentic online news sources, practicing listening and comprehension skills via video and audio material, researching cultural events and traditions, and exploring Hungarians’ everyday lives. At the end of the semester, students will be able to participate and pass their Oral Competency Exit Interview on intermediate level and discuss topics, such as student life, family, friends, academic and student life activities/interests, travel, shopping, and cultural events.
For BA Students: Last Language Course
Taught by: Mizsei
Two terms. student may enter either term.
Prerequisite: EEUR 121-123 or a placement test
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.
EEUR 135 Cold War: A Global History

The Cold War was more than simply a military confrontation between the United States and the Soviet Union; it was the frame within which the entire world developed (for better or worse) for nearly five decades. This course will examine the cold War as a global phenomenon, covering not only the military and diplomatic history of the period, but also examining the social and cultural impact of the superpower confrontation. We will cover the origins of the conflict, the interplay between periods of tension and detente, the relative significance of disagreements within the opposing blocs, and the relationship between the “center” of the conflict in the North Atlantic/European area and the global “periphery.”

Taught by: NATHANS
One-term course offered either term
Activity: Recitation
1 Course Unit

EEUR 152 Russia and Eastern Europe in International Affairs

Russia and the European Union (EU) are engaged in a battle for influence in Eastern Europe. EU foreign policy towards its Eastern neighbors is based on economic integration and the carrot of membership. With the application of this powerful incentive, Central and Southeastern European countries such as Poland, Hungary, the Czech Republic, and Croatia have progressed rapidly towards integration with the EU (and NATO). Yet, given Russians opposition to the further enlargement, membership is off the table for the large semi-Western powers such as Russia itself and Turkey and the smaller countries inhabiting an emerging buffer zone between Russia and the EU, such as Georgia, Ukraine, Azerbaijan, Moldova, and Belarus. These in-between countries find themselves subject to intense competition for influence between Eastern and Western powers. In this context, EU countries must balance their energy dependence on Russia and need for new markets and geopolitical stability with concern for human rights, democratic governance, and self-determination. What are the trade-offs implicit in the foreign policies of Russia, EU member states, and Eastern Europe? What are the best policy approaches? What are the main opportunities and obstacles?

For BA Students: Society Sector
Taught by: Orenstein
Course not offered every year
Activity: Seminar
1 Course Unit

EEUR 153 Communism

The rise and fall of Communism dominated the history of the short twentieth century from the Russian revolution of 1917 to the collapse of the Soviet Union in 1991. As a system of government, Communism is more or less dead, but its utopian ideals of liberation from exploitation and want live on. Communism remains the one political-economic system that presented, for a time, an alternative to global capitalism. In this course, students will gain an introduction to socialist and Communist political thought and explore Communist political and economic regimes their successes and failures, critics and dissidents, efforts at reform, and causes of collapse. We will learn about the remnants of Communism in China, North Korea, and Cuba and efforts of contemporary theorists to imagine a future for Communism.

For BA Students: Society Sector
Taught by: Orenstein
Course not offered every year
Activity: Lecture
1 Course Unit

EEUR 159 POPULATION AND PUBLIC HEALTH IN EASTERN EUROPE

Since the collapse of communism in 1989 in Eastern Europe (and 1991 in the Soviet Union), many of the countries in the region have experienced public health crises and demographic catastrophe. Below replacement fertility rates and massive out migration have decimated the populations of these countries even as populations age and place unsustainable strains on pension systems and medical services. The demographic collapse has also been accompanied by falling male life expectancy and the rise of alcoholism, depression, domestic violence, and suicide. The economic exigencies of the transition from communism to capitalism dismantled welfare states at the exact moment when health services were most needed, leaving charities and nongovernmental organization to try to fill in the gaps. Through a combination of readings from the fields of epidemiology, demography, and medical anthropology, this course examines the public health implications of poverty and social dislocation in post-communist states. All readings and assignments are in English.

Taught by: GHODSEE
Activity: Lecture
1 Course Unit

EEUR 160 Sex and Socialism

This seminar examines classic and current scholarship and literature on gender and sexuality in contemporary Eastern Europe, and examines the dialogue and interchange of ideas between East and West. Although the scholarly and creative works will primarily investigate the changing status of women during the last three decades, the course will also look at changing constructions of masculinity and LGBT movements and communities in the former communist bloc. Topics will include: the woman question before 1989; gender and emerging nationalisms; visual representations in television and film; social movements; work; romance and intimacy; spirituality; and investigations into the constructed concepts of “freedom” and “human rights.”

Course not offered every year
Activity: Lecture
1 Course Unit

EEUR 161 Communism & Woman Qstion

Course not offered every year
Activity: Seminar
1 Course Unit

EEUR 164 Russian and East European Film from the October Revolution to World War II

This course presents the Russian contribution to world cinema before WWII - nationalization of the film industry in post revolutionary Russia, the creation of institutions of higher education in filmmaking, film theory, experimentation with the cinematic language, and the social and political reflex of cinema. Major themes and issues involve: the invention of montage, Kuleshov effect, the means of visual propaganda and the cinematic component to the communist cultural revolutions, party ideology and practices of social-engineering, cinematic response to the emergence of the totalitarian state. Great filmmaker and theorist in discussion include Vertov, Kuleshov, Eisenstein, Pudovkin, Medvedkin and others.

Taught by: Todorov
Activity: Lecture
1 Course Unit
EEUR 165 Russian and East European Film after World War II
This course examines the Russian and East European contribution to world cinema after WWII - Stalinist aesthetics and desalinization, WWII in film, the installation of totalitarianism in Eastern Europe and the Cold War in film, the fall of the Berlin Wall, the collapse of the Soviet Union and the post-soviet condition, cinematic representations of Yugoslavia’s violent breakup; the new Romanian waive. Major filmmakers in discussion include Kalatozov, Tarkovsky, Wajda, Polanski, Forman, Mentzel, Sabo, Kusturitsa, Konchalovsky, Mikhalkov and others.
Taught by: Todorov
Activity: Lecture
1 Course Unit

EEUR 171 The Socialist City
This course will explore the ideology and politics of the socialist city in the Soviet Union, East Europe, and the Second World. We will focus on how design professionals, politicians, and residents realized utopian socialist values and the city as an embodiment of socialist ideals. In our discussions, we will consider the city as a symbol of the socialist state, as well as its role in shaping the lives of ordinary citizens. We will examine the development of socialist cities from pre-war socialist modernism to the post-Soviet city of today.
Taught by: Aplenc
Activity: Seminar
1 Course Unit

EEUR 250 Europe: From an Idea to the Union
Employing the methods from the humanities and social sciences this interdisciplinary seminar will explore the variety of factors that contributed to dividing and uniting Europe. The continent will be considered as a geographical and cultural space and the construction of its identity will be examined through several historical periods-from the Middle Ages to Modernism—comprising the rich layer of pan-European civilization across the ethnic or national borders. Finally, the structure of the European Union will be scrutinized including its institutions, decision-making mechanism, monetary union, collective security, the Grexit, and Europe's changing relationship with Russia. Participants will be encouraged to select a particular topic in European studies and research it through assigned readings, film, literature, and other media.
Taught by: Steiner
Activity: Lecture
1 Course Unit

EEUR 265 Yiddish in Eastern Europe
This course presents the major trends in Yiddish literature and culture in Eastern Europe from the mid-19th century through World War II. Divided into four sections - "The Shtetl," "Religious vs. Secular Jews," "Language and Culture," and "Confronting Destruction" - this course will examine how Jews expressed the central aspects of their experience in Eastern Europe through history, literature (fiction, poetry, drama, memoir), film, and song.
Taught by: Hellerstein
Activity: Lecture
1 Course Unit

EEUR 430 Nationalism and Ethnic Conflict in Film
This course studies the cinematic representation of civil wars, ethnic conflicts, nationalistic doctrines, and genocidal policies. The focus is on the violent developments that took place in Russia and on the Balkans after the collapse of the Soviet Bloc and were conditioned by the new geopolitical dynamics that the fall of communism had already created. We study media broadcasts, documentaries, feature films representing the Eastern, as well as the Western perspective. The films include masterpieces such as "Time of the Gypsies", "Underground", "Prisoner of the Mountains", "Before the Rain", "Behind Enemy Lines", and others.
Taught by: Todorov
Course not offered every year
Activity: Online Course
1 Course Unit
ECONOMICS (ECON)

ECON 001 Introduction to Micro Economics
Introduction to economic analysis and its application. Theory of supply and demand, costs and revenues of the firm under perfect competition, monopoly and oligopoly, pricing of factors of production, income distribution, and theory of international trade. Econ 1 deals primarily with microeconomics.
For BA Students: Society Sector
One-term course offered either term
Activity: Recitation
1 Course Unit

ECON 002 Introductory Economics: Macro
Introduction to economic analysis and its application. An examination of a market economy to provide an understanding of how the size and composition of national output are determined. Elements of monetary and fiscal policy, international trade, economic development, and comparative economic systems.
For BA Students: Society Sector
One-term course offered either term
Prerequisite: ECON 001
Activity: Recitation
1 Course Unit

ECON 010 Introduction to Economics for Business
The first part of the course covers basic microeconomic concepts such as opportunity cost, comparative advantage, supply and demand, importance of costs and revenues under perfect competition vs. monopoly, externalities and public goods. The second part of the course introduces macroeconomic data, two models of the labor market, a model of the aggregate household, and the standard AD-AS model. The course concludes with an introduction to fiscal policy, banking, and the role of the Central Bank.
Course usually offered in fall term
Activity: Recitation
1 Course Unit
Notes: For Wharton students only

ECON 013 Strategic Reasoning
This course is about strategically interdependent decisions. In such situations, the outcome of your actions depends also on the actions of others. When making your choice, you have to think what the others will choose, who in turn are thinking what you will be choosing, and so on.
Game Theory offers several concepts and insights for understanding such situations, and for making better strategic choices. This course will introduce and develop some basic ideas from game theory, using illustrations, applications, and cases drawn from business, economics, politics, sports, and even fiction and movies. Some interactive games will be played in class. There will be little formal theory, and the only prerequisite is some high-school algebra and having taken ECON 001. However, general numeracy (facility interpreting and doing numerical graphs, tables, and arithmetic calculations) is very important. This course will also be accepted by the Economics department as an Econ course, to be counted toward the minor in Economics (or as an Econ elective).
One-term course offered either term
Also Offered As: PPE 311
Prerequisites: ECON 001, some high school algebra
Activity: Lecture
1 Course Unit
Notes: This course may NOT be taken concurrently or after ECON 212.

ECON 014 American Capitalism
A broad overview of American economic history will be provided by focusing on the following topics: colonial trade patterns, the growth of the market economy, the political economy of slavery, industrial expansion, segmentation in the labor force and changes in work, technological and organizational innovations, business cycles, the rise of the corporate welfare state, the growth of monopoly capitalism, and current economic problems in historical perspective.
For BA Students: Society Sector
One-term course offered either term
Prerequisites: ECON 001, 002 or ECON 010
Activity: Lecture
1 Course Unit

ECON 024 Development Economics
This course presents an overview of the field of development economics. The general aim is to show how economic analysis has been applied to issues related to developing countries. Among the topics covered are: income distribution, poverty, health, population growth, migration, growth, and the rural economy.
One-term course offered either term
Prerequisite: ECON 001 or ECON 010
Activity: Lecture
1 Course Unit
Notes: Students may NOT take ECON 024 and 261

ECON 028 Financial Meltdown, Past and Present
Economic history is increasingly recognized as a crucial source of policy advice and is invoked with growing frequency in public debates. In particular, the subprime crisis in 2008 and after has generated a demand for "historical perspective" that would improve the understanding of the causes of financial turmoil and facilitate the prevention of comparable catastrophes. This course begins with a review of the principal features of the subprime crisis of 2008 and asks, so to speak, "how did we get there?" It answers by providing historical insights that shed light on crucial aspects of financial disasters.
For BA Students: Humanities and Social Science S
Taught by: Flandreau
One-term course offered either term
Prerequisites: ECON 001, 002, or ECON 010
Activity: Lecture
1 Course Unit

ECON 030 Public Policy Analysis
This course provides an introduction to the economic method for analyzing public policy questions. It develops the implications of this method for the role of government in a market economy and for the analysis of specific public projects.
One-term course offered either term
Prerequisites: ECON 001, 002 or ECON 010
Activity: Lecture
1 Course Unit
Notes: Credit cannot be received for both ECON 030 and 231.
ECON 032 Political Economy
This course examines the effects of strategic behavior on political outcomes and government policies. Topics and applications may include voting behavior, candidate competition, voting systems, social choice and welfare, policy divergence, redistributive policies and theories of political transitions.
One-term course offered either term
Prerequisites: ECON 001, 002, or ECON 010
Activity: Lecture
1 Course Unit
Notes: Credit will NOT be given for ECON 032 and ECON 232
ECON 033 Labor Economics
The course begins with an extensive discussion of models of labor market demand and supply. The rest of the course addresses a variety of related topics including the school-to-work transition, job training, employee benefits, the role of labor unions, discrimination, workforce diversity, poverty, and public policy.
Course usually offered in spring term
Prerequisite: ECON 001 or ECON 010
Activity: Lecture
1 Course Unit
Notes: Credit cannot be received for both ECON 033 and ECON 233.
ECON 035 Industrial Organization
Theories of various industrial organizational structures and problems are developed, including monopoly, oligopoly, moral hazard and adverse selection. These theories are then applied to the study of various industries, antitrust cases, and regulatory issues.
One-term course offered either term
Prerequisite: ECON 001 or ECON 010
Activity: Lecture
1 Course Unit
Notes: Credit cannot be received for both ECON 035 and 235.
ECON 036 Law and Economics
The relationship of economic principles to law and the use of economic analysis to study legal problems. Topics will include: property rights and intellectual property; analysis of antitrust and economic analysis of legal decision making.
One-term course offered either term
Also Offered As: PPE 036
Prerequisite: ECON 001 or ECON 010
Activity: Lecture
1 Course Unit
Notes: Credit cannot be received for both ECON 036 and ECON 234.
ECON 039 Economics and Financing of Health Care Delivery
Systematic and critical review of the present economic literature on the health care “industry”. Topics include the demography and determinants of illness, the demand for curative and preventive care and determinants of recent health cost inflation, the efficacy of markets, and the role of government.
Course usually offered in fall term
Prerequisite: ECON 001 or ECON 010 or permission of instructor.
Activity: Lecture
1 Course Unit
ECON 050 International Economics
Introduction to the theory of international trade and international monetary economics. The theoretical background is used as a basis for discussion of policy issues. Patterns of international trade and production; gains from trade; tariffs, and impediments to trade; foreign exchange markets, balance of payments, capital flows, financial crises, coordination of monetary and fiscal policy in a global economy.
One-term course offered either term
Prerequisites: ECON 001, 002, or ECON 010
Activity: Lecture
1 Course Unit
Notes: ECON 050 is a one-semester course in international economics. Students wishing to study the subject in greater depth should take instead the two-semester sequence ECON 251, 252.
ECON 101 Intermediate Microeconomics
Theories of consumer behavior, demand, production, costs, the firm in various market contexts, factor employment, factor incomes, elementary general equilibrium, and welfare.
One-term course offered either term
Prerequisites: ECON 001, 002; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: Note: Incoming freshmen with AP or transfer credit for ECON 001 and ECON 002, MUST complete MATH 104, MATH 114 or MATH 115 before enrolling in ECON 101. Upper classmen must have at least a B+ in MATH 104 to take ECON 101 and MATH 114 or MATH 115 concurrently.
ECON 102 Intermediate Macroeconomics
Facts and theories about the determination of per capita income and its differences across countries and across time. The study of economic fluctuations in output and employment. The role of government in influencing these aggregate variables: monetary and fiscal policy.
One-term course offered either term
Prerequisites: ECON 001, 002, 101; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: FNCE 101 does not satisfy any of the Economics department requirements. Therefore, students are required to take ECON 102.
ECON 103 Statistics for Economists
The course focuses on elementary probability and inferential statistical techniques. The course begins with a survey of basic descriptive statistics and data sources and then covers elementary probability theory, sampling, estimation, hypothesis testing, correlation, and regression. The course focuses on practical issues involved in the substantive interpretation of economic data using the techniques of statistical inference. For this reason empirical case studies that apply the techniques to real-life data are stressed and discussed throughout the course, and students are required to perform several statistical analyses of their own.
One-term course offered either term
Prerequisites: ECON 001, 002, or ECON 010; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: Intended primarily for economics majors. ECON 103 cannot be taken by any student who has already completed Statistics at least at the level of STAT 430 (including the sequence STAT 430 and 431). Such students must take an additional 200-level course to satisfy course requirements of the major.
ECON 104 Econometrics
This course is designed to introduce students to econometric techniques and their applications in economic analysis and decision-making. The main objective of the course is to train the student in (i) handling economic data; (ii) quantitative analyses of economic models with probabilistic tools; (iii) econometric techniques, their application as well as their statistical and practical interpretation; (iv) implementing these techniques on a computer. Estimation and inference procedures are formally analyzed for simple econometric models and illustrated by empirical case studies using real-life data. The course covers linear regression models, simultaneous-equations models, discrete choice models and univariate time series models. Estimation and Inference is conducted using least squares and likelihood based techniques. Students are required to perform several econometric analyses of their own.
Course usually offered in spring term
Prerequisites: ECON 101, 103, MATH 104, MATH 114 or MATH 115 or permission from instructor.
Activity: Lecture
1 Course Unit

ECON 199 Independent Study
Individual study and research under the direction of a member of the Economics Department faculty. At a minimum, the student must write a major paper summarizing, unifying, and interpreting the results of the study. This is a one semester, one c.u. course.
One-term course offered either term
Prerequisites: ECON 101, 102, 103 or written permission from the Director of Independent Research. Please see the Undergraduate Coordinator in Economics (160 McNeil) for the permission form.
Activity: Independent Study
1 Course Unit
Notes: Please see the Undergraduate Coordinator in Economics (160 McNeil) for the appropriate sequence number.

ECON 210 Economics of Family
This course will use economic tools to explore decision making and allocation of resources within the family. The course will use both economic theory and econometric evidence to investigate these issues. The impact of gender roles and differences will be examined and the effect of these differences on economic decisions and outcomes both within and outside the family will be discussed. Student participation will be an integral part of the course. During class, students will be required to evaluate data and relate it to the theoretic model covered. Student participation will also include two in-class oral presentations. Students will be working with CWiC (Communication Within the Curriculum) as they work on these presentations.
Course not offered every year
Prerequisites: ECON 101; MATH 104, MATH 114 or MATH 115.
Activity: Lecture
1 Course Unit
Notes: In addition, any 200-level evening course (Section 601), when offered, WILL NOT count for Economics Majors unless you are officially registered as an LPS student.

ECON 211 Social Choice Theory
This course investigates a topic which lies at the heart of economic, social and political sciences, namely the aggregation of individual preferences. Can a society as a whole exhibit preferences as individuals do? Can these preferences be based on individual ones, and show the same level of coherence? Which process can lead from individual preferences to the preferences of the society? At the end of the 18th century, the pioneers in the field already realized that mathematics is the only language powerful enough to make deep progress in the understanding of these questions. The formalization involves pure logic as well as geometry and combinatorics.
Course not offered every year
Prerequisites: ECON 101; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: In addition, any 200-level LPS course (Section 601), when offered, MAY NOT count for Economics Majors, unless you are officially registered as an LPS student.

ECON 212 Game Theory
An introduction to game theory and its applications to economic analysis. The course will provide a theoretical overview of modern game theory, emphasizing common themes in the analysis of strategic behavior in different social science contexts. The economic applications will be drawn from different areas including trade, corporate strategy and public policy.
One-term course offered either term
Prerequisites: ECON 101; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: Any 200-level LPS course when offered, WILL NOT count for Economics Majors unless you are officially registered as an LPS student.

ECON 221 Econometric Forecasting
This course provides a comprehensive introduction to forecasting in economics and business. Topics covered include statistical graphics, trends, seasonality, cycles, forecast construction, forecast evaluation and forecast combination.
One-term course offered either term
Prerequisites: ECON 101, 102, 103, 104; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: In addition, any 200-level CGS course (Section 601), when offered, WILL NOT count for Economics Majors unless you are officially registered as an LPS student.

ECON 222 Advanced Econometric Techniques and Applications
This course introduces students to advanced study in econometrics, with an emphasis on methods used in microeconomic applications and in evaluating the effects of social interventions. The methods covered include methods for handling limited dependent variables (useful, for example, in forecasting the demand for a new good), maximum likelihood estimators, and flexible semiparametric and non parametric estimation methods, and randomized and nonexperimental methods of estimating treatment effects. Applications of econometrics to the field of program evaluation will also be studied.
One-term course offered either term
Prerequisites: ECON 101, 104; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: In addition, any 200-level LPS course, when offered WILL NOT count for Economics Majors unless you are officially registered as an LPS student.
ECON 224 Statistical Learning and Causal Inference for Economics
ECON 224 is an applied data analysis course that introduces students to ideas from modern statistical learning and causal inference, and provides hands-on experience applying them to real-world problems using the R statistical programming language. Topics include regression, randomized controlled trials, classification, instrumental variables, shrinkage methods, random forests, regression discontinuity, and differences-in-differences.
Taught by: DiTraglia
Prerequisite: ECON 103
Activity: Lecture
1 Course Unit

ECON 231 Public Finance
This course has two parts. The first looks at market and government failures and discusses the need for public policies as well as limits to their effectiveness including the evaluation of public projects using cost benefit analysis. The second part focuses on the economic analysis of taxation, including the economic incidence and efficiency of taxes.
One-term course offered either term
Prerequisites: ECON 101; MATH 104, 114 or MATH 115; ECON 103 is recommended.
Activity: Lecture
1 Course Unit
Notes: Credit cannot be received for both ECON 030 and 231

ECON 232 Political Economy
This course examines the political and economic determinants of government policies. The course presents economic arguments for government action in the private economy. How government decides policies via simple majority voting, representative legislatures, and executive veto and agenda-setting politics will be studied. Applications include government spending and redistributive policies.
One-term course offered either term
Prerequisites: ECON 101; MATH 104, 114 or MATH 115; ECON 103 is recommended.
Activity: Lecture
1 Course Unit

ECON 233 Labor Economics
Labor supply and labor demand, income distribution, labor market contracts and work incentives, human capital, labor market discrimination, job training and unemployment.
One-term course offered either term
Prerequisites: ECON 101; MATH 104, 114 or MATH 115; ECON 103 is recommended.
Activity: Lecture
1 Course Unit
Notes: Credit cannot be received for both ECON 033 and 233.

ECON 234 Law and Economics
This course will use basic microeconomic tools to understand how the law often, but not always, promotes economic efficiency. Among the areas to be discussed will be tort law, property law, intellectual property, antitrust regulation. The distinction between common law and legislative law will be drawn.
One-term course offered either term
Prerequisites: ECON 101; MATH 104, MATH 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: Credit cannot be received for both ECON 036 and 234.

ECON 235 Industrial Organization
Theories of various industrial organizational structures and problems are developed, including monopoly, oligopoly, nonlinear pricing and price discrimination. These theories are used to model various industries, antitrust cases, and regulatory issues.
One-term course offered either term
Prerequisites: ECON 101; MATH 104, 114 or MATH 115; ECON 103 is recommended.
Activity: Lecture
1 Course Unit

ECON 236 Health Economics
In this course we will use the tools of microeconomics to analyze the functioning of the health care system. We will draw from the subdisciplines of information economics, industrial organization, labor economics, public economics, and behavioral economics. The primary goal is to use these tools to develop a critical analysis of the functioning of the health care system as well as of the policies aimed at improving it. We will learn about US specific institutional details and policies (most notably the Affordable Care Act), and we will compare them to other important international experiences.
One-term course offered either term
Prerequisites: ECON101; MATH 104, 114 or MATH 115. Wharton students can satisfy the ECON 101 prerequisite with BEPP 250 honors. The regular BEPP 250 course does not count as a substitute for ECON 101.
Activity: Lecture
1 Course Unit
Notes: For ECON majors only. Intermediate Micro is a prerequisite and this course will use advanced quantitative methods.

ECON 237 Urban Fiscal Policy
The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent fiscal crises, local services and taxes as important determinants of real estate prices, the infrastructure crisis, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.
One-term course offered either term
Prerequisites: ECON 101, 102; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
ECON 238 Economics of Education
The course focuses on the educational decisions, including individual choices, institutional strategies and government policies. It is an elective course in economics and is designed for junior and senior students. During the first part of the course we will go over the mathematical and empirical tools needed to understand and perform quantitative analysis on topics in the economics of education. Students should expect to work on optimization methods, regression analysis and causal inference analysis. We will use Stata (https://www.stata.com/) as statistical software. After we have built a solid foundation of knowledge, we will cover the first "real" topic of the economics of education: the return to schooling. During this phase of the course we seek to address two questions: what are the benefits that an individual acquires (i.e. in terms of earnings in the labor market or career opportunities) by attending more years of school and what are the benefits for society as a whole? While these questions seem to have a simple explanation, we will discover that they are actually quite challenging and require a more complex explanation. Once we have analyzed the benefits of schooling, we will study what motivates students to further their education for more years, as opposed to others. In particular, we will focus on the differences in the quality of environments that children face throughout childhood (e.g.: family environment and school/classroom environment) and the consequences for observed inequities. Finally, in the remaining portion of the course we will study the evaluations of different policies that have been implemented in the past from previous governments, with the goal of gaining insight for possible future policy recommendations.
Taught by: Agostinelli
Course usually offered in spring term
Prerequisites: ECON 101, ECON 102, ECON 103
Activity: Lecture
1 Course Unit

ECON 241 Economic Growth
The process of economic growth and the sources of differences in economic performance across nations are some of the most interesting, important and challenging areas in modern social science. You cannot travel or read the news without wondering why differences in standards of living among countries are so large. The primary purpose of this course is to introduce undergraduate students to these major issues nd to the theoretical tools necessary for studying them. The course therefore strives to provide students with a solid background in dynamic economic analysis, as well as empirical examples and data analysis.
One-term course offered either term
Prerequisites: ECON 101, 102, 103; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit

ECON 242 Topics in Macroeconomics
This course covers topics of interest in macroeconomics. Two sections are offered: Markets with Frictions. This course studies allocations in markets with frictions, as described by the difficulty in finding a trading partner, private information problems, commitment issues, and so on. Applications to labor markets, monetary economics, the marriage market will be discussed. The main technical tool will be search theory, but a liberal amount of calculus and other mathematics will be used. Numerical Methods for Macroeconomists. This course will study some of the numerical methods that are used in modern macroeconomics. This class will learn how to solve nonlinear equations, difference equations, interpolate functions, smooth data, and conduct Monte Carlo simulations on the computer. This will be done while studying economic problems, such as the determination of labor supply, economic growth and business cycle analysis. Calculus is an integral part of the course and some elementary probability theory will be drawn upon. The MATLAB programming language will be used.
One-term course offered either term
Prerequisites: ECON 101, 102; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit

ECON 243 Monetary and Fiscal Policies
This is an advanced course in macroeconomics. A relatively simple, but well defined and internally consistent model of the U.S. economy is set up and used to study how output is generated given the initial resources, how output is divided between consumption and addition to capital stock, and how this process accumulates over time. The role of prices including the rate of interest in this process is also reviewed, and monetary and fiscal policies needed to improve the performance of the economy under such circumstances are discussed.
One-term course offered either term
Prerequisites: ECON 101, 102; MATH 104, 114 or MATH 115, ECON 103 is recommended.
Activity: Lecture
1 Course Unit

ECON 244 Macro-Modeling
This is an advanced undergraduate course in models of economic growth. Students will be introduced to the workhorse theoretical models that are used to understand growth by modern macroeconomic researchers and policy makers. The types of questions that we will address include: Why are some countries richer than others? Why do some countries grow quickly while others stagnate? Why did modern economic growth start in Western Europe? What can governments do to accelerate economic growth? How does economic growth interact with demographic and geographic factors? We will build theoretical models that can be used to answer these questions. There will be a strong focus on emphasizing the microeconomic foundations of models, and using the language of mathematics to express the underlying assumptions and assess their implications for policy. Hence, there are strict mathematical prerequisites. We will also compare the predictions of our models with the data. Thus, a fair amount of econometrics will be required. A class in statistics and econometrics is highly recommended.
Course not offered every year
Prerequisites: ECON 101, 102; MATH 104, 114 or MATH 115, ECON 103 is recommended.
Activity: Lecture
1 Course Unit
**ECON 246 Money and Banking**
Money and Banking. This course studies the role that financial markets, institutions, and money play in resource allocation. Financial intermediation and the role of banks in the economic system are analyzed and the economic rationale behind banking regulation is studied. The course examines how monetary policy influences interest rates and asset markets, such as the bond market and the stock market. Finally, the instruments and goals of monetary policy are discussed, focusing in particular on credibility and commitment for central banks. All of the questions are explored analytically, using the tools of economic theory.
One-term course offered either term
Prerequisites: ECON 101, 102; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit

**ECON 251 International Trade**
Structure of the world economy; theory of international trade; economic growth and international trade; international trade policy; developed countries; developing countries. Direct investment, technology transfers, and the multinational firm.
One-term course offered either term
Prerequisites: ECON 101, 102; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: In addition, the LPS 200-level course, when offered, WILL NOT count for Economics Majors unless you are officially registered as an LPS student.

**ECON 252 International Finance**
International monetary economics with emphasis on economic policy in an open economy. Topics covered in the course include: balance-of-payments adjustment, theories of exchange rate determination, the effects of exchange rate devaluation, macroeconomic policy under fixed and floating exchange rates, the Euro-dollar market, currency and balance of payments crises.
One-term course offered either term
Prerequisites: ECON 101, 102; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: In addition, the LPS 200-level course, when offered, WILL NOT count for Economics Majors unless you are officially registered as an LPS student.

**ECON 260 Decision Making Under Uncertainty**
This course will show how individuals make decisions in a world full of uncertainties, both normatively and descriptively. This theory will help us build skills in understanding and analyzing a choice problem with uncertainty in a systematic fashion, as well as deepening our understanding of the fundamental concept of a utility function, which plays a critical role in economic modeling. The course requires a substantial ability of abstract thinking. Homework is intended to be thought-provoking rather than skill-sharpening.
Course not offered every year
Prerequisites: ECON 101, 103; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit
Notes: All prerequisites MUST be taken prior to enrolling in this course.

**ECON 261 Topics in Development**
This course studies institutions in developing economies. The first section of the course will cover the organization of production in traditional agrarian societies. Topics will include land, labor and credit markets. The second section of the course will focus on the role of the community in facilitating the transition to the modern market economy. Here we will study how the community spreads information, permits the formation of informal networks and organizes collective institutions, allowing individuals to take advantage of new economic opportunities.
Course not offered every year
Prerequisites: ECON 101; MATH 104, 114, or MATH 115. ECON 103 is recommended.
Activity: Lecture
1 Course Unit
Notes: Student may not receive credit for ECON 024 and ECON 261. In addition, the LPS 200-level course, when offered, WILL NOT count for Economics Majors unless you are officially registered as an LPS student.

**ECON 262 Market Design**
Markets increasingly use and create networks, both social and technological. Some examples: the complex trading networks that underlie modern financial markets and supply chains; social media platforms; dating apps. These profoundly affect the economy and society more broadly. Financial interdependencies are critical in economic crises, while rumors on Twitter have come to play a central role in our politics. How can we make sense of these phenomena - as individuals, within companies, and as policymakers? This seminar teaches models from the economics and statistics of networks that are essential to the task. Topics include the network origins of recessions, the diffusion of information and rumors, racial segregation, and matching markets. We emphasize how network models relate to key ideas from microeconomics.
One-term course offered either term
Prerequisites: ECON 101, 103; MATH 104, 114 or MATH 115.
Activity: Lecture
1 Course Unit
Notes: The LPS 200-level evening course (Section 601), when offered, WILL NOT count for Economics Majors unless you are officially registered as an LPS student.
ECON 271 Foundations of Market Economies
This course will study the historical and intellectual forces behind the appearance of market economies on the world stage. The voyages of exploration undertaken by Europeans in the 15th and 16th century created, in just a few decades, a global economy. By 1600, silver from Mexico was exchanged in Manila for ceramics made in Nanjing (China). After a long trip through the Pacific, Mexico, and the Atlantic, the ceramics ended up in the tables of prosperous merchants in Bruges (modern day Belgium). How did this integrated global economy appear? How did global interconnections over the centuries shape our current world? How did markets emerge and influence these interconnections? Who were the winners of globalization? And who were the losers? How did economists, political scientists, and others think about the strengths and weakness of market economies? This course will explore these questions and the role that markets have played in it from the late 15th century to the present. Even if the economic theory will structure much of the discussion, insights from intellectual history, cultural history, microhistory, legal history, and institutional history will help to frame the main narrative. The course will be, as well, truly global. First, beyond the traditional focus of economic history courses on Europe and the Americas, particular attention will be devoted to Africa and Asia. Second, the priority will be to highlight the interconnections between the different regions and to understand how the people living in them negotiated the opportunities and tensions created by the economic transformations triggered by globalization and how they conceptualized the changing lives around them. Finally, the class will highlight how diverse intellectual traditions handled the challenges presented by historical change.

One-term course offered either term
Prerequisites: ECON 101; MATH 104, 114 or MATH 115
Activity: Lecture
1 Course Unit

ECON 272 China: Inst & the Econ
The rise of China since its economic reform starting from 1978 is one of the most important developments the world witnessed in the twenty first century. In this seminar course, we explore topics including the political logic of China's economic reform, the institutional foundations of the Chinese economic growth miracle, as well as detailed analysis of Chinese financial markets, housing markets, fiscal reform, corruption/ anti-corruption, labor market transitions, China's integration into the world economy, village democracy and its impact on resource allocation, the impact of population ageing, the impact of China on US economy and politics, among others. The discussions will focus on China, but will relate broadly to emerging and developed economies. The course will be based on reading and discussing research articles and books selected by the instructors.
Prerequisites: ECON 101; MATH 104, 114 or MATH 115. ECON 103 recommended. PSCI majors PSCI 110 recommended.
Activity: Lecture
1 Course Unit

ECON 300 Honors Seminar
Students prepare an honors thesis in economics over the academic year, supervised by a faculty member of their choice. In both semesters students present their work in progress to the class. Any student intending to do empirical work in the thesis should have completed ECON 103 and ECON 104.
Two terms. student must enter first term.
Prerequisites: ECON 101, 102, 103, 104, and two 200-level courses; MATH 104, 114. GPA of at least 3.5 in Economics and permission of the instructor.
Activity: Seminar
1 Course Unit
Notes: Course meets weekly. Required of all honors majors.

ECON 681 Microeconomic Theory
Basic tools of microeconomic theory: consumer choice, firm behavior, partial and general equilibrium theory. This is a more theoretical treatment of the basic tools of microeconomic analysis than ECON 680.
Course usually offered in fall term
Prerequisites: Equivalent of ECON 101; meeting the department's minimal mathematical requirements; or permission of instructor.
Activity: Lecture
1 Course Unit

ECON 682 Game Theory and Applications.
A graduate level introduction to decision making under uncertainty, applied game theory, and information economics.
Course usually offered in spring term
Prerequisites: ECON 680 or 681.
Activity: Lecture
1 Course Unit

ECON 701 Microeconomic Theory I
Nonlinear programming, theory of the consumer and producer, general equilibrium.
Course usually offered in fall term
Prerequisites: Meeting the Department's minimal mathematical requirements, ECON 897 Summer Math Program.
Activity: Lecture
1 Course Unit

ECON 702 Macroeconomic Theory I
Dynamic programming, search theory, neoclassical growth theory, asset pricing, business cycles.
Course usually offered in spring term
Prerequisites: Meeting the Department's minimal mathematical requirements; ECON 700, 701, 703, 897 Summer Math Program
Activity: Lecture
1 Course Unit

ECON 703 Microeconomic Theory II
Game theory, decision making under uncertainty, information economics.
Course usually offered in fall term
Prerequisites: Meeting the department's minimal mathematical requirements, ECON 897 Summer Math Program
Activity: Lecture
1 Course Unit
ECON 704 Macroeconomic Theory II
Equilibrium notions in the growth model. Economies with distortions. Incomplete markets. Overlapping generations. Course usually offered in spring term
Prerequisites: Meeting the Department's minimal mathematical requirements; ECON 700, 701, 703, 897 Summer Math Program.
Activity: Lecture
1 Course Unit

ECON 705 Econometrics I: Fundamentals
Violations of classical linear regression assumptions, nonlinear regression models (including logit, probit, etc.), diagnostic testing, distributed lag models, panel data models, identification, linear simultaneous-equations model. Course usually offered in fall term
Prerequisites: Meeting the Department's minimal mathematical requirements, ECON 897 Summer Math Program.
Activity: Lecture
1 Course Unit

ECON 706 Econometrics II: Methods & Models
Analysis in time and frequency domains, state space representations, Kalman filtering, conditional heteroskedasticity, nonlinear and nonparametric methods for time series, integration, co-integration, numerical and simulation techniques. Course usually offered in spring term
Prerequisites: Meeting the department's minimal mathematical requirements; ECON 705, 897 Summer Math Program.
Activity: Lecture
1 Course Unit

ECON 708 The Economics of Agency, Information, and Incentives
This course studies the economics of adverse selection and moral hazard in strategic settings. The primary focus is on the agency relationship and the structure of agency contracts. Other settings include auctions, bilateral trading, and the internal organization of the firm. One-term course offered either term
Prerequisites: Meeting the Department's minimal mathematical requirements; ECON 898 or equivalents.
Activity: Lecture
0.5 Course Units

ECON 712 Topics in Advanced Economic Theory and Mathematical Economics
Topics and prerequisites announced each year. One-term course offered either term
Activity: Lecture
0.5 Course Units

ECON 714 Quantitative Macroeconomic Theory
Prerequisites: ECON 702, 704
Activity: Lecture
0.5 Course Units

ECON 719 Economic Theory
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Related Courses: ECON 712

ECON 721 Econometrics III: Advanced Techniques of Cross-Section Econometrics
Qualitative response models, panel data, censoring, truncation, selection bias, errors in variables, latent variable models, survey design, advanced techniques of semiparametric estimation and inference in cross-sectional environments. Disequilibrium models. Methods of simulated moments. One-term course offered either term
Prerequisites: ECON 705 and 706.
Activity: Lecture
0.5 Course Units

ECON 722 Econometrics IV: Advanced Techniques of Time-Series Econometrics
Consistency and asymptotic normality for m-estimator and for generalized moment estimators. Asymptotics for integrated and cointegrated time-series. Inference in presence of nuisance parameters identified only under the alternative: consistent moment tests, testing for threshold effects, testing for structural breaks. Estimation of stochastic differential equations from discrete observations: simulated method of moments, indirect inference. Discrete time GARCH models and their continuous limits. One-term course offered either term
Prerequisites: ECON 705 and 706.
Activity: Lecture
0.5 Course Units

ECON 729 Econometrics
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Related Courses: ECON 721 and 722

ECON 739 International Economics
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Related Courses: ECON 730 and 731

ECON 749 Monetary Economics
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Related Courses: ECON 740, 741

ECON 750 Public Economics
Public goods, externalities, uncertainty, and income redistribution as sources of market failures; private market and collective choice models as possible correcting mechanisms. Microeconomic theories of taxation and political models affecting economic variables. One-term course offered either term
Prerequisites: ECON 701, 703
Activity: Lecture
0.5 Course Units
ECON 751 Public Economics II  
Expenditures: Alternative theories of public choice; transfers to the poor; transfers to special interests and rent seeking; social insurance; publicly provided private goods; public production and bureaucracy. Taxation: Tax incidence in partial and general equilibrium; excess burden analysis. Topics on tax incidence and efficiency: lifetime incidence and excess burden, dynamic incidence, the open economy. Normative theories of taxation: Optimal commodity and income taxation. The political economy of income taxation.  
One-term course offered either term  
Prerequisites: ECON 701, 703  
Activity: Lecture  
0.5 Course Units

ECON 759 Political Economy  
One-term course offered either term  
Activity: Seminar  
1 Course Unit  
Notes: Related Courses: ECON 750, 751

ECON 769 Economic Development Workshop  
Forum at which visiting speakers, Penn faculty, and graduate students present research ideas.  
One-term course offered either term  
Activity: Seminar  
1 Course Unit  
Notes: Related Courses: ECON 760, 761, 791

ECON 779 Comparative Economic Systems  
One-term course offered either term  
Activity: Seminar  
1 Course Unit  
Notes: Related Courses: ECON 770, 771

ECON 781 Empirical Methods for Industrial Organization  
The goal of the course is to explore links between theory and data in order to identify and test implications of economic models. Reduced form and structural approaches will be used to study a variety of topics that include: Estimation of multiproduct cost functions; detection of collusion, multimarket contact, and network externalities; asymmetric information: auctions and nonlinear pricing; price competition and product differentiation; and complementarities: innovation and organizational design.  
One-term course offered either term  
Prerequisite: ECON 780  
Activity: Lecture  
1 Course Unit

ECON 789 Applied Microeconomics Workshop  
One-term course offered either term  
Activity: Seminar  
1 Course Unit  
Notes: Related Courses: ECON 780, 781

ECON 792 Economics of Labor I  
Topics include: Theories of the supply and demand for labor, wage determination, wage differentials, labor market discrimination, unemployment, occupational choice and dynamics of specific labor markets, theory of matching, trade unions. The theory and empirics of human capital accumulation, intertemporal labor supply, search, intergenerational mobility of income and wealth, contracts and bargaining, efficiency wage models, principal/agent models, and signaling models.  
One-term course offered either term  
Prerequisites: ECON 701, 703, 705, 706, 721  
Activity: Lecture  
1 Course Unit

ECON 793 Economics of Labor II  
A continuation of ECON 792.  
One-term course offered either term  
Prerequisites: ECON 721, 792  
Activity: Lecture  
0.5 Course Units

ECON 799 Empirical Microeconomics  
One-term course offered either term  
Activity: Seminar  
1 Course Unit  
Notes: Related Courses: ECON 791, 792, 793

ECON 998 Individual Readings and Research  
One-term course offered either term  
Activity: Independent Study  
0.5 Course Units

ECON 999 Independent Study  
One-term course offered either term  
Activity: Independent Study  
1 Course Unit
EDUCATION (EDUC)

EDUC 202 Urban Education
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 235 Psychology of Women
Critical analyses of the psychological theories of female development, and introduction to feminist scholarship on gender development and sexuality.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 240 Education in American Culture
This course explores the relationships between forms of cultural production and transmission (schooling, family and community socialization, peer group subcultures and media representations) and relations of inequality in American society. Working with a broad definition of "education" as varied forms of social learning, we will concentrate particularly on the cultural processes that produce as well as potentially transform class, race, ethnic and gender differences and identities. From this vantage point, we will then consider the role that schools can and/or should play in challenging inequalities in America.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 241 Educational Psychology
Current issues and research, applying psychological theory to educational practice. As such, this course will explore the fundamental themes in behavioral, developmental, and cognitive areas of psychology as they relate to education. Topics include: learning, motivation, growth and development, cognitive processes, intelligence tests, measurements, evaluations, etc.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 250 Learning from Children
This course is about looking at elementary school classrooms and understanding children's experiences of school from a variety of perspectives, and from a variety of theoretical and methodological lenses from which the student can interpret children's educational experiences. This course is about developing the skills of observation, reflection, and analysis and to begin to examine some implications for curriculum, teaching and schooling. This course requires you to spend time in an elementary school classroom.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 326 Tutoring in Urban Public Elementary Schools: A Child Development Perspective
The course provides an opportunity for undergraduate students to participate in academically based community service learning. Student will be studying early childhood development and learning while providing direct, one-to-one tutoring services to young students in Philadelphia public elementary schools. The course will cover foundational dimensions of the cognitive and social development of preschool and elementary school students from a multicultural perspective. The course will place a special emphasis on the multiple contexts that influence children's development and learning and how aspects of classroom environment (i.e., curriculum and classroom management strategies) can impact children's achievement. Also, student will consider a range of larger issues impacting urban education embedded in American society. The course structure has three major components: (1) lecture related directly to readings on early childhood development and key observation and listening skills necessary for effective tutoring, (2) weekly contact with a preschool or elementary school student as a volunteer tutor and active consideration of how to enhance the student learning, and (3) discussion and reflection of personal and societal issues related to being a volunteer tutor in a large urban public school.
Taught by: Fantuzzo
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 345 Psychology of Personal Growth
Intellectual, emotional and behavioral development in the college years. Illustrative topics: developing intellectual and social competence; developing personal and career goals; managing interpersonal relationships; values and behavior. Recommended for submatriculation in Psychological Services Master's Degree program.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 360 Human Development in Global Perspective
A life-span (infancy to adulthood) approach to development. Topics include: biological, physical, social and cognitive basis of development. Films and guest speakers are often included.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 414 Children's Literature
Theoretical and practical aspects of the study of literature for children. Students develop both wide familiarity with children's books, and understanding of how children's literature fits into the elementary school curriculum.
One-term course offered either term
Activity: Lecture
1 Course Unit
EDUC 417 Reading/Language Arts in the Elementary School
Second of a two-part course (see EDUC 317). The course focuses on the reading process, using literature in the reading curriculum, language and cultural difference in the classroom, and evaluating reading/language arts programs and progress. Students design and carry out reading lessons and units, conduct informal reading assessments, and participate in in-class seminars.
Course not offered every year
Prerequisites: EDUC 316, 317
Corequisites: EDUC 419, 420
Activity: Lecture
1 Course Unit
Notes: This course is open only to students officially admitted to the program for preparation of elementary school teachers.

EDUC 418 Teaching and Learning Mathematics in Elementary Schools
Students participating in this course will explore definitions of mathematics, theories of children’s mathematical learning, and issues of reform in mathematics education through consideration of relevant content areas such as numeration, rational number operations, geometry, and probability and statistics.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 421 Science in Elementary and Middle Schools
Content areas: living things, the physical universe, and interacting ecosystems.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 501 Economics of Education in Developing Countries
This is a course on economics of education, a field within the subject of economics that draws upon many areas of economic specialization. The course focuses on developing countries and includes papers and case-studies covering themes such as returns to investment in education, production, costs and financing of education, teacher labor markets, economic growth, education markets, and equity issues.
Taught by: Thapa
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 502 Citizen Sociolinguistics
In this course we will draw on the Internet and daily news (internet circulated, usually) to find “Citizen Sociolinguists” who speak with authority, while juxtaposing these media with the usual scholarly sources.
Taught by: Rymes
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 503 Global Citizenship
This course examines the possibilities and limitations of conceiving of and realizing citizenship on a global scale. Readings, guest lecturers, and discussions will focus on dilemmas associated with addressing issues that transcend national boundaries. In particular, the course compares global/local dynamics that emerge across different types of improvement efforts focusing on distinctive institutions and social domains, including: educational development; human rights; humanitarian aid; free trade; micro-finance initiatives; and the global environmental movement. The course has two objectives: to explore research and theoretical work related to global citizenship, social engagement, and international development; and to discuss ethical and practical issues that emerge in the local contexts where development initiatives are implemented.
Taught by: Hall
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 504 Contemporary Issues in Higher Education
An introduction to the central issues and management problems in contemporary American higher education.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 505 Globalization & the University
The aim of this course is to help students understand the basic concept of globalization, how it impacts higher education in general, and how it shapes the global market for human capital and fosters private sector and for profit provision and diversifies modes of delivery of higher education. The seminars cover the nature of globalization and the way it affects the movement of people between economies to gain and apply skills and knowledge, the creation of branch campuses, the growth of transnational education and the importance of brands and information in the global higher education market.
Taught by: Ruby
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 506 Global Perspectives on Inequalities in Education
This course provides a conceptual framework for understanding various dimensions of inequality. Through country case studies, the course takes a global perspective to explore how conceptions of equality, equity, quality, and opportunity intersect with issues around race, class, and gender, and inform debates around educational policy and practice.
Taught by: Ghaffar-Kucher
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 508 MaKer Studio
In this seminar, we will discuss and design projects related to the “maker movement” in education using various materials and technologies as we consider issues of access and diversity around making.
Taught by: Kafai
Course usually offered in spring term
Activity: Seminar
1 Course Unit
EDUC 509 Merit and America
What constitutes merit? What should constitute merit? These questions are both philosophical and practical - and are faced by every educator in some form. The notion of meritocracy has long been at the heart of varied discourses about the place of education in American society. Merit is most often understood as inhering in consistent and individual personality traits such as competency, intelligence, and diligence. And yet, every individual is embedded in complex social worlds that are culturally specific and historically contingent. Drawing on a broad array of disciplines and literatures, this seminar-style course challenges students to consider how ideas of merit and its measurement are shaped by American history, culture, and society, and to articulate their own views as they move toward their professional goals.
Taught by: Ben-Porath
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 510 Democratizing Higher Education Participation
The aim of this course is to examine how public policy has shaped and been shaped by higher education in different political and economic settings. Seminars will examine themes such as access and equity in higher education participation, the role of higher education in economic development and nation building, and how higher education can promote democracy and an enlightened citizenry.
Taught by: Ruby,A
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 511 Equality
“All men (or all humans) are created equal”: What does this statement mean? What are we all equal in? What should we be equal in? Do we have equal potential, equal dignity, equal worth? Must we have equal resources, equal opportunities, equal status? In this class we will consider philosophical and political approaches to the idea of equality. The education system’s ability and commitment to respond to claims of equality will be discussed. Must we treat all children the same? Or each child differently? And if the latter, how does that constitute equality? Moreover, must we treat individuals or groups equally? Educational and philosophical answers to these questions will be the focus of this seminar.
Taught by: Ben-Porath
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 512 University-Community Partnerships
Ranging from civic engagement to economic development, institutions of higher education in the United States have long been involved in a variety of relationships with their local communities; in recent years, there has been increasing attention paid to the opportunities and challenges implicit in those relationships. In this Academically Based Community Service (ABCs) course, students will study and discuss the history, rationales, and manifestations of the partnerships that have developed. Through readings, faculty-and student-led discussions, guest lecturers, and policy-oriented projects, students will develop better understandings of the many topics surrounding university-community partnership activities. Among other themes we will consider institutional roles and relationships, service learning, community perspectives, policy issues, and evaluation.
Taught by: Grossman
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 513 Development of the Young Child (TLL)
The passage from infancy through the early school years. While the emphasis will be on the nature of the child–what she/he sees, feels, thinks, fantasizes, wants and loves–these realities will be understood in terms of developmental theory. At each stage, the course will review the development of cognition, personal identity, socialization, and morality in pluralistic contexts.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 514 Education in Developing Countries
In recent years the construct of “global development” has come under increasing scrutiny, leading some scholars and practitioners to wonder whether development remains a useful concept. In this course, we will actively engage in this debate through a survey of the development literature in the field of education. We will examine theoretical frameworks and historical perspectives that will allow us to develop a better understanding of what is meant by “development” as well as recognize how these concepts relate to basic educational planning and practice in various international contexts. The course will work from primary and secondary materials on theories, research, and applications used to promote global development and basic education. Some programs are carried out by multinational/bilateral agencies such as World Bank, Unicef, UNESCO, and USAID, while others are undertaken by intermediary organizations (such as NGOs and universities) and local organizations or individual specialists. Issues include a range of social, economic and political obstacles to the provision of quality education. The goal of this course is to improve your understanding of how different theories of education and development influence educational policy, priorities, and programs of international, national, and local institutions.
Taught by: Wagner/Ghaffer-Kucher
Course usually offered in fall term
Prerequisites: Prior graduate work in related areas recommended.
Activity: Lecture
1 Course Unit
EDUC 515 Field Seminar (Elementary & Secondary Education)
This seminar is designed to integrate student teaching fieldwork and university course work through reading, discussion, and reflection. Central to this course will be teacher research, an inquiry stance toward learning how to teach, and a social justice approach to education. Throughout the semester, we will be examining a range of issues through theoretical and practice-oriented lenses that will deepen our understanding of teaching and learning. Offered within the Teacher Education Program.
Course usually offered in fall term
Activity: Lecture
3 Course Units

EDUC 516 Teaching Writing in Multilingual Contexts
This course introduces participants to a range of theoretical and practical issues related to second language literacy development, with a particular emphasis on writing instruction. An intensive service-learning project offers course participants the opportunity to work with developing writers in a bilingual community organization. The dual emphasis on theory and pedagogy is intended to create space for critical reflection on the characteristics, production, teaching, and assessment of written texts in bilingual educational settings.
Taught by: Pomerantz
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 517 Classroom Discourse and Interaction
In this course students will read research that investigates the role of classroom interaction in learning and human development. Students will also learn how to "do" discourse analysis using real classroom data. Students will practice and critique methods for analyzing classroom discourse data as teachers, with an aim of developing a critical awareness of our own language use and role in society.
Taught by: Rymes
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 518 Authority, Freedom, and Disciplinary Policies
The course concentrates on the nature and justification of discipline. In particular, we focus on how discipline becomes the expression of twin but conflicting premises of education: that children should be encouraged to develop their critical intellectual capacities and autonomous decision-making – read freedom; that these ends cannot be achieved without the direction and control of teachers – read authority. Students read classical works on freedom and authority (John Stuart Mill, Isaiah Berlin, Emile Durkheim, John Dewey, C.S.Lewis) as well as more contemporary ones. In class we look at video clips of different practices and discuss readings. Every student selects one type of disciplinary approach to study in detail, inclusive of on-site visits. The seminar paper covers the source and nature of the school's commitments, its theory of authority and freedom (implicit and explicit), illustrations of how commitments are expressed (including discipline practices), and the student's reflections.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 519 The Evolution of Assessment: Classroom and Policy Uses
This course explores the evolution and diverse uses of assessment in four major areas: the historical roots of testing and the development of the achievement testing industry; the rising interest and exploration of alternative forms of assessment; how teachers employ a variety of assessments in their classrooms; and how policymakers use assessment for decision-making and accountability purposes.
Taught by: Supovitz
Course not offered every year
Prerequisites: Permission needed from department.
Activity: Lecture
1 Course Unit

EDUC 520 Literacy in Elementary/Middle Schools
In this course, the interconnections of language, literacy and culture are explored in order to build a knowledge base and understanding of how children learn to read and write. Emphasis will be on how to teach and develop literacy curriculum in the elementary grades, and on how close listening and observation of children in their classroom contexts, combined with a critical reading of research and theory, can inform teaching practices. A central tenet of this course is that the best teachers of reading and writing are themselves active and engaged readers and writers. An important goal is to combine an inquiry approach to teaching and learning with an inquiry approach to thinking about how we teach. Offered within the Teacher Education Program.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 521 Science in Elementary/Middle Schools
The goal of this course is to prepare teachers to facilitate science learning in the elementary and middle school. Special emphasis is placed on striving for a balance between curricular goals; individual needs and interests; and the nature of science. Offered within the Teacher Education Program.
Taught by: Bergey
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 522 Psychology of the African-American
Using an Afro-centric philosophical understanding of the world, this course will focus on psychological issues related to African Americans, including the history of African American psychology, its application across the life span, and contemporary community issues.
Taught by: Stevenson
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 523 Social Studies in the Elementary and Middle Schools
This course will focus on teaching and learning in the content area of social studies. Curricular and pedagogical theories and practices will be examined for their educational significance, meaningful integration of content areas, respect for students' cultures (past and present), and contribution to social justice issues. Offered within the Teacher Education Program.
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit
EDUC 524 Philosophical Aspects of Education Policy
This course, which is unofficially titled 'Justice goes to School' explores the philosophical or normative foundations of educational policy decisions. School choice, standards-based reform, civic education, children's and parents' rights, school finance reform - how do different arguments for these policies view the role of schools in society? What are their concept of the person, and their view of the educated person? We will consider arguments for and against a variety of contemporary educational policies. Students are encouraged, if they are interested, to bring to class educational policy decision that perplex or intrigue them.
Taught by: Ben-Porath
One-term course offered either term
Activity: Seminar
1 Course Unit

EDUC 525 Fieldwork in Language in Education
Supervised fieldwork for individuals preparing to work with reading specialist/teachers in school settings.
Taught by: Waff
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 527 Approaches to Teaching English and Other Modern Languages
This course provides students with an introduction to theory and practice in second and foreign language teaching. Students will (a) develop an understanding of the history of language teaching practice and how such a perspective informs current day approaches, (b) explore the relationship between the context in which the language is learned and taught and classroom practice, and (c) develop an awareness of teaching principles central to a personal pedagogical approach and teaching philosophy. Students should have a field site where they can observe, participate, and collect classroom data.
Taught by: Box/Wagner, S/Kozlova
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 528 TESOL Practice Teaching
Fieldwork course for TESOL students. This course focuses on reflective teaching practice, providing a space for students to combine theory and practice as they apply the theoretical constructs of TESOL coursework to their own language teaching. Students will become accurate and systematic observers of and thinkers about their own teaching methodology, in order to continue to develop into increasingly effective language teachers. The theme of a student-centered language classroom will be explored through scholarly literature, pedagogical techniques, and students' own classroom teaching. To participate in this course, a student must be teaching a language class for the majority of the semester.
Taught by: Pomerantz/Box
Course usually offered in fall term
Prerequisite: EDUC 527 & EDUC 537
Activity: Lecture
1 Course Unit
Notes: Permission needed from the department

EDUC 529 Organizational Learning and Education
This course is an exploration of the theory, research, and practice of how individuals learn within organizational contexts and how organizations themselves may learn, as well as the social, cultural, and organizational forces that influence this process.
Taught by: Supovitz
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 530 Community Based Mathematics
This course engages future teachers in identifying and leveraging mathematics learning opportunities that exist within communities. First, participants apply mathematics to authentic community-based problems. After exploring literature about the use of real-world contexts in mathematics instruction, participants apply what they learn to design curriculum. Offered within the Teacher Education Program.
Taught by: Remillard & Staff
Course not offered every year
Prerequisite: Admission to Secondary Education Math or Science
Activity: Seminar
1 Course Unit

EDUC 531 Mathematics in the Elementary and Middle Schools
Learning to teach mathematics in ways that foster mathematical understanding and enjoyment for every student requires that teachers draw on different kinds of knowledge, skills, and dispositions. In addition to developing an understanding of central mathematical ideas, learning to teach math involves learning about learners, the understandings and conceptions they hold, and the processes through which they learn. It also involves developing skill in constructing tasks that engage students in mathematical exploration, creating an environment that facilitates reasoning, and finding ways to analyze and learn from one's own teaching. Offered within the Teacher Education Program.
Taught by: Remillard/Ebby
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 532 Forming and Reforming the Elementary Reading/Writing/Literacy Curriculum
Students explore the theory and practice of constructivist approaches to teaching reading/writing/talking across the curriculum. They read widely and discuss issues that are informed by theory and research in many fields of inquiry including children's and adolescent literature, educational linguistics, cognitive psychology, curriculum, and anthropology and assessment. They write and share integrative journals; develop, teach and reflect upon holistic lessons; and complete an individual or group project of their own choosing.
Taught by: Campano
Course usually offered in fall term
Activity: Lecture
1 Course Unit
EDUC 534 School-Community Counseling & Mental Health Partnerships
This course is designed to give students a theoretical framework for developing school-community partnerships for the delivery of mental health prevention and intervention services to children. The course will include examination of several practice programs developed from the theoretical framework to provide services to parents, children, and school staff, including pairs therapy for the development of relationship skills and understandings; a whole-class prevention program to build social-emotional and academic skills in elementary children; and a preventive intervention to build capacity in Head Start to engage parents facing adversities such as depression. Course not offered every year Activity: Seminar 1 Course Unit

EDUC 535 Literature for Children and Adolescents
Theoretical and practical aspects of the study of literature for children and adolescents. Students develop both wide familiarity with children’s/adolescents’ books and understanding of how literature can be used in elementary/middle/secondary school curricula. Students complete course projects that focus on literature in specific classroom, research, home, or professional contexts. Taught by: Thomas Course usually offered in fall term Activity: Lecture 1 Course Unit

EDUC 536 Indigenous Education and Language Revitalization
The course examines Indigenous education and language revitalization from an international perspective, considering questions like: What policies, ideologies, and discourses shape the history of Indigenous education? What roles do pan-Indigenous and international organizations play? What does decolonizing and Indigenizing schooling look like? How do Indigenous epistemologies, ways of knowing, being and relating influence education? What does culturally relevant schooling mean in Indigenous contexts? What are the roles of Indigenous communities in language revitalization and educational processes? Taught by: Hornberger/N Course not offered every year Activity: Seminar 1 Course Unit

EDUC 537 Educational Linguistics
For students with little or no linguistics background. An introduction to the basic levels of language (phonetics and phonology, morphology and semantics, syntax, pragmatics) with special emphasis on the relevance of linguistic concepts to education. Other topics may include bi/multilingualism, language variation, and language acquisition. Taught by: Butler/Moore/Hondo/Paninos Course usually offered in fall term Prerequisite: Butler/Moore/Matsumoto Activity: Lecture 1 Course Unit

EDUC 539 Teaching Performance Art for Cross-Cultural Education
This class examines issues related to cultural communities and the arts, specifically performance, writing and storytelling as an educational tool for generating cross cultural and intercultural understanding, dialogue and exchange. Assignments will focus on, cross-cultural research and dialogue, and skill building in teaching, writing and performance. Students will also develop an understanding of how performance can be used to enhance classroom activities in elementary/middle/secondary/post secondary classroom curricula. Course usually offered in fall term Activity: Lecture 1 Course Unit

EDUC 540 Teaching Diverse Learners
This course engages student teachers working with diverse learners, presenting factual information about specific areas of need situated within a socio-cultural framework. It addresses content related to both special education and English language learners in four areas: (1) Introduction to Special Education; (2) Learning Categories; (3) Issues in Special Education; and (4) Working with English Language Learners. Offered within the Teacher Education Program Taught by: Watts, Bialka, Kinney Grossman Two terms. student must enter first term. Prerequisites: Permission needed from department. Activity: Seminar 1 Course Unit

EDUC 541 Access & Choice in American Higher Education
College enrollment is a complex process that is shaped by the economic, social and policy context, higher education institutions, K-12 schools, families, and students. The course will examine the theoretical perspectives that are used to understand college access and choice processes. The implications of various policies and practices for college access and choice will also be explored, with particular attention to the effects of these policies for underrepresented groups. As an Academically Based Community Service (ABCS) course, this course is also designed to generate tangible recommendations that program administrators and institutional leaders may be used to improve college access and choice. Taught by: Perna Course not offered every year Activity: Lecture 2 terms. student must enter first term. Prerequisites: Permission needed from department. Activity: Seminar 1 Course Unit

EDUC 542 Understanding Minority Serving Institutions
Students taking this course will learn about the historical context of HBCUs in educating African Americans, and how their role has changed since the mid-1800s. Specific contemporary challenges and successes related to HBCUs will be covered and relate to control, and enrollment, accreditation, funding, degree completion, and outreach/retention programming. Students will become familiar with MBCUs in their own right, as well as in comparison to other postsecondary institutions. Taught by: Gasman Course usually offered in spring term Activity: Seminar 1 Course Unit

EDUC 543 Understanding Minority Serving Institutions
Students taking this course will learn about the historical context of HBCUs in educating African Americans, and how their role has changed since the mid-1800s. Specific contemporary challenges and successes related to HBCUs will be covered and relate to control, and enrollment, accreditation, funding, degree completion, and outreach/retention programming. Students will become familiar with MBCUs in their own right, as well as in comparison to other postsecondary institutions. Taught by: Gasman Course usually offered in spring term Activity: Seminar 1 Course Unit
EDUC 544 School and Society in America
This course reviews the major empirical and theoretical research from the social history, and social theory on the development, organization and governance of American education, and the relationship between schooling and the principal institutions and social structures of American society.
Taught by: Puckett/Staff
Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit

EDUC 546 Sociolinguistics in Education
The educational consequences of linguistic and cultural diversity. A broad overview of sociolinguistics, introducing both early foundational work and current issues in the field. Topics include language contact and language prestige, multilingualism and language ecology, regional and stylistic variation, verbal repertoire and communicative competence, language and social identity, codeswitching and diglossia, language socialization and language ideology, as they relate to educational policy and practice in the United States and around the world.
Taught by: Flores/Moore
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 547 Anthropology and Education
An introduction to the intent, approach, and contribution of anthropology to the study of socialization and schooling in cross-cultural perspective. Education is examined in traditional, colonial, and complex industrial societies.
Taught by: Hall or Posecznick
Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit

EDUC 548 American Education Reform: History, Policy, Practice
An examination of major trends, central tendencies, and turning points in American education reform, giving particular attention to contemporary developments such as accountability laws and school choice. This historical development of the federal role in American schooling is also considered, as is the history of school desegregation. What is the purpose of "school"? How have schools evolved across time, and how have Americans tried to change them? And what can we learn from this long history of reform?
Taught by: Zimmerman/Puckett
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 549 Writing and Culture
In this class we will look at writing as an expressive and instrumental part of culture and society. We see writing as cultural artifact and cultural behavior, shaped by and shaping the context of its use. This approach to writing is the foundation for the new literacy studies, which understands writing as several variable, multiple, diverse and changing practices contingent upon specific cultural and social contexts. Readings for the course are drawn primarily from the New Literacy Studies, but also from philosophy, anthropology, folklore, literary theory, literature and linguistics. We will consider ways these approaches to understanding and describing writing can inform classroom practice.
Taught by: Camitta
Course usually offered summer term only
Activity: Lecture
1 Course Unit

EDUC 550 Educational and Social Entrepreneurship
This course provides an understanding of the nature of entrepreneurship related to public/private/for profit and non-profit educational and social organizations. The course focuses on issues of management, strategies and financing of early stage entrepreneurial ventures, and on entrepreneurship in established educational organizations.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 551 Outside the School Box: History, Policy and Alternatives
This course explores historical and contemporary challenges involved in the policy and practice of non-school education agencies and factors that work in service to local school/community settings. Students will explore several historical case studies, conceptual frames, and current policy challenges, culminating in a community-based research project.
Taught by: Johanek
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 552 Video Games and Virtual Worlds as Sites for Learning
Drawing on work from the education, psychology, communication, and the growing field of games studies, we will examine the history of video games, research on game play and players, review how researchers from different disciplines have conceptualized and investigated learning in playing and designing games, and what we know about possible outcomes. We will also address issues of gender, race and violence that have been prominent in discussions about the impact of games.
Taught by: Kafai
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 553 Foundations of Education for Diverse Learners
An introduction to Special Education including the history, the legal regulation of Special Education, and an examination of critical issues. Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 554 Teaching & Learning in Urban Contexts
This course marks the beginnings of your year-long inquiry as preservice teachers, and hopefully your career-long inquiry as committed educational professionals, into the challenges of and opportunities for teaching and learning in urban settings. The theories and practices explored in this course are offered as foundations for instructional approaches that are intentional, reflective, inquiry-based, and learner-centered. As we investigate multiple dimensions of teaching and learning (curriculum design, learning theories, instructional techniques, etc.), you will have opportunities to both clarify and challenge the assumptions, beliefs, hopes, fears, and goals that you bring to your preparation to teach in urban secondary schools. Offered within the Teacher Education Program.
Course usually offered summer term only
Activity: Lecture
1 Course Unit
EDUC 555 Advanced Field Seminar (Elementary & Secondary Education)
This course focuses on praxis—the mutually supporting roles of theory and practice that bring rigor and relevance to the work of educational professionals. This course is designed to give student teachers opportunities to develop pedagogical orientations, to learn from “problems of practice” at placement sites, and to enrich student teachers’ theoretical and practical knowledge. All of these experiences will inform the master’s portfolio and will prepare teachers to continue to see themselves and their practice as continuing sites for research. Offered within the Teacher Education Program.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 556 Higher Education Finance
Designed for non-financial managers, this course provides students with an introduction to basic concepts related to the finance of higher education. It examines the forces that influence the financing of higher education at both the state and federal levels. It addresses both the macro-economic and micro-economic issues related to higher education finance. In addition, students will be introduced to issues related to institutional finance.
Taught by: Finney
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 557 Developmental Theories: Applications with Adolescents
Focuses on theories of adolescent development and the nature of transactions among adolescents, peers, teachers, specialists, and significant others. Also covers methods of intervening to promote psychological growth.
Taught by: Nakkula
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 558 Developmental Theories: Applications with Young Adults
This course is designed as a collaborative inquiry toward constructing and elaborating upon theories of young adult development and interactions with young adults as counselors, teachers, family members, and higher education administrators. Using a seminar or working group format, participants explore the relationships among developmental theory, sociocultural contexts of young adults, practice (e.g., interventions, relationships), and research. Using literature from empirical and popular, mainstream sources, participants will engage in learning of how young adults navigate the transition from adolescence to adulthood. Specific topics to be addressed include, “the quarterlife crisis,” financial needs of young adults, relationships, family, and career exploration and crystallization.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 559 Sociology of Education
This course provides an overview of key theoretical perspectives and topics in the sociology of education, including expansion of formal educational systems; the extent to which educational systems contribute to or inhibit social mobility; inequality of educational inputs and outcomes by race, social class, and gender; and the social organization of educational institutions, including sources of authority, community, and alienation. The course includes both K-12 and higher education topics.
Taught by: Ingersoll
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 560 Human Development
Provides an introduction to physical, social, cognitive, emotional and linguistic development from infancy to adulthood. Major theories related to human development will be discussed along with methods of intervention for individuals in various life stages.
Taught by: Fegley/Frye
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 561 Adolescent Development
An interdisciplinary view will be used to frame biological, psychological, and social development among adolescents. Special emphasis will be placed on how contextual factors influence developmental outcomes. Theories of adolescent development and methods of intervention will also be discussed.
Taught by: Fegley
Activity: Lecture
1 Course Unit

EDUC 562 Personality & Social Development
The effects of social processes on human development in the interlocking contexts of parents, family, peers, school, communities and culture are considered during the major developmental periods of infancy, childhood, adolescence and adulthood. The course examines what is unique about social developments, how social relationships can be defined, and what are the social precursors and consequences of specific developmental changes.
Taught by: Chen
Course usually offered in fall term
Activity: Lecture
1 Course Unit
EDUC 563 TESOL Seminar
A weekly seminar that seeks to consolidate, broaden, and deepen knowledge of the main themes, trends, issues, and practices in the field of TESOL. Students will demonstrate their ability to observe, analyze, and reflect upon their teaching as they make connections between theory and practice, all critical skills for ongoing professional development which relate to the students' final project, a reflective-analytical or action research paper. The project is based on a thirty-hour teaching internship completed during the semester in which the students are enrolled in EDUC 563. The project is individually designed and subject to the instructor's approval. All students in the M.S.Ed./TESOL and Language & Literacy must submit a proposal for the internship in the semester before they take the Seminar.
Taught by: Wagner, S/Box/Kozlova
One-term course offered either term
Prerequisite: EDUC 528
Activity: Seminar
1 Course Unit
Notes: Permission needed from the department

EDUC 564 Ethics & Schools
This course explores the ethical elements of the work of schooling by examining ethical dilemmas faced by teachers, administrators, and policy makers. This course also explores how ethics should be taught in schools (and if it should be taught at all). The course raises and engages with the following questions: How can educators approach ethical dilemmas in their everyday work? How might an educator respond when she believes school-based policies and procedures are not in a student's best interest? How might an educator balance responses to particular events with system's level transformation? Should policy makers pandering to upper-middle class parents to attract them to urban districts? How can individual teachers and entire schools teach ethics?
Taught by: BEN-PORATH, S
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 565 Contemporary Issues in Community Psychology
This course focuses on three related issues. The history and evolution of community psychology within the political, economic and scientific contexts is the first issue. Second, students examine the discipline's distinction between community mental health and community psychology. Third, students examine the implications of disease prevention and health promotion for the discipline's current status and future development.
Course not offered every year
Prerequisite: EDUC 686
Activity: Lecture
1 Course Unit

EDUC 566 Cross Cultural Awareness
This course provides students experiential and cognitive awareness through affective exercises and readings. It explores issues of living in a diverse society through a variety of educational strategies including workshops, small group process, guest lectures, etc. It represents the seminar portion of P.A.C.E. (Programs for Awareness in Cultural Education): An "Educating the Peer Educator" Program.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 567 Internship: ICC
All students in the MS/ICC program must complete a supervised internship of at least 160 hours prior to enrolling in this course. The supervised internship is individually designed and is subject to approval; students must submit a Prospectus describing the internship in the Fall or Spring semester prior to beginning the internship. This course offers guidance as students complete the portfolio or reflective paper, which is based on the experience and data collected during the internship. Through this course, students in the M.S.Ed./ICC program will discuss ways to conceptualize the internship experience, situate it meaningfully within the field of intercultural communication, locate and analyze relevant research literature, and prepare the portfolio or reflective paper, with an overall goal of developing the ability to communicate clearly and effectively for an academic and/or professional audience.
Taught by: Moore/Pomerantz
Course usually offered in spring term
Prerequisites: Eight or more courses toward M.S.Ed. degree in Intercultural Communication. Permission needed from department.
Activity: Seminar
1 Course Unit

EDUC 568 Cognitive Development
This course examines the cognitive development of the child from infancy to adolescence with an emphasis on cultural context. Topics include: origins of thinking, Piaget, Vygotsky, intelligence, development of learning and memory, language development, and moral development.
Taught by: Frye
Course usually offered in fall term
Prerequisite: EDUC 560 or equivalent
Activity: Lecture
1 Course Unit

EDUC 569 Administration of Student Life
This course covers a variety of issues in the management of student services on campus. After examining the historical context of student affairs and the theoretical frameworks of student development, students explore ways to most effectively administer the numerous activities that comprise student affairs programs.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 570 Education and the American Metropolis
Education and the American City centers on major trends and factors that have shaped cities and their preK-16 school systems since the Second World War, including racial discrimination, migration and immigration, suburbanization, deindustrialization, U.S. housing policy, social welfare policy, and urban renewal.
Taught by: Puckett
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 572 Language and Gender
This course traces the development of research on language and gender, introducing key theoretical issues and methodological concerns in this area. Participants will consider how gender ideologies shape and are shaped by language use, with particular attention to how research findings can be applied to educational and other professional settings.
Taught by: Pomerantz
Course not offered every year
Activity: Lecture
1 Course Unit
EDUC 573 Higher Education Policy: What Can We Learn from Other Countries?
This course examines the proposition that policy makers, educational leaders and practitioners can learn from what has worked and failed in higher education policy and practice in other nations.
Taught by: Ruby/Eynon
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 574 Race/Ethnicity in Human Development
This interdisciplinary course will employ a critical perspective on minority youth development, analyze the existing literature, and propose alternative explanations for observed phenomena. It will consider pertinent issues and theories of middle childhood, adolescent and young adult development.
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 575 Topics of Psychology in Education: Qualitative Studies of Developmental Interventions
This course is designed to introduce students to innovative approaches to the psychology of education, especially with regard to populations from at-risk contexts, sociocultural dimensions of education, and social-emotional learning.
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 576 The Social & Political Philosophy of Education
Is the purpose of education to allow individuals to better themselves by pursuing personal tastes and interests, or should education be primarily aimed at creating good citizens or good members of a group? Is there a way of reconciling these two aims? Assuming that adult relations with children are inherently paternalistic, is it possible for children to be educated for future autonomy to pursue major life goals free from such paternalistic control; and if so, how? How much, if any control over education can be allocated to the state, even when this conflicts with the educational goals parents have for their children? Such questions are especially relevant in multicultural or pluralistic societies in which some groups within a liberal state are non-liberal. Should a liberal democratic state intervene in education to ensure the development of children's personal autonomy, or must toleration of non-liberal groups prevail even at the expense of children's autonomy?
Taught by: Detlfsen, K.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 577 Selected Topics in Educational Linguistics
The focus for each semester will vary to reflect those issues most relevant to current concerns in educational linguistics. One-term course offered either term
Activity: Seminar
1 Course Unit

EDUC 578 Teaching Reading and Study in Colleges and Universities
This course is designed for both pre-service and experienced instructors and administrators who are interested in teaching and/or researching the concept of academic literacies and the array of academic skills in postsecondary settings, and/or directing programs in reading, writing and study strategies at the postsecondary level. The course presents theoretical frameworks relevant to the teaching of study strategies, theories of cognitive development, and practical instructional methods. Emphasis is placed on the process and content of such instruction, materials and methods for teaching, and ways to organize postsecondary literacy programs.
Taught by: Cohen, M
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 579 Intercultural Communication and Miscommunication
An introduction to basic issues in intercultural communication, reviewing various perspectives on the nature of culture, communication, “miscommunication” and inter-cultural relations. The course criticizes two commonly held assumptions: 1) that “cultures” are unitary and unchanging and 2) that inter-cultural contact and communication is inherently more troublesome than intra-cultural communication. The course considers ways in which intercultural communication has important consequences in education, medicine, social services, business settings, and international contact situations.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 580 Developmental Theories & Applications with Children
The purpose of this course is to provide students with an opportunity to consider mandates, models, and methods related to enhancing the learning and development of preschool and early elementary school children. This course emphasizes the application of developmental psychology and multicultural perspectives to the design of effective classroom-based strategies. Students will consider a “whole-child” approach to understanding children’s classroom behavior in context. Major assignments will involve gathering and synthesizing information about children in routine classroom situations. This information will be used to better understand children's needs and strengths and how they are manifested in transaction with classroom contexts. Students will focus on one or more students to conduct a comprehensive child study of the child in context. This contact must include opportunities to observe children in a natural setting and interact with them on a regular basis throughout the semester. The placement needs to be approved by the professor. If students do not have a regular classroom contact, one will be arranged.
Taught by: Fantuzzo
Course usually offered in spring term
Activity: Lecture
1 Course Unit
EDUC 581 Advanced Psychology of Women: Counseling Issues for Women
The course is intended for those who already have a foundation in the study of the psychology of women and want to expand their understanding of the provision of psychological services to include a contextual, feminist, and relational perspective. Theoretical and applied practices regarding women's mental health, issues of diversity, sexuality and relationships for women will be addressed.
Prerequisites: Introduction to Psychology and an undergraduate course in the Psychology of Women or approval by professor.
Activity: Lecture
1 Course Unit

EDUC 582 Theories and Pedagogies of Teaching Writing
This seminar examines various theories and pedagogies of teaching writing in multilingual, multimodal contexts. It explores the historical and ideological underpinnings of contemporary theories of writing and attends to how writing, and the teaching of writing, is shifting in a mobile, networked, and global age.
Taught by: Stornaiuolo
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 583 Content-Based Instruction
This course offers students opportunities to investigate, observe, design practice, and critically evaluate the integration of content and language teaching - Content Based Instruction. The settings investigated include thematic English Language teaching; co-teaching and peer coaching by ESL and content teacher teams; and sheltered content instruction, among others. Standards, integrations of tasks, and special language requirements in various content areas are reviewed.
Taught by: Box
Course usually offered summer term only
Activity: Lecture
1 Course Unit

EDUC 584 Basic Counseling Skills
This course will teach basic counseling skills to students not seeking a license in professional counseling as a way to help them connect with and work well with others. It will predominantly be oriented towards skill building. We will review/discuss a selection of basic counseling skills and use in-class demonstrations to practice these skills. This course is required for the Counseling and Human Development Skills Concentration.
Taught by: Schultz,Kyle
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 585 Advanced Group and Family Counseling
This course focuses on the basics of systems intervention with a specific focus on families and groups. The purpose is to develop more advanced knowledge of practical therapeutic problem-solving skills at the graduate student level using ecological, systemic, and cultural perspectives. Students will be exposed to advanced group therapy strategies with children, youth, and adults, with family interventions across various mental health diagnostic populations, and how to intervene within groups and families in which cultural differences and styles are key themes. Students will also be challenged to develop a preliminary rationale for a systemic theory of behavior change. Given the diversity of clients that counselors see professionally, some advanced and demonstrated knowledge of how cultural differences will be addressed in the counseling session and in the relationships of larger societal institutions will be expected. This course will satisfy the Group work II requirement of the MPE program in Professional Counseling and Psychology. The course also fits within the APHD theme of Applied Psychology: Intervention and Certification.
Taught by: Lappin
Prerequisites: Students must be enrolled in the M.Phil.Ed. in Professional Counseling Program.
Activity: Lecture
1 Course Unit

EDUC 586 Ethnographic Filmmaking
This ethnographic methodology course considers filmmaking/videography as a tool in conducting ethnographic research as well as a medium for presenting academic research to scholarly and non-scholarly audiences. The course engages the methodological and theoretical implications of capturing data and crafting social scientific accounts/narratives in images and sounds. Students are required to put theory into practice by conducting ethnographic research and producing an ethnographic film as their final project. In service to that goal, students will read about ethnography (as a social scientific method and representational genre), learn and utilize ethnographic methods in fieldwork, watch non-fiction films (to be analyzed for formal properties and implicit assumptions about culture/sociality), and acquire rigorous training in the skills and craft of digital video production. This is an ABCS course, and students will produce short ethnographic films with students in Philadelphia high schools as part of a partnership project with the School District of Philadelphia. Due to the time needed for ethnographic film production, this is a year-long course, which will meet periodically in both the fall and spring semesters.
Taught by: Hall,Kathleen & Das,Amit
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit
EDUC 588 Digital Literacies in a Networked World
This graduate seminar is designed to explore how literacy and learning are changing as people participate with digital technologies across intersecting local and global networks. Participants will collaboratively investigate how young people’s digital literacies—their culturally and socially situated meaning making practices mediated by digital tools—emerge in relation to constantly shifting technologies of communication and are constructed, reconstructed, negotiated, and embodied in multiple semiotic systems across everyday contexts. This course highlights how digital literacies are situated, and how these socio-cultural understandings illuminate issues of power and privilege.
Taught by: Stornaiuolo, A
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 589 Teaching and Learning in the Global Era
We are living in an era in which economic, social, cultural, environmental and technological transformations are connecting people across the globe in new and unprecedented ways. Given that our world is increasingly interconnected, it is no longer adequate to prepare students to succeed simply as citizens of a particular nation. Students also must acquire the knowledge, skills, dispositions, understanding and aptitude to engage with people from different regions in the world who may hold varying or conflicting perspectives, forms of knowledge, and ways of knowing that are culturally and historically specific and informed. This course will focus on issues related to teaching and learning in the 21st century, and to preparing young people for global citizenship. We will consider what it means to be a global citizen as well as the various approaches to educating for global citizenship that have emerged in the U.S. and around the world. We will also explore instructional and curricular innovations that aim to enrich how young people learn about world regions and cultural traditions, engage with global issues and come to respect contrasting perspectives.
Taught by: Hall
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 590 Gender & Education
This course is designed to provide an overview of the major discussions and debates in the area of gender and education. While the intersections of gender, race, class, ethnicity, and sexuality are emphasized throughout this course, the focus of the research we will read is on gender and education in English-speaking countries. We will examine theoretical frameworks of gender and use these to read popular literature, examine teaching practices and teachers with respect to gender, using case studies to investigate the topics.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 591 Applied Research Methods to Inform Policy and Practice
The class is designed to provide students with the knowledge and tools to define relevant research questions to guide program design and operations, as well as to guide policy development; to map questions to appropriate methods of research; to judge the quality of research evidence; and to design strong analysis and evaluation strategies for various purposes. The primary, but not exclusive, focus of the course is on education policy concerns.
Taught by: Maynard
Course usually offered in fall term
Prerequisites: Permission needed from department.
Activity: Lecture
1 Course Unit

EDUC 592 Professional Development in Higher Education
To prepare for a career in higher education, students are engaged in a 20-hour a week assistantship in the field. This course complements and enhances the graduate assistantship. Emphasizing practical application of theory and skill development, the course does the following: provides students with tools to embark on a successful job search; offers networking opportunities with administrators in higher education; and introduces students to relevant and timely literature and resources in higher education professional development.
Taught by: Aikins
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 593 Experiential Learning Design for Intercultural Communication
Provides new and experienced educators the opportunity to learn and practice training design and facilitation using the principles of experiential and adult learning.
Course usually offered in spring term
Prerequisite: EDUC676 or permission from the instructor
Activity: Lecture
1 Course Unit

EDUC 594 Diversity in Higher Education
This course explores issues of diversity as they pertain to higher education, including race, ethnicity, gender, class, religion, sexual orientation, ideology, etc. Rather than focusing on specific populations of people, the course will tackle issues of diversity within the context of concrete higher education functions and problems.
Taught by: Tiao/Staff
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 595 Politics and Education
How is education a form of political action? In this course we look at the governance of schools, the trust in them and their relations to socioeconomic conditions in society, among other topics, using research in education, political science, and political theory.
Taught by: BEN-PORATH
Course usually offered in fall term
Activity: Seminar
1 Course Unit
EDUC 596 International Early Childhood Policies and Programs
This course focuses on early childhood development research, policies, and practices in low and middle-income countries. The first part of the course reviews the evidence for investing in young children from economic, health, and education perspectives. The second part of the course discusses current issues related to designing, implementing, and evaluating quality, contextually-appropriate early childhood interventions.
Taught by: Neuman
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 597 Policy Planning in International Educational Development: Theory and Practice
This course focuses on education policy in low and middle-income countries. The first part examines global policy frameworks and international institutions/actors that shape education reform efforts. The second part covers the contexts, processes, and tools for national education policy planning. The third part analyzes a series of current cross-national education policy issues.
Taught by: Neuman
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 598 Interfaith Dialogue in Action
This ABCS course explores religious pluralism and interfaith dialogue and action on college campuses. It brings together students with diverse faith commitments (including atheism) to engage with and learn from one another in academic study, dialogue, and service.
Taught by: Hall/Kocher
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 599 History of American Education
This course will examine the growth and development of American schools, from the birth of the republic into the present. By 1850, the United States sent a greater fraction of its children to school than any other nation on earth. Why? What did young people learn there? And, most of all, how did these institutions both reflect and shape our evolving conceptions of "America" itself? In an irreducibly diverse society, the answers were never simple. Americans have always defined their nation in a myriad of contrasting and often contradictory ways. So they have also clashed vehemently over their schools, which remain our central public vehicle for deliberating and disseminating the values that we wish to transmit to our young. Our course will pay close attention to these education-related debates, especially in the realms of race, class, and religion. When immigrants came here from other shores, would they have to relinquish their old cultures and languages? When African-Americans won their freedom from bondage, what status would they assume? And as different religious denominations fanned out across the country, how would they balance the uncompromising demands of faith with the pluralistic imperatives of democracy? All of these questions came into relief at school, where the answers changed dramatically over time. Early American teachers blithely assumed that newcomers would abandon their old-world habits and tongues; today, "multicultural education" seeks to preserve or even to celebrate these distinctive patterns. Post-emancipation white philanthropists designed vocational curricula for freed African-Americans, imagining blacks as loyal serfs; but blacks themselves demanded a more academic education, which
Taught by: Zimmerman
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 601 Economic Aspects of Educational Policy
This course has two main goals. One is to teach students to apply economic principals to analyze a wide range of educational policy issues. The other is to provide students with a foundation in contemporary education policy issues. The course is designed to address analytic issues relevant to a wide range of educational professionals, including managers, policy makers, and evaluators. The course will be divided into five units: (1) principles of economic analysis in the context of education policy; (2) the economics of early care and education; (3) cost-effectiveness analysis; (4) human capital investment; and (5) education finance.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 602 Youth Cultural Formations
This course explores anthropological perspectives on peer-based youth cultures. It explores how educational institutions, media (fashion, music, magazines), and states shape youth cultures in cross-cultural contexts through social processes such as capitalism, nationalism, and increasing globalization. The course emphasizes ethnographies and histories which explore the relationship of these wider social processes to the lived realities of young people, situated in class, gender, national and race-specific contexts.
Taught by: Strong
One-term course offered either term
Activity: Lecture
1 Course Unit
EDUC 603 Wellness and Addictions Counseling
This course will provide an overview of addictions and addiction counseling from research, theory, and applied perspectives. It will also explore contemporary conceptions of "wellness" and wellness-promotion strategies, particularly for people struggling with addictions. Applied skills for addressing wellness and addiction will be framed within current evidence-based research.
Course usually offered in fall term
Prerequisites: Students must be enrolled in the M.Phil.Ed. in Professional Counseling Program.
Activity: Lecture
1 Course Unit

EDUC 604 Ethics and Leadership in Higher Education
This course looks critically at the various theories of leadership with a special emphasis on the ethical dimensions of leadership. Initial classes are devoted to common ethical frameworks from Plato and moving through Kant, Hume and into the present practical application of ethics to leadership. Leadership theory and practice reveal that there is no one approach that is best or that works in all situations. Aspiring leaders must have a variety of lenses through which they can analyze and understand the elements involved in ethical leadership. At the end of the course students will be able to apply essential concepts of ethical decision making and leadership - the role of trust and the ability to build trust, the uses of power, the importance of good decision-making, the conflicting priorities that arise from living out your core values in the workplace.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 607 Faculty and Academic Governance
Introduction to selected issues pertaining to faculty and academic governance, such as: Who governs American colleges and universities? What are the respective roles of the president, the board of trustees, the faculty, and students in institutional decision making? The course will also explore key contemporary governance issues.
Taught by: Hartley/Garland/Eckel
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 608 Organizational Change in Higher Education
Colleges and universities today face tremendous challenges—calls by external constituents for greater accountability, scarcity of resources, greater competition, and pedagogical innovations. The need for change, and for change agents, in our institutions of higher learning has never been greater. This course examines organizational change both theoretically and practically in college and university settings. Students will be introduced to many of the most current, influential, and promising theories about how change occurs at the departmental, institutional and system level. Using case studies, we will apply these frameworks in order to diagnose and develop constructive strategies for meaningful change.
Taught by: Hartley
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 609 Counseling for Educators
The purpose of this course is to help professional educators develop an understanding of the major issues involved in trying to help others. To accomplish this, it examines various counseling theories and explores their relevance for working with students and parents as they confront normal issues of learning and development. Through observation, skill building, and practice in natural settings, students will have the opportunity to develop their own grounded theory of helping.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 610 Cultural Perspectives on Human Development
This course focuses on children's and adolescents' development from cultural and cross-cultural perspectives. Topics include traditional and recent theories of cultural influence on development, research strategies, socialization values and practices, and socioemotional and cognitive functions such as aggression and conflict, shyness, and academic achievement in cultural context. Issues involving ethnicity and social and cultural changes are also discussed.
Taught by: Chen
Activity: Lecture
1 Course Unit

EDUC 611 Education, Development, and Globalization
This course will explore contemporary issues in international education. The emphasis will be on exploring an emergent body of literature on contemporary processes of globalization in the field of education. The course has a double goal: 1) to provide theoretical frameworks and historical perspectives in order to develop an adequate understanding of 'globalization', and 2) to explore the relevance and impact of globalization as a framework for understanding educational processes in comparative and international contexts.
Taught by: Ghaffar-Kucher
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 612 LGBT Counseling & Development
In the past quarter century, the awareness of the unique issues facing lesbian, gay, bisexual and transgender (LGBT) individuals has expanded and become essential knowledge in our work as educators, providers of psychological services, and other service provision fields. This course provides a contextual and applied understanding the interactional processes facing LGBT individuals.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 613 Group Counseling
Through didactic and experimental learning activities, students will explore various theoretical approaches to groups, learn and apply principles of group dynamics, develop familiarity with ethical, legal and professional standards relative to group leadership, learn member roles and functions in group, examine group counseling in a multicultural context, and relate these issues to the leader’s interpersonal style and behavior. Applications to specific developmental stages and contexts will be explored.
Activity: Lecture
1 Course Unit
EDUC 614 Child Development and Social Policy
The purpose of this course is to focus on major US social policies impacting our most vulnerable subpopulations of children living in poverty. The class will explore how developmental science can provide a broad conceptual framework to inform the construction of social policies for children and evaluate their effectiveness. Since much of the social policy issues for children in the US public square are currently hotly debated, the class format will incorporate debate and require students to actively research and defend positions on existing policies. Class size will be set at a level to maximize interaction and involvement.
Taught by: Fantuzzo
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 615 Parenting and Children's Educational Development
Theory and research on family influences on achievement development, models of the home-learning environment; parental involvement in schools.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 616 Master's Foundations of Teaching and Learning
The course explores theoretical and empirical perspectives on the questions: What is knowledge and knowing? What is learning? What is teaching? How do contexts influence teaching, knowing, and learning? A central goal of the course is to encourage students to consider these questions and their interconnections for themselves, to examine ways scholars and practitioners have answered them, and to develop an analytical framework to use in examining contemporary practices in settings that include formal and informal, urban and international.
Taught by: Baker
Course usually offered in fall term
Prerequisites: Permission needed from department.
Activity: Lecture
1 Course Unit

EDUC 617 Counseling for School to Career Transitions
This psychology course will focus on the developmental and emotional changes that coincide with adolescents' conceptions of work and work-related activities. As a course in career psychology, students will be exposed to readings from multiple disciplinary perspectives and will be expected to learn how to work with youth as they struggle through decisions on career and moving beyond the safety of childhood and adolescence. In addition, students will learn about the family-youth and school-student relational dynamics and that occur simultaneous to the adolescent's development of a work ethic.
Taught by: Nakkula
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 618 Leadership in Educational Institutions
In this course class members will simultaneously engage in an academic study of educational leadership focusing on Pre-K-12 schools and school districts, and in a continuing leadership development laboratory experience designed to increase one's personal efficacy as leader. A basic assumption for the course is that leadership is a central component of schooling; teaching is considered as foremost a leadership activity, whether with five year olds or high school seniors, and successful schools and districts are assumed to have capable leaders. The course will give particular attention to the recent shift in role expectations for school leaders - from competent manager to accountable instructional leader - and what this shift means in relation to the day-to-day work of educational leaders.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 619 College Student Health
College Student Health explores postsecondary student health issues from historical and research perspectives, including stress, sleep, sexual health and safety, alcohol and other drugs, and mental health and wellness, among other topics. This course surveys the roles, responsibilities, and best practices of campus health professionals.
Taught by: Aikins
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 620 Enrollment Management
Enrollment management is an organizational concept of strategies for achieving institutional goals. The course provides an overview of multiple enrollment management models, the evolution and maturation of these models, the related implications of these organizational structures and strategies, and the benefits and drawbacks on institutions and their markets. This course is designed primarily for masters-level students.
Taught by: Kaplan/Staff
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 621 Proseminar in Professional Education
An integrative seminar that will provide an opportunity to reflect, orally and in writing, on the issues of quality, stability, and change in teaching, curriculum and school organization, toward the aim of fundamental reform in educational practice.
Taught by: Quinn
Course usually offered in fall term
Activity: Seminar
1 Course Unit
EDUC 622 International Educational Development Program (IEDP)
International Field Experience/Internship
Conceptual background on the role and utility of non-profit organizations in international educational development, combined with 6-8 weeks of field experience working in a developing country, or with an international organization that has programs in developing countries. The pre-fieldwork phase of the course seeks to acquaint students with the stages of a project cycle and will introduce students to tools and techniques employed by a variety of international development organizations.
Students will work in small groups on a technical proposal throughout the semester. For the fieldwork phase, students are required to write multiple reports from the field.
Taught by: Ghaffer-Kucher
Course usually offered summer term only
Prerequisites: Required of (and limited to) IEDP students in order to complete their Master's Degree.
Activity: Full Time Internship
1 Course Unit

EDUC 623 Childhood Interventions
The course addresses the following key questions: what is early childhood intervention? What was it, and what has it become? What are its historical roots in child development research, early childhood education, special education, and maternal and child health? However, while addressing earlier conceptual issues, this survey course also links these conceptualizations to contemporary developments in the field that are of special significance to educators.
Course not offered every year
Prerequisite: EDUC 560 Human Development
Activity: Lecture
1 Course Unit

EDUC 624 Gender in College
Examined in this course are theories and interdisciplinary perspectives pertaining to gender on college and university campuses. Emphasis is placed on the social construction of gender, gendered institutional norms and practices, gender disparities on college campuses, and the unique experiential realities of women, men, and transgender persons in a variety of roles and postsecondary educational contexts.
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 625 Data Processing and Analysis
Use of Statistical Software including Statistical Analysis (SAS) to effectively build a wide variety of datasets for use to address a range of empirical research questions. Evaluate conventional methods for dealing with missing data and apply contemporary methods using SAS.
Taught by: Rovine
Course usually offered in fall term
Prerequisite: Educ 667 or equivalent
Activity: Lecture
1 Course Unit

EDUC 626 Literacy, Discourse, and Interaction
This course draws on varying pedagogical and personal perspectives to explore conceptions of reading comprehension and how it can be taught to children and adolescents. Focus will be given to how certain ways of structuring dialogue about a text profoundly change how readers think about and do reading.
Taught by: Thomas
Activity: Lecture
1 Course Unit

EDUC 627 Teaching in the Middle and Secondary Schools
Content-specific sections of this course (math, social studies, science) will examine approaches in planning, implementing and evaluating methods for teaching science, mathematics and social studies in middle and secondary schools. This course is grounded in the belief that teaching and learning require educators to question our teaching purposes and practices through a process of self-reflection, collegial and student-teacher interactions as well as personal and professional growth. Using a variety of learning theories and perspectives as the foundation for interactive teaching strategies, the stories, questions and contradictions of each content area are examined from a variety of perspectives. Offered within the Teacher Education Program.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 628 Education Finance Policy
This course examines the legal, political and economic issues surrounding how public schools are funded, including equity, productivity and the interaction of finance and school reform. Through readings, discussion and written assignments, students will develop and apply policy analysis skills to the area of education finance.
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 629 Teaching English-Language and Literacy in Middle and Secondary Schools
This course is a collaborative inquiry into the dynamic concept of adolescent literacy and its potential as an organizing construct for improving teaching and learning. It provides opportunities to investigate a variety of resources including our own histories as well as a range of print, digital and visual texts and to conduct fieldwork in various middle and secondary school classrooms where youth are being positioned (and positioning themselves) as literacy learners and literacy is being defined, performed, practiced, interrogated, and interpreted, within and beyond the school curricula. By engaging with youth, in various texts and contexts and for a range of purposes, participants will try to make sense of how adolescents negotiate their worlds, in school and out. The approach to literacy is interdisciplinary, drawing from the domains of literature, composition, linguistics, curriculum theory, anthropology and psychology and from theory, research and practice of both university-based and school-based teachers, writers and researchers. The intent is to pose and refine questions about what it means to teach literacy in ways that take seriously what youth bring to school as their own knowledge and passions, cultural and linguistic resources.
Taught by: Stornaiuolo
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 631 Research Topics
This seminar offers students a collaborative setting in which to explore a topical area, craft a literature review and refine their research questions. The course will be of special interest to doctoral candidates who are drawn to an area of inquiry (e.g., presidential leadership, diversity, access, organizational change) but now wish to elicit from it a discrete "researchable" question.
Course not offered every year
Prerequisites: Permission needed from department.
Activity: Lecture
1 Course Unit
EDUC 633 Selected Topics in Reading/Writing
Examines a topic of current interest to theory, research, and practice in writing.
Course usually offered summer term only
Activity: Lecture
1 Course Unit

EDUC 634 Language Assessment
This course concerns a basic theoretical and practical foundation in language assessment, with particular emphasis on assessments used in second and foreign language education. The course covers various kinds of testing (both formal testing and performance-based assessment), theoretical and technical issues associated with test development, administration, the social influences of testing, and future directions in language assessment.
Taught by: Butler
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 635 Assessing Language and Learning Differences
This course exposes students to a wide variety of assessments used to look closely at growth in reading/writing/literacy. Students critique both formal and informal approaches to assessment as well as complete structured observations of learners within diverse instructional contexts.
Emphases include contextual and affective components of reading/language difficulties, innovative assessment procedures, observational strategies and collaborative inquiry.
Taught by: Gadsden/Campano
Course usually offered in spring term
Prerequisite: EDUC 533
Activity: Lecture
1 Course Unit
Notes: Auditors not permitted

EDUC 636 Young Adult Literature, Media & Culture
This course acquaints students with the ever-expanding body of literature written for young adults, considering the theoretical and pedagogical issues it raises. Readings include many young adult novels; empirical research on adolescent response to literature; and literary theory.
Taught by: Thomas
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 638 Principles of Monitoring & Evaluation in International Education Development
This course covers theories, methods, and applications of monitoring and evaluation for educational and social programs, with special emphasis on international education development. Topics include basic statistical concepts, program theory, process and outcome assessment, concepts in survey methods, introduction to causal inference, introductory regression analysis, and an overview of impact assessments and cost-benefit/cost-effectiveness analysis.
Taught by: Thapa
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 639 Design of Learning Environments
This course examines different theoretical frames and strategies related to the study and design of learning environments in school, community and online contexts. Physical, social and cognitive aspects of learning situations are considered as students evaluate current research and applications in a variety of existing educational learning environments.
Taught by: Yoon/Staff
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 640 History of American Higher Education
This interactive course focuses on the history of American higher education from the Colonial period through the current day. An emphasis is placed on underrepresented institutions and individuals. Students will have the opportunity to make connections between historical trends and movements and current issues.
Taught by: Gasman
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 641 Language and the Professions
This course takes a micro-analytical perspective on interaction and language use in various institutional domains. Topics include doctor-patient interaction in diagnosis and treatment; trial examination and jury deliberations, as well as informal modes of conflict resolution; and news and political communications. Attention is focused on the interrelationships between interactional practices, institutional tasks and social identities. Students will be given opportunities to mutually engage in hands-on data analysis during the class.
Taught by: Wagner,S.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 644 Technology-Mediated Teaching & Learning
Students in this course will critically evaluate the role of technology in education. Through a range of inquiry projects, research analysis and hands-on experience, students will examine the potential risks and benefits, as well as strategies of use for technology-mediated teaching and learning. Technologies considered will include: skill-building software, microworld software, visualization and modeling tools, internet search tools, media production tools, and collaboration technologies.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 645 Issues in Education and Health: Disparities and Prevention in Schools and Communities
Drawing upon research and scholarship in health and education, this course aims to deepen our knowledge, understanding, and ability to effect positive change in the health and health practices of students and families in urban settings, using schools and community agencies as sites of engagement.
Taught by: Gadsden
Course usually offered in spring term
Activity: Seminar
1 Course Unit
EDUC 646 Contextualizing the School to Prison Pipeline: Implications of History, Policy, and Race
The term school-to-prison pipeline typically refers to a disturbing trend in which punitive policies have led to children being funneled out of schools and into the criminal justice system at an alarming rate. This course: 1. Examines the historical context and policies that have contributed to the school-to-prison pipeline.
Taught by: Harper
One-term course offered either term
Activity: Seminar
1 Course Unit

EDUC 650 Communication and Culture in Context
This course brings together overarching questions in pragmatics, interactional sociolinguistics, and critical discourse analysis to help language teachers and intercultural educators foster pedagogies that respond to the complexities of living in a multilingual/multicultural society. Through a series of readings, small research projects, and activities, participants will develop a collection of educational practices that focus on 1) raising metalinguistic awareness, 2) developing resources and strategies for communicating across perceived social and cultural boundaries, and 3) assessing intercultural interactional competence.
Taught by: Pomerantz
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 655 Ethnography for Intercultural Communication
This course is for practitioners and researchers engaging in and thinking about mentoring, supervision, and fieldwork in teacher education and counseling as well as in social work and other applied development fields.
Taught by: Moore
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 656 College and University Teaching
In this class, students will learn how to systematically plan for a university course, develop a teaching philosophy, create a course syllabus relevant to their discipline and expertise, design and implement evaluation instruments to assess teaching and learning, experiment with a range of technologies to advance teaching, and participate in a teaching simulation. This course also incorporates issues of diversity with regard to teaching.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 657 Advanced Methods in Middle & Secondary Education
Formal teaching and learning are ongoing processes that require an examination of our practice and purpose through self-reflection, self-evaluation, collegial and student/teacher interaction, and personal and professional growth. This course is the second half of a content-specific secondary methods sequence that is geared toward teaching middle and high school English, math, science and social studies in an urban setting. Special focus will be on content, pedagogical strategies as well as specific skills and Pennsylvania and national standards. We will work together as teacher-researchers to combine theory with practice to increase our understanding and utilization of an inquiry based, multiple perspective, constructivist approach to teaching. Offered within the Teacher Education Program.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 658 Diagnosis and Psychopatholgy
In this course, students will explore the etiology, course, and prevalence of psychological disorders of childhood and adolescence. Particular focus is on the role of these issues in the developing person within the context of family, school, and culture. Major clinical and empirical classification systems (DSMIV and the new DSM5) are examined, as well as some of the diagnostic and assessment strategies used to aid the conceptualization and treatment of these disorders.
Taught by: Richardson
Activity: Lecture
1 Course Unit

EDUC 660 Museum Education
Since the nineteenth century, museums have played a key role in the collection and dissemination of knowledge, and today their educational programs play a vital role for an array of communities. This seminar provides an introduction into museum education, the fields that influence it, pedagogical approaches used, and contemporary challenges.
Taught by: Aplenc
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 661 Language Diversity and Education
Exploration of issues affecting educational policy and classroom practice in multilingual, multicultural settings, with an emphasis on ethnographic research. Selected U.S. and international cases illuminate concerns relating to learners’ bilingual/bicultural/biliterate development in formal educational settings. Topics include policy contexts, program structures, teaching and learning in the multilingual classroom, discourses and identities in multilingual education policy and practice, and the role of teachers, researchers, and communities in implementing change in schools.
Taught by: Hornberger/Flores
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Permission needed from the department

EDUC 662 Picturebooks and the Practice of Literacy
This course examines the formal properties of picturebooks and their use in enabling literacy development. The course uses aesthetic theory, theories of text-picture relationships, theories of literacy and theories of literary understanding, and also exposes students to empirical research on children's responses to this literary form.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
EDUC 663 Sociocultural Foundations in Counseling
The course provides an understanding of sociocultural concepts essential to the work of counselors and providers of psychological services. This course provides a contextual and applied understanding of working with socioculturally diverse clients. The purpose of this course is to expand one's understanding of the impact of sociocultural and contextual factors, social-psychological influences, the role of values, and the interaction of identities in counseling and psychological services. Both intervention and prevention strategies will be addressed. The student will be required to demonstrate a working knowledge of key concepts in sociocultural psychology and the topical areas addressed in the course.
Taught by: Warren/Staff
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 664 Participatory Educational Research in Global Perspective: Theory and Practice
This course examines participatory models and frameworks in relation to international applied educational development research. Through a critical examination of approaches to international applied development research, the course examines real-world models of development research in order to examine questions regarding the nature of knowledge, post-colonial histories, researcher positionalities, and the relationships between concepts, theory, methodology, community, and identity. Course focuses on participatory methodologies as cross-sector strategy frameworks for sustainable, equitable, locally driven educational development efforts.
Taught by: Ravitch
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 665 Research on Teaching
This course is designed to explore the research literature on classroom teaching processes as well as the contrasting conceptual and methodological approaches upon which this literature is based. The course introduces students to the major substantive areas in the field, develops a critical perspective on contrasting paradigms, and raises questions about the implication of research on teaching for curriculum, instruction, evaluation, and teacher education.
Taught by: Remillard
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit

EDUC 667 Introductory Statistics for Educational Research
Scales of measurement; indices of central tendency and variability; product-movement correlation; introduction to the chi-squared; Z, T, and F distributions.
Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit

EDUC 668 Master's Paper Seminar
This seminar explores key foundational questions for graduate-level work: How is academic knowledge formed and reproduced? How do we engage with and interrogate the scholarly research? And, how do we participate in the academic conversation around a topic? The Master’s Paper Seminar introduces students to academic discourse, disciplinary writing conventions, and research practices. As part of this course, students are guided through preparing a literature review of a topic of their choice. This review, in turn, forms the foundation of their 30-40 page Master's Paper that is required for the completion of the M.S.Ed degree.
Taught by: Aplenc/Posecznick
Two terms. student must enter first term.
Activity: Lecture
0.5 Course Units

EDUC 669 Seminar in Practitioner Inquiry
This course is designed as a collaborative investigation into practitioner inquiry and the work of inquiry communities in K-16 and graduate/professional school settings, professional networks and community-based organizations. The focus is on conceptual and methodological frameworks and methods of practitioner inquiry and the contexts, purposes and practices of differently situated inquiry communities. Participants will explore a range of practitioner inquiry traditions and texts that go by terms such as action, collaborative, critical, community-based, participatory, autobiographical, emancipatory, narrative and pedagogical. They will also conduct an inquiry based on their particular interests and contexts. The course will emphasize practitioner inquiry that intentionally engages issues of equity, access and culture in educational settings.
Taught by: Campano
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit

EDUC 670 Second Language Development
This course provides an introduction to theory and research on second/multilingual language development. Linguistic, cognitive, social, political, and educational perspectives are considered through readings, lectures, activities, and assignments. Students gain an understanding of research design, methodology, and documentation through guided analysis of published studies and an opportunity to design research projects.
Taught by: Butler/Larsen-Freeman/Matsumoto
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 671 Adult Literacy
Teaching reading/writing/literacy to adults for whom English is a first or second language. Topics include contrasting conceptions of literacy and learning; participatory literacy programs; instruction and curriculum for adults with diverse cultural and linguistic backgrounds and nationalities; alternative/performance-based assessment; and practitioner research in adult literacy education.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
EDUC 673 Curriculum & Pedagogy in International Contexts
This course explores the problems, issues, and approaches to teacher preparation and the development of curricula and instructional materials, particularly (though not exclusively) in developing country contexts through a seminar styled class and a hands-on semester long project. Taught by: Ghaffar-Kucher, Ameena
Activity: Seminar
Course usually offered in fall term
1 Course Unit

EDUC 674 Curriculum and Materials Development for English Language Teaching
This course is designed for those who are ready to develop skills in curriculum, course and materials design. The objectives of the course include learning how (a) to become able to analytically respond to readings on curriculum, course and materials development; (b) to analyze the sociocultural, economic, linguistic and occupational contexts of language teaching programs; (c) to design an original semester-long ESL/EFL course; (d) to design original pedagogical tasks and supplementary materials; and (e) to design in a group. EDUC 527 & EDUC 537 provide essential background for this advanced course. Taught by: Wagner,S
Activity: Lecture
Course usually offered in fall term
Prerequisite: EDUC 527 & EDUC 537 or permission from instructor
1 Course Unit

EDUC 675 Structure of English
The goal of this course is to increase students’ explicit knowledge of selected isolatable parts of the English language and to identify their pedagogical applications with respect to the needs of learners of English as a foreign/second language. This goal is realized through an investigation of: 1) frequently occurring linguistic forms and the rules and principles that govern the way that these forms can be combined and ordered; 2) the meanings that can attach to these forms; and 3) the social functions associated with these forms. Taught by: Wagner,S
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 676 Discursive Approaches in Intercultural Communication
This course offers a discourse-based approach and hands-on introduction to the field of intercultural communication, from the micro-level of interpersonal interaction to the macro-level of institutional practice. Through a series of readings and service learning projects in multicultural settings, students will hone their observational and analytic abilities, while gaining an appreciation of and facility for participating in the communicative diversity around them. Topics will include a repertoire approach to examining language in use, interpretation and metacommunication, and the possibility of intervention to facilitate new communicative patterns. Taught by: Rymes/Moore
Activity: Lecture
Course usually offered in fall term
1 Course Unit

EDUC 677 Information and Communications Technologies for Education and Development in Global Perspective
The importance of the relationship between education, technology, and social-economic development is increasing in the U.S. and around the world. What are new information and communications technologies (ICTs), how are they being deployed, and for what reasons? Are new ICTs a means for delivering skill-based or distance education information, and in what ways are they becoming a part of societies today? What constitute, then, ICTs for Development (ICT4D), and what role do they play in societies that are ‘industrialized’ and ‘developing’. Taught by: Wagner
Activity: Lecture
Course usually offered in spring term
Prerequisite: EDUC 667 or equivalent
1 Course Unit

EDUC 678 Gender and Sexuality in Education
This seminar gives an overview of the intersections and interplay among gender, sexuality, and education through theory, practice, current discussions, and analysis of varied contexts in English speaking countries (e.g. the United States, Canada, Great Britain, and Australia). After examining the theoretical foundations of genders and sexualities, we will look at their histories and effects in K-12 schools and colleges and universities as well as explore special topics. Taught by: Cross
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 679 Reading, Writing, and Critical Thinking for Applied Linguistics
This course offers international students a hands-on introduction to the practices that constitute academic language use in the fields of TESOL/ICC through a variety of scholarly readings that also serve as an introduction to multilingual writing research. Participants will focus on developing skills and strategies that will strengthen their existing expertise in the following areas: locating, reading, and critiquing academic articles; producing graduate-level written work across a variety of genres; and participating in oral activities. Taught by: Pomerantz/Box/Kozlova
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 680 Evaluation of Policies, Programs and Projects
Basic evaluation policy and methods for determining nature and severity of problems, implementation of programs relative effects and cost-effectiveness of interventions to reduce problems, design and conduct of evaluation studies in education, social services, crime and delinquency, in the U.S. and other countries. Taught by: Boruch
Course usually offered in fall term
Prerequisite: EDUC 667 or equivalent
Activity: Lecture
1 Course Unit
EDUC 681 Literacy and Illustrated Texts: Picturebooks, Comics and Graphic Novels
Students develop familiarity with illustrated materials - including picturebooks, comics, and graphic novels - while cultivating understanding of how illustrated texts like these can be used in 21st century elementary/middle/secondary literacy curricula. Students complete individualized and group course projects that focus on illustrated texts in specific classroom, research, critical, theoretical, home, community, and/or professional contexts.
Taught by: Thomas
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 682 Qualitative Modes of Inquiry
This course surveys the field of qualitative research and focuses on foundational philosophies of and approaches to qualitative research. The course focuses on the stages of qualitative research including the development of researchable questions, research designs, conceptual frameworks, methodological stances, data collection and analysis and instrument design and implementation.
Taught by: Ravitch/Strong/Staff
Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit

EDUC 683 Survey Methods & Design
This course covers the methods and design of field surveys in the U.S. and other countries in education, the social sciences, criminal justice research, and other areas. It covers methods of eliciting information through household, mail, telephone surveys, methods of assuring privacy, enhancing cooperation rates and related matters. Finally, the fundamentals of statistical sampling and sample design are handled. Much of the course is based on contemporary surveys sponsored by the National Center for Education Statistics and other federal, state and local agencies.
Taught by: Boruch
Course usually offered in spring term
Prerequisites: Educ 667 or equivalent. Undergraduate statistics or tests and measurement.
Activity: Lecture
1 Course Unit

EDUC 684 Measurement & Assessment
Analysis of primary assessment concepts including basic theoretical principles, types and purposes of assessment devices, levels of measurement, standardization and norming, and methods to support reliability and validity; special focus on appropriate test interpretation, fairness, measurement of change, and incremental validity; application of standards for test development, usage, and critique in education, health care, public policy, and scientific inquiry.
Taught by: Victor
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 685 Career Counseling and Development
Career development is studied as an aspect of general development theories of educational and vocational choice and adjustment; psychological aspects of occupations.
Course usually offered summer term only
Prerequisites: Permission needed from instructor.
Activity: Lecture
1 Course Unit

EDUC 686 Counseling Interventions
This course will provide an overview of the approaches to various psychological interventions with a focus on theory, key concepts, and therapeutic processes. The purpose of this course is to develop a knowledge base of the underlying principles and approaches of psychological interventions. Students will be required to demonstrate a working knowledge of the key concepts of the psychotherapeutic approaches presented, distinguish between different approaches, and make a preliminary rationale for the use of a particular approach. Students also are expected to develop a critical perspective and demonstrate the ability to analyze theories and interventions.
Course usually offered in fall term
Prerequisites: Admission to Counseling and Mental Health Services.
Activity: Lecture
1 Course Unit

EDUC 687 Counseling Ethics & Professional Principles
This course will provide the student with an opportunity to learn and incorporate the multifaceted roles of the professional counselor and assist the student in developing a sense of their professional identity. In this process, the course will focus on the professional role of the counselor; ethics and their application across situations and professional settings; and gaining strong professional communication abilities. The primary goals of the course are to develop the student's awareness of their roles and responsibilities as a professional, incorporating ethical standards as a counselor, increasing professional communication skills, and understanding the roles of counselor across professional settings.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 688 Counseling Practicum
Seminar and lab to accompany supervised practicum or apprenticeship experiences in schools, colleges, or community agencies. Placement to be arranged by instructor.
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

EDUC 689 Contemporary Issues in Mathematics Curriculum
Educational leaders and policy makers in the U.S. have long used curriculum reform to drive change in K-12 teaching and schooling practices. This course examines the assumptions underlying this approach and examines the related research evidence.
Taught by: Remillard
Course offered spring; odd-numbered years
Activity: Seminar
1 Course Unit

EDUC 691 Contemporary Issues in Science and Technology Education Research
This course focuses on topics that represent some of the most salient and contemporary issues in science education research today. The syllabus moves through four sections that address: 1) Curriculum and Content (What and Why); 2) Learning Processes (How); 3) Contexts (When and Where); 4) Teaching and Teacher Education (Who).
Taught by: Yoon
Course not offered every year
Activity: Seminar
1 Course Unit
EDUC 692 Education Policy Issues
This course is an introduction to the process of conducting educational research. Its purpose is to help students learn to approach problems like researchers by examining and critiquing existing research and developing coherent “researchable” questions. Students will carry out a substantial independent project where they will develop elements of a research proposal.
Taught by: Maynard
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 693 Student Development in College Environments
An overview of college student development theory is offered in this course. Specifically, three families of theory are explored: 1) Psychosocial and identity, 2) cognitive-structural, and 3) environmental. The theories are discussed in terms of their foundations, constructs, and applicability to work in various functional areas of higher education.
One-term course offered either term
Activity: Seminar
1 Course Unit

EDUC 694 Organization and Administration of Intercollegiate Athletics
Athletics play a critical role at colleges and universities. This course examines the role of intercollegiate athletics, how they are structured, what educational purposes they serve and how such programs influence the social and academic development of students.
Taught by: Weaver/Staff
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 695 Proseminar in International Educational Development
The IEDP Proseminar covers the broad arena of international educational development. The course is designed to provide an analytical perspective on applied research and policy as undertaken by UN, donor and non-profit agencies, with a focus on developing countries. Several invited specialists will participate in the course. This Proseminar is a required course for IEDP Masters students.
Taught by: Wagner
Two terms. student must enter first term.
Activity: Seminar
0.5 Course Units

EDUC 696 In/Informal Learning Experience Internship
The In/Informal Learning Experiences Internship is a two-semester course that meets throughout the academic year to cover theory, research, and practice of informal learning. The internship is undertaken from October to March each academic year in one of our partnership institutions and includes about 120 hours field work. The course is designed to provide background readings, a discussion forum of central issues in informal learning, and a place to share and exchange internship experiences. This course will be required for all LST MSEd and TLL MSEd students as part of the required Internship Program.
Two terms. student must enter first term.
Activity: Lecture
0.5 Course Units

EDUC 697 Post-Master's Internship in School Counseling
Seminar to accompany post-master’s internship. Meets requirements for certification in school counseling and special education. Instructor must approve placement.
Course not offered every year
Prerequisites: Successful completion of the master’s program in Psychological Services.
Activity: Lecture
1 Course Unit

EDUC 698 Politics of School Reform
In this seminar we’ll explore the political causes and consequences of school reform in the post-Brown era. Coverage will be eclectic so as to give participants a broad, interdisciplinary background in the field. We’ll draw primarily from the politics of education literature, but we’ll reach beyond and examine work from political science, sociology and history. Rather than the standard categories organizing this scholarship—by level (local, state, federal), decision-making body (school board, legislature, judiciary), or issue area (standards, decentralization, funding)—we’ll structure our exploration by considering fundamental conclusions about the politics of school reform: (1) School reform as contained politics, (2) School reform as transgressive politics, (3) School reform as collaborative politics, and (4) Institutions, ideas, & interests as constraints on the politics of school reform.
Taught by: Quinn
One-term course offered either term
Activity: Lecture
1 Course Unit

EDUC 700 Craft of Ethnography
This course is designed to follow after Ethnographic Research Methods (EDUC 721). In the introductory course, students learned how to use qualitative methods in conducting a brief field study. This advanced level course focuses on research design and specifically the craft of ethnographic research. Students will apply what they learn in the course in writing a proposal for a dissertation research project.
Taught by: Hall
Course not offered every year
Prerequisites: Must have completed EDUC 721 or equivalent introductory qualitative methods course.
Activity: Lecture
1 Course Unit

EDUC 702 Conceptual Models of School Leadership & Organization
This graduate seminar has three components. One, we will explore contemporary theories of organization as frameworks for understanding how classrooms, schools, and districts function. Two, we will employ a case method approach on several real-world cases developed by Harvard Business School and the Public Education Leadership Project at Harvard University. Three, we will learn from and interact directly with local education leaders and their communities through a series of school leadership study tours.
Taught by: Quinn
One-term course offered either term
Activity: Lecture
1 Course Unit
EDUC 703 Advanced Qualitative and Case Study Research
This course explores epistemological and methodological choices and stances in qualitative research as well as advanced research methods including qualitative research design and concept mapping, sampling/participant selection, interviewing, coding and data analysis, instrument development and triangulation techniques.
Taught by: Ravitch
Course usually offered in spring term
Prerequisite: EDUC 682 Qualitative Modes of Inquiry
Activity: Lecture
1 Course Unit

EDUC 704 Economics of Higher Education
Covers selected topics in the economics of higher education, including investment and consumption theories, cost functions, university investment practices and principles, and academic labor markets.
Taught by: Presley
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 705 Proseminar in Research & Analysis
This course is designed to provide students with the skills, information, and resources that are necessary to develop a research proposal. This course will also examine strategies for completing proposals and dissertations. A variety of research designs and approaches to educational research will be explored. Through this course, students will become both informed consumers of research and effective designers of research.
Taught by: Perna/Hartley
Course usually offered in fall term
Prerequisite: Permission needed from department.
Activity: Lecture
1 Course Unit

EDUC 706 Culture/Power/Subjectivities
This doctoral level course will introduce students to a conceptual language and theoretical tools for analyzing and explaining the complex intersection of racialized, ethnic, gendered, sexual, and classed differences and asymmetrical social relations. The students will examine critically the interrelationships between culture, power, and subjectivity through a close reading of classical and contemporary social theory. Emphasis will be given to assessing the power of various theories for conceptualizing and explaining mechanisms of social stratification as well as the basis of social order and processes of social change.
Taught by: Hall
Course not offered every year
Prerequisite: EDUC 547
Activity: Lecture
1 Course Unit

EDUC 707 Improving Schools: What Works, What Doesn’t, and Why
Designed to increase knowledge of what works to improve public schools, what doesn’t, and why. Topics include accountability, turnaround and charter schools, Common Core Standards, and other organizational, curricular, teacher and leader reforms. Focuses on how reforms are translated to the classroom, and effects on districts, principals, teachers, and students.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 708 Schools as Organizations
Schools are places of learning - but they are also workplaces, teachers are employees and teaching is a job. This in-depth doctoral-level course focuses on theory and research concerned with the organizational and occupational side to schools and teaching. It draws from multiple fields and perspectives, including: organizational theory; the sociology of organizations, occupations and work; educational administration; and school leadership. The objective is to have students understand and evaluate a series of different perspectives from theory, research and policy concerned with the character of the teaching occupation and the organization of schools.
Taught by: Ingersoll
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 709 Peer Relationships in Childhood and Adolescence
This course focuses on various aspects of children’s peer relationships, especially with regard to their significance for human development. The roles of family, community, and socio-cultural contexts in the development of interpersonal competence and relationships are discussed. The course explores possible intervention strategies to help children with peer relationship difficulties.
Taught by: Chen
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 710 Methods of Discourse Analysis
This course introduces several methodological approaches that have been developed to do discourse analysis. The course intends primarily to provide students with various methodological tools for studying naturally-occurring speech. Assignments include both reading and weekly data analysis exercises.
Taught by: Rymes
Course not offered every year
Prerequisite: This course is designed to follow after Qualitative Modes of Inquiry (EDUC 682) and as such it is suggested that students have some background in qualitative methods before enrolling.
Activity: Lecture
1 Course Unit

EDUC 712 Comprehensive School Reform: From ‘No Child Left Behind’ through ‘Race to the Top’ to ‘Every Student Succeeds Act’
This course examines how K-12 education policy is designed and implemented in the United States. It uses a systems analysis as the framework for looking at who makes what kinds of demands on the education policy system, how these demands are placed on the policy agenda, the decision making process, and resulting education policies and policy outcomes. The course pays particular attention to the roles of federal, state and local governments in education policy, and the impact of our intergovernmental system on the design and implementation of policy. Students will also examine major education policies and debate key education policy issues that arise at each level of government.
Course not offered every year
Activity: Seminar
1 Course Unit
EDUC 713 Responding to Literature: An Interdisciplinary Perspective
This course deals with the ways in which readers respond to and transact with literary texts, and aims at helping students understand the nature of the variety of ways in which literature interfaces with our lives. Three different types of discourse are read: literary criticism; empirical research on response to literature; and literary texts themselves. Various types of literary criticism are considered, including (but certainly not limited to) what is commonly called "reader response criticism"; text-based criticism; and criticism that contextualizes literature socially and historically. The empirical research on response deals with ways in which readers of various ages interact with literature, mostly in school settings; some attention is given to instructional design and critique of methodology. The literary texts range from picturebooks to literature for young adults. Taught by: Thomas
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 714 Law and Higher Education
An examination of the most important state and federal laws governing U.S. colleges and universities, with an emphasis on current legal problems. Taught by: Roth
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 715 Case Studies in Higher Education Administration
This course is designed to enhance understanding of decision making in higher education administration. Based on case studies, students will analyze, propose policies, generate action plans and implementation procedures, and assess the potential consequences of their administrative decisions. Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 716 Public Policy Issues in Higher Education
A study of the most influential federal and state policies, legislation and practices affecting colleges and universities. Taught by: Finney
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 717 Professional Internship in Counseling I
The course will consist of experiential and small group learning, with a focus on practicing and refining skills related to advanced work in psychological services, including the application of various techniques of counseling, ethical considerations, and critiques of live and simulated counseling sessions through role-playing, audio and visual taping. Taught by: Watts
Course usually offered in fall term
Prerequisites: Formal admission into Professional Counseling and Psychology M.Phil. Program.
Activity: Lecture
1 Course Unit

EDUC 718 Professional Internship in Counseling II
Lab seminar group with a seminar group leader is the second component of the Professional Counseling Internship course. Lab will provide students with exposure to others’ experiences in different types of internships, working with a variety of different client populations. A primary goal of this course is to help each student refine his/her evolving knowledge of self as a provider of psychological services to others. Students will also evaluate contexts of practice and the professional skills, ethics and practices inherent in effective provision of counseling and psychological services. This course consists of two components: CLASS MEETINGS, during which the full group will meet to address issues related to work in various internships, as well as discuss the development of advanced counseling skills and issues; and, LAB SEMINAR GROUP which consists of 7-8 masters students with a seminar group lab leader. Taught by: Watts
Course usually offered in spring term
Prerequisites: Students must be enrolled in the M.Phil.Ed. in Professional Counseling Program.
Activity: Lecture
1 Course Unit

EDUC 719 Research on Teacher Education and Learning to Teach
This course focuses on issues of research, practice, and policy related to teacher education at the preservice, induction, and continuing education levels in the United States and internationally. The course is designed as a seminar to engage participants in the study of teacher education through interaction with researchers and policy-makers, through in-depth study of critical issues in the field, and through engagement with teacher education programs. It is anticipated that each course participant will develop a literature review focusing on one or more topics related to critical issues in teacher education. Taught by: Reisman/Staff
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 720 Teachers and Teaching Policy
Explores research, policies, and practices that promote a high-quality teacher workforce, and effective instruction. Topics include recruitment, retention, mentoring, induction, professional development, certification, value-added, merit pay, etc. Appropriate for students from different programs, including education, social/public policy, psychology, political science, sociology, business, and current and future teachers and school leaders. One-term course offered either term
Activity: Lecture
1 Course Unit
**EDUC 721 Ethnographic Research Methods**
A course in ethnographic participant observational research; its substantive orientation, literature, and methods. Emphasis is on the interpretive study of social organization and culture in educational settings, formal and informal. Methods of data collection and analysis, critical review of examples of ethnographic research reports, and research design and proposal preparation are among the topics and activities included in this course.

Taught by: Hall/Strong
Course not offered every year
Prerequisites: This course is designed to follow after Qualitative Modes of Inquiry (EDUC 682) and as such it is suggested that students have some background in qualitative methods before enrolling.
Activity: Lecture
1 Course Unit

**EDUC 723 Multicultural Issues in Education**
This course examines critical issues, problems, and perspectives in multicultural education. Intended to focus on access to literacy and educational opportunity, the course will engage class members in discussions around a variety of topics in educational practice, research, and policy. Specifically, the course will (1) review theoretical frameworks in multicultural education, (2) analyze the issues of race, racism, and culture in historical and contemporary perspective, and (3) identify obstacles to participation in the educational process by diverse cultural and ethnic groups. Students will be required to complete field experiences and classroom activities that enable them to reflect on their own belief systems, practices, and educational experiences.

Taught by: Gadsden
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**EDUC 724 Literacy: Social and Historical Perspectives**
A review of the cross-cultural and historical literature on writing and reading with emphasis on the identification of norms and practices which affect the teaching and learning of reading and literacy today. Special attention to the social functions of literacy in work, home, and school settings and to myths regarding the consequences of literacy for cognition, socio-economic mobility, and predictability, and the predictability of citizen behaviors.

Course not offered every year
Activity: Lecture
1 Course Unit

**EDUC 725 Advanced Professional Development & Ethics in Counseling**
The purpose of this course is to expand the student's awareness of the multifaceted responsibilities and roles of school counselors in primary and secondary school settings. Through readings, class discussions and guest lectures, it is intended that students will acquire additional competencies and a broader appreciation for professional issues confronted by school counselors and varied responsibilities they have in helping students focus on academic, personal, social and career development in an effort to achieve success in school and lead fulfilling lives. An important emphasis of this course will be on school counseling from an ecological and multicultural perspective.

Prerequisites: Students must be enrolled in the M.Phil.Ed. in Professional Counseling Program.
Activity: Lecture
1 Course Unit

**EDUC 726 Doctoral Foundations of Teaching and Learning**
The course explores theoretical and empirical perspectives on the questions: What is knowledge and knowing? What is learning? What is teaching? How do contexts influence teaching, knowing and learning? A central goal of the course is to encourage students to consider these questions and their interconnections for themselves, to examine ways scholars and practitioners have answered them, and to develop an analytical framework to use in examining contemporary practices in settings that include formal and informal, urban and international.

Taught by: Kafai/Remillard/Yoon/Reisman/Staff
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**EDUC 727 Education, Culture and Society**
This course surveys basic issues in the philosophical and social foundations of education, addressing basic questions about the purpose of education, mostly through reading primary texts. Intended for incoming doctoral students.

Taught by: Ben-Porath
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**EDUC 729 International Educational Development Doctoral Proseminar**
The IEDP Doctoral Proseminar covers the broad arena of international educational development. Drawing on the research experiences of the faculty and of the enrolled doctoral students, the course allows for the analysis of intellectual and technical challenges of working in international education and development, especially around issues of social and public policy.

Taught by: Ghaffar-Kucher,Ameena & Wagner,Dan
One-term course offered either term
Activity: Lecture
1 Course Unit

**EDUC 731 Risk, Resilience, and Prevention Science**
Examines the definition and measurement of risk and resilience from the perspectives of developmental psychology and ecological theories of development; introduces students to the conceptual and practical integration of intervention and prevention sciences to address social, emotional, educational, and health problems across childhood.

Taught by: Wolf
Course usually offered in fall term
Activity: Seminar
1 Course Unit

**EDUC 735 Tutorial Work in Reading/Writing/Literacy**
Tutorial in Reading Writing and Literacy, is designed for participants to gain knowledge and insight into the major challenges facing learners in their quest for proficiency in literacy. The course participants investigate and develop instructional plans for the literacy needs of learners in pre-K to 12th grade settings. Course participants will investigate the roles and responsibilities of the literacy specialist as related to identifying the needs of learners and planning appropriate instruction to meet those needs.

Taught by: Gross
Course usually offered in spring term
Prerequisites: Permission needed from instructor.
Activity: Lecture
1 Course Unit
EDUC 737 Research in Teaching Writing
This doctoral seminar explores theories and research on writing, investigating current and traditional areas of inquiry in the field of writing studies. As class participants review and analyze theoretical and empirical literature on writing and teaching writing, the seminar will offer students opportunities to compose texts and reflect on their roles as writers in the academy through collaborative inquiry. Participants will think together about the purposes, functions, and consequences of writing in diverse communities and across school and out-of-school settings. The course will pay particular attention to how writing is shifting in a mobile, networked, global age, and how multimodality, interactivity, and hybridity characterize our composing lives.
Taught by: Stornaiuolo, A
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit

EDUC 738 Advanced Topics in Monitoring & Evaluation in International Education Development
This is a sequel to the Principles of M&E course offered in the fall. The course will review both theories as well as methods of program evaluation in a deeper way using papers and technical reports as case studies, with special emphasis on international education development.
Taught by: Thapa
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 739 Poverty and Child Development
The goal of this course is to help students develop a coherent understanding of the ways in which poverty affects families and children, the different needs of families and children across different developmental stages of childhood, and the intersection between poverty and education.
Taught by: Wolf
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 744 Building Inclusive Communities in Higher Education
This course provides students an opportunity to apply their knowledge related to the practice of higher education administration. The goal of the course is to advance students' understanding of climate on today's campuses and to utilize diverse methods to create inclusive spaces on campus for all institutional stakeholders.
Taught by: Tiao
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 747 Biological Psychology
The biological bases of behavior, including genetics, physiology, endocrinology and bioethology.
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 751 Introduction to Applied Quantitative Methods for Education Research: Pre-K to 20
An introduction to the interpretation and use of data about education policy issues through the use of computer-assisted methods of statistical analysis. Emphasis is on the implications for educational policy and research design.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

EDUC 764 Cognitive Processes
Basic concepts, theory, and research in cognitive science, problem-solving, psycholinguistics, memory, perception and social cognition. Special topics may include reading, bilingualism, computer modeling, and cognitive theory applied to education and non-education settings.
Taught by: Frye
Prerequisite: EDUC 568 or equivalent
Activity: Lecture
1 Course Unit

EDUC 765 Developmental Deviations
Theoretical orientations toward handicapping conditions in children; controversial issues in description and categorization; the relationship of disabilities to developmental (cognitive, social, emotional) processes. Course not offered every year
Prerequisite: EDUC 560 or equivalent
Activity: Lecture
1 Course Unit

EDUC 766 Advanced Professional Counseling Interventions
This course will focus on advanced issues in the clinical practice of professional psychology with children, adolescents and adults where students will practice clinical skills in role-played therapeutic situations. Students will be using this class as preparation for the formal clinical examination required by all Master of Philosophy in Education students prior to graduation from the Professional Psychology and Counseling program.
Taught by: Morris/Stevenson
Course usually offered in fall term
Prerequisites: Admission into Professional Counseling M.Phil.Ed.
Program
Activity: Lecture
1 Course Unit

EDUC 767 Regression and Analysis of Variance
This course covers design of controlled randomized experiments, analysis of survey data and controlled field experiments, including statistical models, regression, hypothesis testing, relevant data analysis and reporting.
Taught by: Rovine/Victor
One-term course offered either term
Prerequisite: EDUC 667 or equivalent
Activity: Lecture
1 Course Unit
EDUC 768 Measurement Theory and Test Construction
Design of ability, achievement, and performance measures such as those applied for high-stakes decision making in large-scale assessment and for diagnosis and classification of individuals; advanced true-score and item response theory, item formatting, analysis, selection, calibration, linking, and scaling; analysis of reliability for continuous, ordinal, nominal, and composite scales; analysis of differential item functioning; unidimensionality, and local independence; model contrasting, test equating, and scaling for longitudinal assessment; standards and cut-point setting.
Taught by: McDermott
Course not offered every year
Prerequisite: EDUC 684 or equivalent
Activity: Lecture
1 Course Unit

EDUC 770 New Models for Postsecondary Education
Taught by: Pritchett
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 771 Factor Analysis and Scale Development
Advanced measurement theory; exploratory and confirmatory item factoring and clustering for self-report, observational, rating, performance, and personality instruments; factoring of dichotomous and ordered categorical data, full-information factoring; scaling procedures, hierarchical structure, full-information bifactor structure, invariance, generality, reliability, validity, interpretation, and scientific reporting.
Taught by: McDermott
Course usually offered in fall term
Prerequisites: EDUC 684 or equivalent.
Activity: Lecture
1 Course Unit

EDUC 777 Structural Equations Modeling
Theory and application of means modeling and longitudinal analysis through structural equations, including observed variable regression with multiple equations simultaneously estimated, confirmatory factor analysis measurement models using multiple observed indicators to define sets of latent variables, and regression relationships among multiple latent variables; advanced applications for repeated measures and multilevel growth modeling in educational and social science research.
Taught by: Rovine
Course usually offered in spring term
Prerequisite: Introductory Statistics
Activity: Lecture
1 Course Unit

EDUC 782 Assessment for Counselors I
A critical analysis of tests and clinical methods in assessment as related to theories of intelligence, and includes: 1) factors influencing assessments; 2) assessment theory; 3) assessment practices; 4) interpretations of assessments.
Prerequisites: Admission to Professional Counseling M.Phil. Program
Activity: Lecture
1 Course Unit

EDUC 783 Assessment for Counselors II
Review and administration of assessment instruments in the areas of adaptive behavior, perceptual abilities, neurological functioning, diagnostic and achievement measures, vocational interests, and objective personality measures. Integration and interpretation of results and intervention.
Course usually offered in spring term
Prerequisites: Admission to Counseling and Mental Health Services or Professional Counseling M.Phil. Program
Activity: Lecture
1 Course Unit

EDUC 784 Psychological Consultation
Study of theories of consultation and their applications at the professional level. Methods and procedures in applied behavior analysis are introduced as skills for successful consultation.
Course not offered every year
Prerequisites: Admission to Counseling & Mental Health Services or Professional Counseling M. Phil. Program
Activity: Lecture
0.5 Course Units

EDUC 785 Selected Topics in Professional Psychology
Consideration of research and theory, on selected advanced topics.
Course not offered every year
Prerequisites: Admission to Counseling & Mental Health Services or Professional Counseling M. Phil. Program
Activity: Lecture
1 Course Unit

EDUC 806 Narrating the Self
This seminar explores, in some linguistic detail, how narrators can partly construct their selves while telling autobiographical stories. The seminar addresses three questions: What is the structure of narrative discourse? How might we construct ourselves by telling stories about ourselves? If narrative is central to self-constructions, what is "the self"?
Taught by: Rymes
Course not offered every year
Activity: Lecture
1 Course Unit

EDUC 829 Policy Research Analysis
Study of the roles of scientific inquiry in development and assessment of contemporary educational and social policy. Analysis and application of foundational research, statistical and psychometric methods to inform a variety of policy topics and related issues and problems encountered in policy formation and evaluation.
Taught by: Rovine
Course usually offered in spring term
Prerequisites: EDUC 667 or equivalent.
Activity: Lecture
1 Course Unit
EDUC 834 Theories of Reading
This course is designed as a collaborative inquiry toward constructing and elaborating theories of practice as teachers and/or researchers of reading. Using a seminar or working group format, participants explore the relationships among theory, reading, practice, pedagogy and research. The course’s conceptualization is informed primarily by (1) frameworks from critical, feminist and culturally-centered literatures which foreground issues of equity, representation, and ethics; and (2) current conversations in the field of literacy where the definitions, purposes, and practices of reading have been made problematic. It also invites participants to engage the notion that knowledge for teaching and research comes from inquiry into the questions, issues, and contradictions that arise from everyday life. The course provides historical lenses for comparative analyses of theoretical frameworks and research paradigms as well as opportunities to investigate participants’ individual histories as well as teaching and research interests. Taught by: Campano
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit

EDUC 835 Seminar in Reading and Writing
Participants in the course examine landmark studies in the field of reading, writing, and literacy; explore different approaches to composing critical reviews of the literature for academic journals, dissertations and other research projects; and select, search, and review the theoretical and empirical literature related to a topic of their own interest in the domains of reading, writing and literacy. Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 836 Issues in Instructional Leadership in Reading and Writing
Participants will consider current critical issues in Reading, Writing, and Literacy, such as: improving accountability and assessment; approaches to professional development and curriculum development; and the use of scientifically "valid" research to advance literacy learning. Taught by: Waff
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EDUC 838 Applied Research & Reporting
Hands-on experience conducting applied research. Students will be guided through a research project of relevance to education or social policy chosen by the student, with assistance from the instructor. The research entails analysis of one or more public or quasi-public use data sets, such as the National Longitudinal Survey of Youth; the National Longitudinal Survey of Youth Child Supplement; The Teenage Parent Demonstration Data Base; the National Profile of Child Care Settings Data Base; or the National Post Secondary Student Aid Survey. The students will prepare journal-length papers based on their research and respond to the reviews of classmates and the instructor. Course usually offered in fall term
Prerequisites: Competence in basic statistics and computer literacy.
Activity: Lecture
1 Course Unit

EDUC 845 Seminar in Microethnography
This course provides an introduction to theory and method in the unified analysis of verbal and nonverbal behavior as it is culturally patterned, socially organized, and socially organizing in face-to-face interaction, in an approach that integrates participant observation with the detailed analysis of audiovisual records. Students read relevant literature in linguistic anthropology, interactional sociolinguistics, conversation analysis, and embodiment in social interaction. Class requirements include in-class reading presentations, a small microethnographic research project, and several short data analysis reports drawing on differing levels of analysis and differing theoretical orientations. Students review and apply methods of audiovisual data collection, transcription, processing, archiving, and presentation. Taught by: Rymes
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 860 ISHD Proseminar: Exploring Self in Developmental Context
This course gives students the opportunity to better understand their own psychological development and how this interacts with their scholarship and professional development. Required course for ISHD students. Taught by: Stevenson
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 871 Randomized Trials and Experiments
This course will cover three alternatives to conventional modeling in the social sciences: (1) design and execution of field trials in education and other social sectors including criminology, (2) quasi-experiments especially contemporary research comparing results of randomized and non-randomized trials, and (3) analysis for descriptive and exploratory purposes. The course themes include causal inference, vulnerability of models applied to observational data, recent developments computer-intensive inductive approaches to data, and related matters. Although some methodological background papers will be discussed, the seminar is case study oriented with readings from contemporary research on the topics from peer reviewed journals and well-vetted reports issued by governmental and non-government agencies. Cases will include work supported by IES on effects of Odyssey Math, for example, and work in the crime and justice arena. We will study the work of scholars affiliated with Penn who are actively involved in randomized and non-randomized trials, for instance, and the work of colleagues at other universities (Berkeley, Northwestern, Wisconsin, Princeton, others) and colleagues in non-profit and for profit research organizations such as Analytica, AIR, Mathematica and others that contribute to learning in this arena. Taught by: Boruch
Course usually offered in fall term
Activity: Lecture
1 Course Unit
EDUC 880 Complex, Multilevel, and Longitudinal Research Models
Design construction, sampling, internal and external validity principles; univariate and multivariate statistical treatment of experimental and quasi-experimental data; computer processing, interpretation, and reporting for simple and complex factorial, repeated measures, time series, growth trajectory, unbalanced, and multiple consistent and inconsistent covariates designs; error covariance structure modeling, hierarchical linear (and nonlinear) modeling, and multilevel individual growth-curve modeling.
Taught by: McDermott
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: EDUC 767 or equivalent

EDUC 881 Applied Multivariate Statistics
Multivariate strategies for hypothesis testing, prediction, and classification including multiple regression, multivariate multiple regression, canonical regression, multiple logistic regression, multiple discriminant functions, factor analysis of scaled variables, hierarchical cluster analysis, and multivariate classification analysis; computer processing, interpretation, and reporting.
Taught by: McDermott
Course usually offered in spring term
Prerequisites: EDUC 767 or equivalent and permission of instructor.
Activity: Lecture
1 Course Unit

EDUC 900 Research Seminar in Applied Research Synthesis Methods
Issues in research design, development of a literature review, and dissertation proposal.
Taught by: Maynard
Course usually offered in fall term
Activity: Seminar
1 Course Unit

EDUC 911 Issues in Second Language Acquisition
This course is designed for students to be able to analyze, synthesize and discuss second language acquisition theory and research on the basis of intensive reading of work that reflects perennial and current issues in the field. Comparisons and connections are drawn from theoretical and empirical literature on second language acquisition processes, constraints, and interventions. Relevant research methods are also addressed. Topics, issues, and readings are updated each time the course is offered.
Taught by: Butler
Course not offered every year
Prerequisite: EDUC 670
Activity: Lecture
1 Course Unit
Notes: Permission needed from instructor

EDUC 917 Research Seminar: Language and Power
The course examines the relationship between language, meaning, and power in their social context. The course is organised around a number of core themes; Language studies rooted in Critical Discourse analysis; The application of Bourdieu’s concepts to this field; multi modality; the growing concern with ‘Superdiversity’ that links Local/Global; academic literacies, with particular reference to the writing required in students’ own contexts; and methodological issues in researching language and power; and we then bring all of this to bear on our own context under the heading ‘language in education’.
Course not offered every year
Activity: Seminar
1 Course Unit

EDUC 920 Research Seminar in Reading and Writing
For doctoral candidates and others engaged in research and advanced professional study in the field of literacy.
Taught by: Campano
Course usually offered in spring term
Activity: Seminar
1 Course Unit

EDUC 927 Research Seminar: Language Policy and Education
Seminar participants are introduced to concepts, theories, and methods in the field of language planning and policy, which they then apply in developing their own library-based research on specific language planning cases from around the world. Cases may include: official language decisions, instructional medium choices, literacy initiatives, gender-neutral language reforms, foreign/heritage/second language pedagogy and policy, indigenous language revitalization efforts, or other language-related decisions and policies at international, national or local levels.
Taught by: Hornberger
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Permission needed from instructor

EDUC 960 Advanced Research in Human Learning and Development
Selected topics from human learning, human development, cognitive processes, social psychology, and personality.
Taught by: Frye
Activity: Lecture
1 Course Unit

EDUC 980 Research Seminar in Counseling
This course is designed to position students to acquire a more sophisticated understanding of research methods in order to conduct and critically evaluate empirical research in applied and clinical settings.
Activity: Seminar
1 Course Unit
ELECTRICAL & SYSTEMS ENGINEERING (ESE)

ESE 099 Undergraduate Research and/or Independent Study
An opportunity for the student to become closely associated with a professor in (1) a research effort to develop research skills and technique and/or (2) to develop a program of independent in-depth study in a subject area in which the professor and student have a common interest. The challenge of the task undertaken must be consistent with the student's academic level. To register for this course, the student and professor jointly submit a detailed proposal to the undergraduate curriculum chairman no later than the end of the first week of the term.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: A maximum of 2 c.u. of ESE 099 may be applied toward the B.A.S. or B.S.E. degree requirements

ESE 110 Atoms, Bits, Circuits and Systems
Introduction to the principles underlying electrical and systems engineering. Concepts used in designing circuits, processing signals on analog and digital devices, implementing computation on embedded systems, analyzing communication networks, and understanding complex systems will be discussed in lectures and illustrated in the laboratory. This course provides an overview of the challenges and tools that Electrical Engineers and Systems Engineers address and some of the necessary foundations for students interested in more advanced courses in ESE.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: FOR FRESHMEN ONLY

ESE 111 Atoms, Bits, Circuits and Systems
Introduction to the principles underlying electrical and systems engineering. Concepts used in designing circuits, processing signals on analog and digital devices, implementing computation on embedded systems, analyzing communication networks, and understanding complex systems will be discussed in lectures and illustrated in the laboratory. This course provides an overview of the challenges and tools that Electrical Engineers and Systems Engineers address and some of the necessary foundations for students interested in more advanced courses in ESE.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: FOR FRESHMEN ONLY

ESE 112 Engineering Electromagnetics
This course covers basic topics in engineering electromagnetics, namely, electric charge, electric field, electric energy, conductors, insulators, dielectric materials, capacitors, electric current, magnetic field, inductors, Faraday’s law of induction, alternating current (AC), impedance, Maxwell’s equations, electromagnetic and optical wave propagation, with emphasis on engineering issues. Relevant engineering topics are emphasized in our lectures in order to prepare students for other courses in ESE that rely on the contents on this course. Several laboratory experiments accompany the course to provide hands-on experience on some of the topics in the lecture and prepare students for the capstone project.
One-term course offered either term
Activity: Lecture
1.5 Course Unit

ESE 150 Digital Audio Basics
Primer on digital audio. Overview of signal processing, sampling, compression, human psychoacoustics, MP3, intellectual property, hardware and software platform components, and networking (i.e., the basic technical underpinnings of modern MP3 players and cell phones).
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: FOR FRESHMEN ONLY

ESE 190 Silicon Garage: Introduction to Open Source Hardware and Software Platforms
Project-centric learning course for non-ESE majors on microprocessor control of physical systems using open-source hardware and software platforms. Students will work in teams to develop software controlled systems based on the Arduino and Raspberry-Pi that interface with the real world (sensors, actuators, motors) and each other (networking).
One-term course offered either term
Prerequisites: High School Physics and Math
Activity: Lecture
0.5 Course Units

ESE 204 Decision Models
This first course in decision models will introduce students to quantitative models for decision making, using optimization and monte-carlo simulation. Examples will be drawn from manufacturing, finance, logistics and supply chain management. Students will use EXCEL and @Risk to build and analyze models.
Course usually offered in fall term
Prerequisite: MATH 104
Activity: Lecture
1 Course Unit

ESE 210 Introduction to Dynamic Systems
This first course in systems modelling covers linear and nonlinear systems in both continuous and discrete time. Topics covered include linearization and stability analysis, elementary bifurcations, and an introduction to chaotic dynamics. Extensive applications to mechanical, electrical, biological, social, and economic/financial systems are included. The course will use both analytical and numerical/symbolic tools.
Course usually offered in fall term
Corequisite: MATH 240
Activity: Lecture
1 Course Unit

ESE 215 Electrical Circuits and Systems
This course gives an introduction of modern electric and electronic circuits and systems. Designing, building and experimenting with electrical and electronic circuits are challenging and fun. It starts with basic electric circuit analysis techniques of linear circuits. Today mathematical analysis is used to gain insight that supports design; and more detailed and accurate representations of circuit performance are obtained using computer simulation. It continues with 1st order and 2nd order circuits in both the time and frequency domains. It discusses the frequency behavior of circuits and the use of transfer functions. It continues with introduction of non-linear elements such as diodes and MOSFET (MOS) transistors. Applications include analog and digital circuits, such as single stage amplifiers and simple logic gates. A weekly lab accompanies the course where concepts discussed in class will be illustrated by hands-on projects; students will be exposed to state-of-the-art test equipment and software tools (LabView, Spice).
Course usually offered in fall term
Prerequisites: PHYS 150, PHYS 151
Corequisite: MATH 240
Activity: Lecture
1.5 Course Unit
ESE 218 Electronic, Photonic, and Electromechanical Devices
This first course in electronic, photonic and electromechanical devices introduces students to the design, physics and operation of physical devices found in today's applications. The course describes semiconductor electronic and optoelectronic devices, including light-emitting diodes, photodetectors, photovoltaics, transistors and memory; optical and electromagnetic devices, such as waveguides, fibers, transmission lines, antennas, gratings, and imaging devices; and electromechanical actuators, sensors, transducers, machines and systems.
Course usually offered in fall term
Prerequisites: PHYS 150, PHYS 151
Corequisite: MATH 240
Activity: Lecture
1.5 Course Unit

ESE 290 Introduction to Electrical and Systems Engineering Research and Design
This project-based research course introduces students to the nature and process of engineering research as represented by ongoing ESE faculty and student research projects. Joint class exercises in how to pursue effective background technical reading, pitch a proposal, and aim for the discovery of new human knowledge to complement the individually mentored topic specific project work.
Course usually offered in spring term
Prerequisites: MATH 240, PHYS 150, ESE 215 and ESE 218, or ESE 204 and 210, or ESE 215 and CIS 240
Corequisite: ESE 291
Activity: Lecture
0.5 Course Units

ESE 291 Introduction to Electrical and Systems Engineering Research Methodology
Introduction to the nature and process of engineering research as represented by ongoing ESE faculty and student research projects. Joint class exercises in how to pursue effective background technical reading, pitch a proposal, and aim for the discovery of new human knowledge to complement the individually mentored topic specific project work.
Course usually offered in spring term
Prerequisites: MATH 240, PHYS 150, ESE 215 and ESE 218, or ESE 204 and 210, or ESE 215 and CIS 240
Corequisite: ESE 291
Activity: Lecture
0.5 Course Units

ESE 292 Introduction to Electromechanical Prototyping
This is a project-centric course for ESE majors to engage in circuit layout and prototype design skills. Students will work in teams to develop printed circuit boards using industry standard tools like Altium and learn mechanical prototyping skills using Solidworks. Emphasis will be on developing sound printed circuit board layout practices using circuitry knowledge that they acquire in ESE 215 and ESE 370. A module on using Cypress PSoC will introduce students to recent developments in analog/digital co-design.
One-term course offered either term
Activity: Lecture
0.5 Course Units

ESE 296 Study Abroad
Activity: Lecture
1 Course Unit

ESE 297 Engineering Probability
This course introduces students to the mathematical foundations of the theory of probability and its applications. The course begins with an exploration of combinatorial probabilities in the classical setting of games of chance, proceeds to the development of an axiomatic, fully mathematical theory of probability, and concludes with the discovery of the remarkable limit laws and the eminence grise of the classical theory, the central limit theorem. The topics covered include: discrete and continuous probability spaces, distributions, mass functions, densities, conditional probability, independence; the Bernoulli schema: the binomial, Poisson, and waiting time distributions; uniform, exponential, normal, and related densities; expectation, variance, moments; conditional expectation; generating functions, characteristic functions; inequalities, tail bounds, and limit laws. But a bald listing of topics does not do justice to the subject: the material is presented in its lush and glorious historical context, the mathematical theory buttressed and made vivid by rich and beautiful applications drawn from the world around us. The student will see surprises in election-day counting of ballots, a historical wager the sun will rise tomorrow, the folly of gambling, the sad news about lethal genes, the curiously persistent illusion of the hot hand in sports, the unreasonable efficacy of polls and its implications to medical testing, and a host of other beguiling settings.
Course usually offered in spring term
Prerequisite: MATH 114
Activity: Lecture
1 Course Unit

ESE 301 Engineering Probability
This course introduces students to the mathematical foundations of the theory of probability and its applications. The course begins with an exploration of combinatorial probabilities in the classical setting of games of chance, proceeds to the development of an axiomatic, fully mathematical theory of probability, and concludes with the discovery of the remarkable limit laws and the eminence grise of the classical theory, the central limit theorem. The topics covered include: discrete and continuous probability spaces, distributions, mass functions, densities, conditional probability, independence; the Bernoulli schema: the binomial, Poisson, and waiting time distributions; uniform, exponential, normal, and related densities; expectation, variance, moments; conditional expectation; generating functions, characteristic functions; inequalities, tail bounds, and limit laws. But a bald listing of topics does not do justice to the subject: the material is presented in its lush and glorious historical context, the mathematical theory buttressed and made vivid by rich and beautiful applications drawn from the world around us. The student will see surprises in election-day counting of ballots, a historical wager the sun will rise tomorrow, the folly of gambling, the sad news about lethal genes, the curiously persistent illusion of the hot hand in sports, the unreasonable efficacy of polls and its implications to medical testing, and a host of other beguiling settings.
Course usually offered in spring term
Prerequisite: MATH 114
Activity: Lecture
1 Course Unit

ESE 302 Engineering Applications of Statistics
Principles and engineering applications of statistical inference. The basic topics covered are parameter estimation, confidence intervals, and hypothesis testing. Additional topics may include analysis of variance (ANOVA) and/or linear regression. Each method is treated both from theoretical and applied viewpoints, including software analysis of selected data sets.
One-term course offered either term
Prerequisite: ESE 301 or equivalent course in Probability
Activity: Lecture
1 Course Unit
ESE 303 Stochastic Systems Analysis and Simulation
Stochastic systems analysis and simulation (ESE 303) is a class that explores stochastic systems which we could loosely define as anything random that changes in time. Stochastic systems are at the core of a number of disciplines in engineering, for example communication systems and machine learning. They also find application elsewhere, including social systems, markets, molecular biology and epidemiology. The goal of the class is to learn how to model, analyze and simulate stochastic systems. With respect to analysis we distinguish between what we could call theoretical and experimental analysis. By theoretical analysis we refer to a set of tools which let us discover and understand properties of the system. These analysis can only take us so far and is usually complemented with numerical analysis of experimental outcomes. Although we use the word experiment more often than not we simulate the stochastic system in a computer and analyze the outcomes of these virtual experiments. The class's material is divided in four blocks respectively dealing with Markov chains, continuous time Markov chains, Gaussian processes and stationary processes. Emphasis is placed in the development of toolboxes to analyze these different classes of processes and on describing their applications to complex stochastic systems in different disciplines. Particular examples include: (i) the problem of ranking web pages by a search engine; (ii) the study of reputation and trust in social networks; (iii) modeling and analysis of communication networks; (iv) the use of queues in the modeling of transportation networks; (v) stochastic modeling and simulation of biochemical reactions and gene networks; (vi) arbitrages, pricing of stocks, and pricing of options through Black-Scholes formula; and (vii) linear filtering of stochastic processes to separate signals of interest from background noise. For more information visit the class's web page at http://alliance.seas.upenn.edu/~ese303/wiki/. 
Course usually offered in fall term
Prerequisites: ESE 301 or equivalent and one computer language
Activity: Lecture
1 Course Unit

ESE 304 Optimization of Systems
Course usually offered in spring term
Corequisite: MATH 240
Activity: Lecture
1 Course Unit

ESE 305 Foundations of Data Science
Introduction to a broad range of tools to analyze large volumes of data in order to transform them into actionable decisions. Using case studies and hands-on exercises, the student will have the opportunity to practice and increase their data analysis skills.
Course usually offered in fall term
Prerequisite: EAS 205 or MATH 312; CIS 120; ESE 301
Activity: Lecture
1 Course Unit

ESE 310 Electric and Magnetic Fields I
This course examines concepts of electromagnetism, vector analysis, electrostatic fields, Coulomb's Law, Gauss's Law, magnetostatic fields, Biot-Savart Law, Ampere's Law, electromagnetic induction, Faraday's Law, transformers, Maxwell equations and time-varying fields, wave equations, wave propagation, dipole antenna, polarization, energy flow, and applications.
Course usually offered in spring term
Prerequisites: PHYS 151 and MATH 114
Activity: Lecture
1 Course Unit

ESE 319 Fundamentals of Solid-State Circuits
Analysis and design of basic active circuits involving semiconductor devices including diodes and bipolar transistors. Single stage, differential, multi-stage, and operational amplifiers will be discussed including their high frequency response. Wave shaping circuits, filters, feedback, stability, and power amplifiers will also be covered. A weekly three-hour laboratory will illustrate concepts and circuits discussed in the class.
Course usually offered in spring term
Prerequisite: ESE 215
Activity: Lecture
1.5 Course Unit

ESE 321 Physics and Models of Semiconductor Devices
Semiconductor materials form the basis of modern electronic technology. This course develops the physics of semiconductor devices, the evolution of modern semiconductor technology, device engineering considerations, and introduces emerging technologies. The course stresses intuitive understanding of the physics through interactive exercises, instructional videos, in-class examples and a research project. Topics covered include an introduction to quantum mechanics and band theory of solids; physics governing charge carriers in semiconductors; fundamental operating mechanisms for p-n junctions, bipolar and field-effect transistors, and optoelectronic devices; and an introduction to nanoscale devices and the limits of transistor scaling.
Course usually offered in fall term
Prerequisite: ESE 218 or by permission of the instructor
Activity: Lecture
1 Course Unit
ESE 325 Fourier Analysis and Applications in Engineering, Mathematics, and the Sciences
This course focuses on the mathematics behind Fourier theory and a wide variety of its applications in diverse problems in mathematics, engineering, and the sciences. The course is very mathematical in content and students signing up for it should have junior or senior standing. The topics covered are chosen from: functions and signals; systems of differential equations; superposition, memory, and non-linearity; resonance, eigenfunctions; the Fourier series and transform, spectra; convergence theorems; inner product spaces; mean-square approximation; interpolation and prediction, sampling; random processes, stationarity; wavelets, Brownian motion; stability and control, Laplace transforms. The applications of the mathematical theory that will be presented vary from year to year but a representative sample include: polynomial approximation, Weierstrass's theorem; efficient computation via Monte Carlo; linear and non-linear oscillators; the isoperimetric problem; the heat equation, underwater communication; the wave equation, tides; testing for randomness, fraud; nowhere differentiable continuous functions; does Brownian motion exist?; error-correction; phase conjugate optics and four-wave mixing; cryptography and secure communications; how fast can we compute?; X-ray crystallography; cosmology; and what the diffusion equation has to say about mathematical finance and arbitrage opportunities.
Course usually offered in fall term
Prerequisite: MATH 240, Junior or Senior Standing
Activity: Lecture
1 Course Unit

ESE 350 Embedded Systems/Microcontroller Laboratory
An introduction to interfacing real-world sensors and actuators to embedded microprocessor systems. Concepts needed for building electronic systems for real-time operation and user interaction, such as digital input/outputs, interrupt service routines, serial communications, and analog-to-digital conversion will be covered. The course will conclude with a final project where student-designed projects are featured in presentations and demonstrations.
Course usually offered in spring term
Prerequisite: Knowledge of C programming or permission of the instructor
Activity: Lecture
1.5 Course Unit

ESE 370 Circuit-Level Modeling, Design, and Optimization for Digital Systems
Circuit-level design and modeling of gates, storage, and interconnect. Emphasis on understanding physical aspects which drive energy, delay, area, and noise in digital circuits. Impact of physical effects on design and achievable performance.
Course usually offered in fall term
Prerequisite: ESE 150, ESE 215
Activity: Lecture
1 Course Unit

ESE 400 Engineering Economics
This course investigates methods of economic analysis for decision making among alternative courses of action in engineering applications. Topics include: cost-driven design economics, break-even analysis, money-time relationships, rates of return, cost estimation, depreciation and taxes, foreign exchange rates, life cycle analysis, benefit-cost ratios, risk analysis, capital financing and allocation, and financial statement analysis. Case studies apply these topics to actual engineering problems.
One-term course offered either term
Also Offered As: ESE 540
Prerequisite: Knowledge of Differential Calculus
Activity: Lecture
1 Course Unit

ESE 407 Introduction to Networks and Protocols
This is an introductory course on packet networks and associated protocols, with a particular emphasis on IP-based networks such as the Internet. The course introduces design and implementation choices that underlie the development of modern networks, and emphasizes basic analytical understanding of the concepts. Topics are covered in a mostly "bottom-up" approach starting with a brief review of physical layer issues such as digital transmission, error correction and error recovery strategies. This is followed by a discussion of link layer aspects, including multiple access strategies, local area networks (Ethernet and 802.11 wireless LANs), and general store-and-forward packet switching. Network layer solutions, including IP addressing, naming, and routing are covered next, before exploring transport layer and congestion control protocols (UDP and TCP). Finally, basic approaches for quality-of-service and network security are examined. Specific applications and aspects of data compression and streaming may also be covered.
One-term course offered either term
Also Offered As: ESE 507
Prerequisite: ESE 301 or equivalent
Activity: Lecture
1 Course Unit
Notes: Course open to Seniors in SEAS and Wharton

ESE 419 Analog Integrated Circuits
Design of analog circuits and subsystems using primarily MOS technologies at the transistor and higher levels. Transistor level design of building block circuits such as op amps, comparators, sample and hold circuits, voltage and current references, capacitors and resistor and class AB output stages. The Cadence Design System will be used to capture schematics and run simulations using Spectre for some homework problems and for the course project. Topics of stability, noise, device matching through good layout practice will also be covered. Students who take ESE419 will not be able to take ESE572 later. More will be expected of ESE572 students in the design project.
Course usually offered in fall term
Also Offered As: ESE 572
Prerequisite: ESE 319 or permission of the instructor
Activity: Lecture
1 Course Unit
ESE 420 Agent-Based Modeling and Simulation
Agents are a new technique for trying to model, simulate, and understand systems that are ill-structured and whose mathematics is initially unknown and possibly unknowable. This approach allows the analyst to assemble models of agents and components where micro-decision rules may be understood; to bring the agents and components together as a system where macro-behavior then emerges; and to use that to empirically probe and improve understanding of the whole, the interrelations of the components, and synergies. This approach helps one explore parametrics, causality, and what-ifs about socio-technical systems (technologies that must support people, groups, crowds, organizations, and societies). It is applicable when trying to model and understand human behavior - consumers, investors, passengers, plant operators, patients, voters, political leaders, terrorists, and so on. This course will allow students to investigate and compare increasingly complex agent based paradigms along three lines - math foundations, heuristic algorithms/knowledge representations, and empirical science. The student will gain a toolbox and methodology for attempting to represent and study complex socio-technical systems. Course usually offered in fall term
Also Offered As: ESE 520
Activity: Lecture
1 Course Unit

ESE 421 Control For Autonomous Robots
This course introduces the hardware, software and control technology used in autonomous ground vehicles, commonly called "self-driving cars." The weekly laboratory sessions focus on development of a small-scale autonomous car, incrementally enhancing the sensors, software, and control algorithms to culminate in a demonstration in a realistic outdoor operating environment. Students will learn basic physics and modeling; controls design and analysis in Matlab and Simulink; software implementation in C and Python; sensor systems and filtering methods for IMUs, GPS, and computer vision systems; and path planning from fixed map data. One-term course offered either term
Prerequisite: CIS 110 or CIS 120 or ENGR 105; ESE 210 or ESE 215 or MEAM 211 or permission of the instructor
Activity: Lecture
1.5 Course Unit

ESE 444 Project Management
The course emphasizes a systems engineering approach to project management including the cycle costing and analysis, project scheduling, project organization and control, contract management, project monitoring and negotiations. In addition, the course will also examine management issues in large infrastructure projects like non-recourse or limited recourse project financing. Examples from the logistics planning process and global software project management will be used to highlight the course topics. Two terms. student may enter either term. Also Offered As: ESE 544
Prerequisite: ESE 304 or equivalent
Activity: Lecture
1 Course Unit

ESE 450 Senior Design Project I - EE and SSE
This is the first of a two-semester sequence in electrical and systems engineering senior design. Student work will focus on project/team definition, systems analysis, identification alternative design strategies and determination (experimental or by simulation) or specifications necessary for a detailed design. Project definition is focused on defining a product prototype that provides specific value to at least one identified user group. Students will receive guidance on preparing professional written and oral presentations. Each project team will submit a project proposal and two written project reports that include coherent technical presentations, block diagrams and other illustrations appropriate to the project. Each student will deliver two formal Powerpoint presentations to an audience comprised of peers, instructors and project advisors. During the semester there will be periodic individual-team project reviews. Course usually offered in fall term
Prerequisite: Senior Standing or permission of the instructor
Activity: Lecture
1 Course Unit

ESE 451 Senior Design Project II - EE and SSE
This is the second of a two term sequence in electrical and systems engineering senior design. Student work will focus on completing the product prototype design undertaken in ESE 450 and successfully implementing the said product prototype. Success will be verified using experimental and/or simulation methods appropriate to the project that test the degree to which the project objectives are achieved. Each project team will prepare a poster to support a final project presentation and demonstration to peers, faculty and external judges. The course will conclude with the submission of a final project written team report. During the semester there will be periodic project reviews with individual teams. Course usually offered in spring term
Prerequisite: ESE 450
Activity: Lecture
1 Course Unit

ESE 460 Principles of Microfabrication Technology
A laboratory-based course on fabricating microelectronic and micromechanical devices using photolithographic processing and related fabrication technologies. Lectures discuss: clean room procedures; microelectronic and microstructural materials; photolithography; diffusion, oxidation; materials deposition; etching and plasma processes. Basic laboratory processes are covered for the first two thirds of the course with students completing structures appropriate to their major in the final third. Students registering for ESE 574 will be expected to do extra work (including term paper and additional project). Course usually offered in fall term
Also Offered As: ESE 574
Prerequisites: Any of the following: ESE 218, MEAM 333, CBE 351, PHYS 250 or permission of the instructor
Activity: Lecture
1 Course Unit
ESE 500 Linear Systems Theory
This graduate-level course focuses on continuous and discrete n-dimensional linear systems with m inputs and p outputs in a time domain based on linear operators. The course covers general discussions of linear systems such as, linearization of non-linear systems, existence and uniqueness of state-equation solutions, transition matrices and their properties, methods for computing functions of matrices and transition matrices and state-variable changes. It also includes z-transform and Laplace transform methods for time-invariant systems and Floquet decomposition methods for periodic systems. The course then moves to stability analysis, including: uniform stability, uniform exponential stability, asymptotic stability, uniform asymptotic stability, Lyapunov transformations, Lyapunov stability criteria, eigenvalues conditions and input-output stability analysis. Applications involving the topics of controllability, observability, realizability, minimal realization, controller and observer forms, linear feedback, and state feedback stabilization are included, as time permits.
Course usually offered in fall term
Prerequisites: Open to graduates and undergraduates who have taken undergraduate courses in linear algebra and differential equations.
Activity: Lecture
1 Course Unit

ESE 501 Networking - Theory and Fundamentals
Networks constitute an important component of modern technology and society. Networks have traditionally dominated communication technology in form of communication networks, distribution of energy in form of power grid networks, and have more recently emerged as a tool for social connectivity in form of social networks. In this course, we will study mathematical techniques that are key to the design and analysis of different kinds of networks. First, we will investigate techniques for modeling evolution of networks. Specifically, we will consider random graphs (all or none connectivity, size of components, diameters under random connectivity), small world problem, network formation and the role of topology in the evolution of networks. Next, we will investigate different kinds of stochastic processes that model the flow of information in networks. Specifically, we will develop the theory of markov processes, renewal processes, and basic queuing, diffusion models, epidemics and rumor spreading in networks.
Course usually offered in spring term
Prerequisite: ESE 530 or equivalent
Activity: Lecture
1 Course Unit

ESE 502 Introduction to Spatial Analysis
The course is designed to introduce students to modern statistical methods for analyzing spatial data. These methods include nearest-neighbor analyses of spatial point patterns, variogram and kriging analyses of continuous spatial data, and autoregression analyses of area data. The underlying statistical theory of each method is developed and illustrated in terms of selected GIS applications. Students are also given some experience with ARCMAP, JMPIN, and MATLAB software.
Course usually offered in spring term
Prerequisite: ESE 302 or equivalent
Activity: Lecture
1 Course Unit

ESE 503 Sim Modling & Analysis
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ESE 504 Introduction to Optimization Theory
The course provides a detailed introduction to linear and nonlinear optimization analysis as well as integer optimization analysis. It discusses methods for the mathematical formulation of linear programming (LP) integer programming (IP) and nonlinear programming (NLP) problems, as well as methods of computational tools used for their solutions. In discussions surrounding the solutions to LP problems, the Simplex method and the Revised Simplex methods are covered in a fairly rigorous fashion along with the LINDO computational computer package. Sensitivity analysis associated with the optimal solutions to LP problems is also discussed in detail using both geometric and algebraic methods. In discussions surrounding the solutions to IP problems, the course covers methods involving: (a) differential Calculus, (b) steepest ascent and descent and (c) Lagrange Multipliers. The Kuhn-Tucker Conditions are also presented and applied to problems in Quadratic Programming. Many examples are selected from a broad range of engineering and business problems.
Course usually offered in fall term
Prerequisites: ESE 304 and ESE 205 or MATH 313
Activity: Lecture
1 Course Unit

ESE 505 Control of Systems
Basic methods for analysis and design of feedback control in systems. Applications to practical systems. Methods presented include time response analysis, frequency response analysis, root locus, Nyquist and Bode plots, and the state-space approach.
Course usually offered in spring term
Prerequisites: ESE 224 or equivalent, ESE 210 recommended
Activity: Lecture
1 Course Unit

ESE 507 Introduction to Networks and Protocols
This is an introductory course on packet networks and associated protocols, with a particular emphasis on IP-based networks such as the Internet. The course introduces design and implementation choices that underlie the development of modern networks, and emphasizes basic analytical understanding of the concepts. Topics are covered in a mostly "bottom-up" approach starting with a brief review of physical layer issues such as digital transmission, error correction and error recovery strategies. This is followed by a discussion of link layer aspects, including multiple access strategies, local area networks (Ethernet and 802.11 wireless LANs), and general store-and-forward packet switching. Network layer solutions, including IP addressing, naming, and routing are covered next, before exploring transport layer and congestion control protocols (UDP and TCP). Finally, basic approaches for quality-of-service and network security are examined. Specific applications and aspects of data compression and streaming may also be covered.
One-term course offered either term
Also Offered As: ESE 407
Activity: Lecture
1 Course Unit
Notes: Course open to Graduate Students in SEAS and Wharton
ESE 510 Electromagnetic and Optical Theory
This course reviews electrostatics, magnetostatics, electric and magnetic materials, induction, Maxwell's equations, potentials and boundary-value problems. Topics selected from the areas of wave propagation, wave guidance, antennas, and diffraction will be explored with the goal of equipping students to read current research literature in electromagnetics, microwaves, and optics.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ESE 512 Dynamical Systems for Engineering and Biological Applications
This midlevel course in nonlinear dynamics focuses on the analysis of low dimensional, continuous time models for describing and understanding complex behavior in physical, biological and engineered systems. We assume some background knowledge of ordinary differential equations, and develop at an engineering applications level the concepts and tools of qualitative dynamical systems theory with major focus on analysis and some on synthesis.
Course usually offered in fall term
Prerequisites: MATH 240, PHYS 150, ESE 210 and a sound background in computational modeling
Activity: Lecture
1 Course Unit

ESE 516 IoT Edge Computing
This course was developed to bring lessons learned from the product design industry into the classroom - specifically focusing on Internet of Things (IoT) device development and deployment. To achieve the highest level of knowledge transfer, the course will incorporate device design theory with discussions of real-world product failures and successes - as well as a heavy hands-on component to build a device from end to end. Students will learn to use industry standard tools, such as Altium, Atmel Studio, and IBM Watson - allowing them the same level of power and customization at the disposable of startups and Fortune 500 companies alike.
One-term course offered either term
Prerequisite: ESE 519 or permission of the instructor
Activity: Lecture
1 Course Unit

ESE 518 Battery and Super-Capacitor Systems
This is a senior / graduate course on scientific and technological fundamentals as they apply to electrochemical batteries and super-capacitors. The perspective utilized will be a combination of materials and systems science. The course will introduce the student to the different categories of electrochemical cells and batteries, and their related chemistry, kinds of super-capacitors, charging and discharging profiles, equivalent series resistance (ESR), power capacities, and lifetimes. For super-capacitors, the student will be introduced to double layer capacitance (DLC) and pseudo-capacitance types of energy storage, super-capacitor fundamentals through Faradaic and non-Faradaic processes, pseudo-capacitance of metal oxides and electro-active polymers (EAPs), non-ideal polarizable electrodes, energetics and kinetics of electrode processes, theories of dielectric polarization, inorganic and organic electrol carbonaceous materials, effective surface area (ESA) and functionalizations, as well as the AC impedance behavior of batteries and super-capacitors including the self-discharge characteristics of both. The fundamental electrochemical relations will be discussed, as well as battery / super-caps system modeling, and batteries management systems.
One-term course offered either term
Prerequisites: CHEM 101 (General Chemistry) and MATH 104 (Calculus 1)
Activity: Lecture
1 Course Unit

ESE 519 Real-Time Embedded Systems
The use of distributed wireless sensor networks has surged in popularity in recent years with applications ranging from environmental monitoring, to people- and object-tracking in both cooperative and hostile environments. This course is targeted at understanding and obtaining hands-on experience with the state-of-the-art in such wireless sensor networks which are often composed using relatively inexpensive sensor nodes that have low power consumption, low processing power and bandwidth. The course will span a variety of topics ranging from radio communications, network stack, systems infrastructure including QoS support and energy management, programming paradigms, distributed algorithms and example applications. Some guest lectures may be given.
One-term course offered either term
Also Offered As: IPD 519
Prerequisites: CIS 120, ESE 350 or equivalent, one course in computer networks and Senior or Graduate standing
Activity: Lecture
1 Course Unit
Agents are a new technique for trying to model, simulate, and understand systems that are ill-structured and whose mathematics is initially unknown and possibly unknowable. This approach allows the analyst to assemble models of agents and components where micro-decision rules may be understood; to bring the agents and components together as a system where macro-behavior then emerges; and to use that to empirically probe and improve understanding of the whole, the interrelations of the components, and synergies. This approach helps one explore parametrics, causality, and what-ifs about socio-technical systems (technologies that must support people, groups, crowds, organizations, and societies). It is applicable when trying to model and understand human behavior - consumers, investors, passengers, plant operators, patients, voters, political leaders, terrorists, and so on. This course will allow students to investigate and compare increasingly complex agent based paradigms along three lines - math foundations, heuristic algorithms/knowledge representations, and empirical science. The student will gain a toolbox and methodology for attempting to represent and study complex socio-technical systems. Students taking this for graduate credit will also learn how to design agent-based tools.
Course usually offered in fall term
Also Offered As: ESE 420
Activity: Lecture
1 Course Unit

ESE 523 Quantum Engineering
Quantum engineering - the design, fabrication, and control of quantum coherent devices - has emerged as a multidisciplinary field spanning physics, electrical engineering, materials science, chemistry, and biology, with the potential for transformational advances in computation, secure communication, and nanoscale sensing. This course surveys the state of the art in quantum hardware, beginning with an overview of the physical implementation requirements for a quantum computer and proceeding to a synopsis of the leading contenders for quantum building blocks, including spins in semiconductors, superconducting circuits, photons, and atoms. The course combines background material on the fundamental physics and engineering principles required to build and control these devices with readings drawn from the current literature, including promising architectures for scaling physical qubits into larger devices and secure communication networks, and for nanoscale sensing applications impacting biology, chemistry, and materials science.
Course usually offered in spring term
Prerequisites: One semester of quantum mechanics, e.g. PHYS 411, MSE 570, CHEM 523, or by permission of the instructor
Activity: Lecture
1 Course Unit

ESE 525 Nanoscale Science and Engineering
Overview of existing device and manufacturing technologies in microelectronics, optoelectronics, magnetic storage, Microsystems, and biotechnology. Overview of near- and long-term challenges facing those fields. Near- and long-term prospects of nanoscience and related technologies for the evolutionary sustension of current approaches, and for the development of revolutionary designs and applications.
Course usually offered in fall term
Also Offered As: MSE 525
Prerequisites: ESE 218 or PHYS 240 or MSE 220 or equivalent, or by permission.
Activity: Lecture
1 Course Unit

ESE 526 Photovoltaic Systems Engineering
This course will present the engineering basis for photovoltaic (PV) system design. The overall aim is for engineering students to understand the what, why, and how associated with the electrical, mechanical, economic, and aesthetic aspects of PV system. The course will introduce additional practical design considerations, added to the theoretical background, associated with pertinent electro-mechanical design.
Course usually offered in spring term
Prerequisite: Permission of the Instructor
Activity: Lecture
1 Course Unit
ESE 527 Design of Smart Systems
Smart systems are materials, structures, devices and/or networks that seek to autonomously emulate human capabilities (sensing, nervous system, deliberating, acting) for adapting and continued functioning in potentially adverse conditions. Smart systems are a highly trans-disciplinary field that utilize microsystems technology with other disciplines like biology, information science, nanoscience, or cognitive science to control networks of components. Smart systems are causing a sea-change in hybrid cyber-physical-social systems leading to such breakthroughs as: the internet of Everything, smart cars, smart cities, the next industrial revolution, solutions to reduce global warming, and personalized e-healthcare, among many others. In this course students explore state-of-the-art smart system components, learn a design methodology to integrate the components, and apply the methodology to design and simulate a smart system prototype. The course will also cover life-long coping skills for human-centered design and for modeling the security, privacy and reliability hazards of the smart systems approach. Course usually offered in spring term
Prerequisites: Junior or Senior standing, course or experience in a course with high level language
Activity: Lecture
1 Course Unit

ESE 528 Estimation and Detection Theory
Statistical decision making constitutes the core of multiple engineering systems like communication, networking, signal processing, control, market dynamics, biological systems, data processing, etc. We strive to introduce mathematical theories that formulate statistical decision and obtain decision making algorithms with application to one or more of the above domains. This course will be offered every other year.
One-term course offered either term
Prerequisite: ESE 530 or equivalent
Activity: Lecture
1 Course Unit

ESE 530 Elements of Probability Theory
This rapidly moving course provides a rigorous development of fundamental ideas in probability theory and random processes. The course is suitable for students seeking a rigorous graduate level exposure to probabilistic ideas and principles with applications in diverse settings. The topics covered are drawn from: abstract probability spaces; combinatorial probabilities; conditional probability; Bayes’s rule and the theorem of total probability; independence; connections with the theory of numbers, Borel’s normal law; rare events, Poisson laws, and the Lovasz local lemma; arithmetic and lattice distributions arising from the Bernoulli scheme; limit laws and characterizations of the binomial and Poisson distributions; continuous distributions in one and more dimensions; the uniform, exponential, normal, and related distributions; random variables, distribution functions; orthogonal and stationary random processes; the Gaussian process, Brownian motion; random number generation and statistical tests of randomness; mathematical expectation and the Lebesgue theory; expectations of functions, moments, convolutions; operator methods and distributional convergence, the central limit theorem, selection principles; conditional expectation; tail inequalities, concentration convergence in probability and almost surely, the law of large numbers, the law of the iterated logarithm; Poisson approximation, Janson’s inequality, the Stein-Chen method; moment generating functions, renewal theory; characteristic functions. Course usually offered in fall term
Prerequisites: A solid foundation in undergraduate probability at the level of ESE 301 or STAT 430 at Penn. Students are expected to have a sound calculus background in the first two years of a typical undergraduate engineering curriculum. Undergraduates are warned that the course is very mathematical in nature with an emphasis on rigor; upperclassmen who wish to take the course will need to see the instructor for permission to register.
Activity: Lecture
1 Course Unit

ESE 531 Digital Signal Processing
This course covers the fundamentals of discrete-time signals and systems and digital filters. Specific topics covered include: review of discrete-time signal and linear system representations in the time and frequency domain, and convolution; discrete-time Fourier transform (DTFT); Z-transforms; frequency response of linear discrete-time systems; sampling of continuous-time signals, analog to digital conversion, sampling-rate conversion; basic discrete-time filter structures and types; finite impulse response (FIR) and infinite impulse response (IIR) filters; design of FIR and IIR filters; discrete Fourier transform (DFT), the fast Fourier transform (FFT) algorithm and its applications in filtering and spectrum estimation.
Course usually offered in fall term
Prerequisites: ESE 224, ESE 325 or equivalent
Activity: Lecture
1 Course Unit
ESE 532 System-on-a-Chip Architecture
Motivation, design, programming, optimization, and use of modern System-on-a-Chip (SoC) architectures. Hands-on coverage of the breadth of computer engineering within the context of SoC platforms from gates to application software, including on-chip memories and communication networks, I/O interfacing, RTL design of accelerators, processors, concurrency, firmware and OS/infrastructure software. Formulating parallel decompositions, hardware and software solutions, hardware/software tradeoffs, and hardware/software codesign. Attention to real-time requirements.
Course usually offered in fall term
Prerequisites: Undergraduates: CIS 240, ESE 350; Graduate: Working knowledge of C
Activity: Lecture
1 Course Unit

ESE 534 Computer Organization
Organization and design of physical computational systems, basic building block for computations, understanding and exploiting structure in computational problems, design space, costs, and tradeoffs in computer organization, common machine abstractions, and implementation/optimization techniques. The course will develop fundamental issues and tradeoffs which define computer organizational and architectural styles including RISC, VLIW, Super Scalar, EPIC, SIMD, Vector, MIMD, reconfigurable FPGA, PIM, and SoC. Basic topics in the design of computational units, instruction organization, memory systems, control and data flow, and interconnection will also be covered.
Course not offered every year
Prerequisites: Basic computability and basic digital circuits, VLSI exposure helpful but not required. CIS 371 adequate.
Activity: Lecture
1 Course Unit

ESE 535 Electronic Design Automation
Formulation, automation, and analysis of design mapping problems with emphasis on VLSI and computational realizations. Major themes include: formulating and abstracting problems, figures of merit (e.g. Energy, Delay, Throughput, Area, Mapping Time), representation, traditional decomposition of flow (logic optimization, covering, scheduling, retiming, assignment, partitioning, placement, routing), and techniques for solving problems (e.g., greedy, dynamic programming, search, (integer) linear programming, graph algorithms, randomization, satisfiability).
Course not offered every year
Prerequisites: Digital logic, Programming (need to be comfortable writing ~1-3K lines of code and working with a large, existing base code).
Activity: Lecture
1 Course Unit

ESE 536 Nanofabrication and Nanocharacterization
This course is intended for first year graduate students interested in the experimental practice of nanotechnology. In the context of a hands-on laboratory experience, students will gain familiarity with both top-down and bottom-up fabrication and characterization technologies. This will be achieved through the realization of a variety of micro- and nanoscale structures and devices that can exhibit either classical or quantum effects at the small scale. Although concepts relevant to the laboratories will be emphasized in lecture, it is expected that students will already have been exposed to many of the underlying theoretical concepts of nanotechnology in previous courses.
Course usually offered in fall term
Prerequisite: ESE 525 or MSE 525 or permission of the instructor
Activity: Lecture
1 Course Unit

ESE 540 Engineering Economics
This course is cross-listed with an advanced-level undergraduate course (ESE 400). Topics include: money-time relationships, discrete and continuous compounding, equivalence of cash flows, internal and external rate of return, design and production economics, life cycle cost analysis, depreciation, after-tax cash flow analysis, cost of capital, capital financing and allocation, parametric cost estimating models, pricing, foreign exchange rates, stochastic risk analysis, replacement analysis, benefit-cost analysis, and analysis of financial statements. Case studies apply these topics to engineering systems. Students are not required to do additional work compared to ESE 400 students. The work-load is identical.
One-term course offered either term
Also Offered As: ESE 400
Activity: Lecture
1 Course Unit

ESE 543 Human Systems Engineering
This course is an introduction to human systems engineering, examining the various human factors that influence the spectrum of human performance and human systems integration. We will examine both theoretical and practical applications, emphasizing fundamental human cognitive and performance issues. Specific topics include: human performance characteristics related to perception, attention, comprehension, memory, decision making, and the role of automation in human systems integration.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ESE 544 Project Management
The course emphasizes a systems engineering approach to project management including the cycle costing and analysis, project scheduling, project organization and control, contract management, project monitoring and negotiations. In addition, the course will also examine management issues in large infrastructure projects like non-recourse or limited recourse project financing. Examples from the logistics planning process and global software project management will be used to highlight the course topics.
One-term course offered either term
Also Offered As: ESE 444
Prerequisite: ESE 304 or equivalent
Activity: Lecture
1 Course Unit

ESE 545 Data Mining: Learning from Massive Datasets
Many scientific and commercial applications require us to obtain insights from massive, high-dimensional data sets. In this graduate-level course, students will learn to apply, analyze and evaluate principled, state-of-the-art techniques and software tools. Topics include data mining, machine learning, statistical models, and optimization. The course will cover theoretical foundations and practical applications.
Course usually offered in fall term
Prerequisites: ESE 530, ENM 503, or equivalent
Activity: Lecture
1 Course Unit
ESE 548 Transportation Planning Methods
This course introduces students to the development and uses of the 4-step urban transportation model (trip generation-trip distribution-mode choice-traffic assignment) for community and metropolitan mobility planning. Using the VISUM transportation desktop planning package, students will learn how to build and test their own models, apply them to real projects, and critique the results.
One-term course offered either term
Prerequisite: CPLN 505 or another planning statistics course
Activity: Lecture
1 Course Unit

ESE 550 Advance Transportation Seminar, Air Transportation Planning
Air transportation is a fascinating multi-disciplinary area of transportation bringing together business, planning, engineering, and policy. In this course, we explore the air transportation system from multiple perspectives through a series of lessons and case studies. Topics will include airport and intercity multimodal environmental planning, network design and reliability, air traffic management and recovery from irregular operations, airline operations, economics, and fuel, air transportation sustainability, and land use issues related to air transportation systems. This course will introduce concepts in economics and behavioral modeling, operations research, statistics, environmental planning, and human factors that are used in aviation and are applicable to other transportations systems. The course will emphasize learning through lessons, guest lecturers, case studies of airport development and an individual group and research project.
Course usually offered in spring term
Prerequisite: CPLN 550 or equivalent
Activity: Seminar
1 Course Unit

ESE 566 Networked Neuroscience
The human brain produces complex functions using a range of system components over varying temporal and spatial scales. These components are coupled together by heterogeneous interactions, forming an intricate information-processing network. In this course, we will cover the use of network science in understanding such large-scale and neuronal-level brain circuitry.
One-term course offered either term
Also Offered As: BE 566
Prerequisites: Graduate standing or permission of the instructor. Experience with Linear Algebra and MATLAB.
Activity: Lecture
1 Course Unit

ESE 567 Risk Analysis and Environmental Management
This course is designed to introduce students to the complexities of making decisions about threats to human health and the environment when people’s perceptions of risks and their decision-making processes differ from expert views. Recognizing the limitations of individuals in processing information the course explores the role of techniques such as decision analysis, cost-benefit analysis, risk assessment and risk perception in structuring risk-management decisions. We will also examine policy tools such as risk communication, incentive systems, third party inspection, insurance and regulation in different problem contexts. The problem contexts for studying the interactions between analysis, perceptions, and communication will include risk-induced stigmatization of products (e.g. alar, British beef), places (e.g. Love Canal), and technologies (e.g. nuclear power); the siting of noxious facilities, radon, managing catastrophic risks including those from terrorism. A course project will enable students to apply the concepts discussed in the course to a concrete problem.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ESE 568 Mixed Signal Design and Modeling
This course will introduce design and analysis of mixed-signal integrated circuits. Topics include: Sampling and quantization, Sampling circuits, Switched capacitor circuits and filters, Comparators, Offset compensation, DACs/ADCs (flash, delta-sigma, pipeline, SAR), Oversampling, INL/DNL, FOM. The course will end with a final design project using analysis and design techniques learned in the course. Students must provide a written report with explanations to their design choices either with equations or simulation analysis/insight along with performance results.
One-term course offered either term
Prerequisites: ESE 319, 419 or permission of the instructor
Activity: Lecture
1 Course Unit

ESE 570 Digital Integrated Circuits and VLSI-Fundamentals
Explores the design aspects involved in the realization of an integrated circuit from device up to the register/subsystem level. It addresses major design methodologies with emphasis placed on the structured design. The course includes the study of MOS device characteristics, the critical interconnect and gate characteristics which determine the performance of VLSI circuits, and NMOS and CMOS logic design. Students will use state-of-the-art CAD tools to verify designs and develop efficient circuit layouts.
Course usually offered in spring term
Prerequisite: ESE 319 (for undergraduates) or permission of the instructor
Activity: Lecture
1 Course Unit
ESE 572 Analog Integrated Circuits
Design of analog circuits and subsystems using bipolar and MOS technologies at the transistor and higher levels. Transistor level design of building block circuits such as op amps, comparators, sample and hold circuits, voltage and current references, capacitors and resistor arrays, and class AB output stages. The course will include a design project of an analog circuit. The course will use the Cadence Design System for schematic capture and simulation with Spectre circuit simulator. This course is similar to ESE 570, except that it will not require the use of the physical layout tools associated with VLSI design and implementation. Course usually offered in fall term
Also Offered As: ESE 419
Prerequisite: ESE 319 (for undergraduates) or permission of the instructor
Activity: Lecture
1 Course Unit

ESE 574 The Principles and Practice of Microfabrication Technology
A laboratory-based course on fabricating microelectronic and micromechanical devices using photolithographic processing and related fabrication technologies. Lectures discuss: clean room procedures; microelectronic and microstructural materials; photolithography; diffusion, oxidation; materials deposition; etching and plasma processes. Basic laboratory processes are covered for the first two thirds of the course with students completing structures appropriate to their major in the final third. Students registering for ESE 574 will be expected to do extra work (including term paper and additional project). Course usually offered in fall term
Also Offered As: ESE 460
Prerequisites: Any of the following courses: ESE 218, MSE 321, MEAM 333, CBE 351, PHYS 250 or permission of the instructor
Activity: Lecture
1 Course Unit

ESE 576 Digital Communication Systems
Sampling, source coding, and channel capacity. Quantization and coding of speech and video. Baseband data transmission: bandwidth, intersymbol interference, adaptive equalization, performance analysis. Digital modulation schemes, spectral efficiency, and performance. Error control coding; block and convolutional codes. Course usually offered in spring term
Prerequisites: Undergraduate linear systems, probability, random processes.
Activity: Lecture
1 Course Unit

ESE 578 RFIC (Radio Frequency Integrated Circuit) Design
Introduction to RF (Radio Frequency) and Microwave Theory, Components, and Systems. The course aims at providing knowledge in RF transceiver design at both microwave and millimeter-wave frequencies. Both system and circuit level perspective will be addressed, supported by modeling and simulation using professional tools (including Agilent ADS, Sonnet, and Cadence Design Systems). Topics include: Transmission Line Theory, S-parameters, Smith Chart for matching network design, stability, noise, and mixed signal design. RF devices covered will include: hybrid/Wilkinson/Lange 3dB couplers, Small Signal Amplifiers (SSA), Low Noise Amps (LNA), and Power Amps (PA). CMOS technology will be largely used to design the devices mentioned. Course usually offered in spring term
Prerequisite: ESE 572
Activity: Lecture
1 Course Unit

ESE 590 Systems Methodology
This course covers the methodologies and techniques important to designing large complex, purposeful systems and to discovering policies that influence them throughout the stages of their lifecycle. The course focuses on hands-on synthetic thinking, where students assemble the big picture from modeling the individual actors, organizations, and artifacts in a socio-technical system of interest. This is the study of emergence of macro-behavior from the micro-decision making of the actors involved - to inquire into the design of a purposeful system, and to examine alternative futures that are ideal, yet affordable, sustainable, and workable. Specifically, the student learns systems theory, systems methodologies (design inquiry/learning systems, idealized design/interactive planning, and soft systems methodology/knowledge management), bottom up modeling (decision science, multi-attribute utility theory, affective reasoning, agent based modeling, simulated societies), and how to further research and apply the synthetic paradigm. Course usually offered in spring term
Activity: Lecture
1 Course Unit

ESE 597 Master's Thesis
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

ESE 599 Independent Study for Master's credit
One-term course offered either term
Activity: Independent Study
1 Course Unit

ESE 605 Modern Convex Optimization
This course concentrates on recognizing and solving convex optimization problems that arise in engineering. Topics include: convex sets, functions, and optimization problems. Basis of convex analysis. Linear, quadratic, geometric, and semidefinite programming. Optimality conditions, duality theory, theorems of alternative, and applications. Interior-point methods, ellipsoid algorithm and barrier methods, self-concordance. Applications to signal processing, control, digital and analog circuit design, computation geometry, statistics, and mechanical engineering. Course usually offered in spring term
Prerequisites: Knowledge of linear algebra and willingness to do programming. Exposure to numerical computing, optimization, and application fields is helpful but not required.
Activity: Lecture
1 Course Unit

ESE 610 Electromagnetic and Optical Theory II
This course covers exact, approximate and numerical methods of wave propagation, radiation, diffraction and scattering with an emphasis on bringing students to a point of contributing to the current research literature. Topics are chosen from a list including analytical and numerical techniques, waves in complex media and metamaterials, photonic bandgap structures, imaging, miniaturized antennas, high-impedance ground plans, and fractal electrodynamics. Course not offered every year
Activity: Lecture
1 Course Unit
ESE 611 Nanophotonics: Light at the Nanoscale
This course is intended for first and second year graduate students interested in nanoscale optics and photonics. Building on prior coursework in electromagnetism, this course provides a theoretical foundation and up-to-date survey of the key principles and phenomena relevant to the field of nanophotonics. Topics discussed include light-matter interaction through Maxwell’s equations, photonic band theory and photonic crystals, plasmonic structures and devices, metamaterials and metasurfaces, PT-symmetric & topological photonic systems. Applications of nanophotonic devices and principles to a wide range of scenarios will also be explored in depth, including for renewable energy, information processing, imaging and sensing. Experimental techniques used in nanophotonics will be concurrently introduced and discussed. One-term course offered either term
Prerequisite: ESE 510 recommended or permission of the instructor
Activity: Lecture
1 Course Unit

ESE 617 Non-Linear Control Theory
The course studies issues in nonlinear control theory, with a particular emphasis on the use of geometric principles. Topics include: controllability, accessibility, and observability, for nonlinear systems; Forbenius’ theorem; feedback and input/output linearization for SISO and MIMO systems; dynamic extension; zero dynamics; output tracking and regulation; model matching disturbance decoupling; examples will be taken from mechanical systems, robotic systems, including those involving nonholonomic constraints, and active control of vibrations.
Course not offered every year
Also Offered As: CBE 617, CIS 613
Prerequisite: ESE 500 or equivalent
Activity: Lecture
1 Course Unit

ESE 619 Model Predictive Control
Increased system complexity and more demanding performance requirements have rendered traditional control laws inadequate regardless if simple PID loops are considered or robust feedback controllers designed according to some H2/∞ criterion. Applications ranging from the process industries to the automotive and the communications sector are making increased use of Model Predictive Control (MPC) where a fixed control law is replaced by on-line optimization performed over a receding horizon. The advantage is that MPC can deal with almost any time-varying process and specifications, limited only by the availability of real-time computer power. In the last few years we have seen tremendous progress in this interdisciplinary area where fundamentals of systems theory, computation and optimization interact. For example, methods have emerged to handle hybrid systems, i.e. systems comprising both continuous and discrete components. Also, it is now possible to perform most of the computations off-line thus reducing the control law to a simple look-up table.
Course usually offered in fall term
Prerequisites: Linear Algebra (ESE 500), Optimization (ESE 504 or ESE 605)
Activity: Lecture
1 Course Unit

ESE 621 Nanoelectronics
This is a graduate level course on fundamental operating principles and physics of semiconductor devices in reduced or highly scaled dimensions. The course will include topics and concepts covering basic quantum mechanics and solid state physics of nanostructures as well as device transport and characterization, materials and fabrication. A basic knowledge of semiconductor physics and devices is assumed. The course will build upon basic quantum mechanics and solid state physics concepts to understand the operation of nanoscale semiconductor devices and physics of electrons in confined dimensions. The course will also provide a historical perspective on micro and nanoelectronics, discuss the future of semiconductor computing technologies, cutting edge research in nanomaterials, device fabrication as well as provide a perspective on materials and technology challenges.
One-term course offered either term
Prerequisite: ESE 521 or permission of the instructor
Activity: Lecture
1 Course Unit

ESE 635 Distributed Systems
This research seminar deals with tools, methods, and algorithms for analysis and design of distributed dynamical systems. These are large collections of dynamical systems that are spatially interconnected to form a collective task or achieve a global behavior using local interactions. Over the past decade such systems have been studied in disciplines as diverse as statistical physics, computer graphics, robotics, and control theory. The purpose of this course is to build a mathematical foundation for study of such systems by exploring the interplay of control theory, distributed optimization, dynamical systems, graph theory, and algebraic topology. Assignments will consist of reading and researching the recent literature in this area. Topics covered in distributed coordination and consensus algorithms over networks, coverage problems, effects of delay in large scale networks. Power law graphs, gossip and consensus algorithms, synchronization phenomena in natural and engineered systems, etc.
Course not offered every year
Prerequisites: Basic knowledge of linear systems (ESE 500), linear algebra (MATH 312 or equivalent), and optimization (ESE 504 or equivalent) and some familiarity with basics of nonlinear systems (ESE 617 or equivalent). Students without this background should consult with the instructor before registering.
Activity: Lecture
1 Course Unit

ESE 650 Learning in Robotics
This course will cover the mathematical fundamentals and applications of machine learning algorithms to mobile robotics. Possible topics that will be discussed include probabilistic generative models for sensory feature learning. Bayesian filtering for localization and mapping, dimensionality reduction techniques for motor control, and reinforcement learning of behaviors. Students are expected to have a solid mathematical background in machine learning and signal processing, and will be expected to implement algorithms on a mobile robot platform for their course projects. Grading will be based upon course project assignments as well as class participation.
Course usually offered in fall term
Prerequisites: Students will need permission from the instructor. They will be expected to have a good mathematical background with knowledge of machine learning techniques at the level of CIS 520, signal processing techniques at the level of ESE 531, as well as have some robotics experience
Activity: Lecture
1 Course Unit
ESE 672 Integrated Communication Systems
This is an advanced radio frequency (RF) circuit design course that includes analysis and design of high-frequency and high-speed integrated communication circuits at both transistor and system levels. Students gradually design and simulate different blocks of an RF receiver and combine these blocks to form the receiver as their final project. We assume some background knowledge of device physics, electromagnetics, circuit theory, control theory, and stochastic processes. One-term course offered either term
Prerequisite: ESE 419 or ESE 572
Activity: Lecture
1 Course Unit

ESE 674 Information Theory
Deterministic and probabilistic information. The pigeon-hole principle. Entropy, relative entropy, and mutual information. Random processes and entropy rate. The asymptotic equipartition property. Optimal codes and data compression. Channel capacity. Source channel coding. The ubiquitous nature of the theory will be illustrated with a selection of applications drawn from among: universal source coding, vector quantization, network communication, the stock market, hypothesis testing, algorithmic computation and kolmogorov complexity, and thermodynamics.
Course not offered every year
Prerequisite: ESE 530 or equivalent exposure to probability theory
Activity: Lecture
1 Course Unit

ESE 676 Coding Theory
Coding theory for telecommunications with emphasis on the algebraic theory of cyclic codes using finite field arithmetic, decoding of BCH and Reed-Solomon codes, finite field Fourier transform and algebraic geometry codes, convolutional codes and trellis decoding algorithms, graph based codes, Berrou codes and Gallager codes, turbo decoding, iterative decoding. And belief propagation.
One-term course offered either term
Prerequisites: ESE 224, MATH 240, PHYS 150, Mathematical aptitude.
Activity: Lecture
1 Course Unit

ESE 680 Special Topics in Electrical and Systems Engineering
Advanced and specialized topics in both theory and application areas. Students should check Graduate Group office for offerings during each registration period.
Course not offered every year
Activity: Lecture
1 Course Unit

ESE 895 Teaching Practicum
Participation of graduate students in the teaching mission of the department will help to develop teaching, presentation, leadership, and interpersonal skills while assisting the department in discharging its teaching responsibilities. All doctoral students are required to participate under faculty guidance in the teaching mission of the department. This requirement will be satisfied by completing two 0.5 course units of teaching practicum (ESE 895). Each 0.5 course unit of teaching practicum will consist of the equivalent of 10 hours of effort per week for one semester. As a part of the preparation for and fulfillment of the teaching practicum requirement, the student will attend seminars emphasizing teaching and communication skills, lead recitations, lead tutorials, supervise laborato experiments, develop instructional laboratories, develop instructional materiaand grade homeworks, laboratory reports, and exams. A teacher training seminar will be conducted the day before the first day of classes of the Fall semester. Attendance is mandatory for all second-year students. As much as possible, the grading aspect of the teaching practicum course will be such as not to exceed 50% of the usual teaching assistant commitment time. Some of the recitations will be supervised and feedback and comments will be provided to the student by the faculty responsible for the course. At the completion of every 0.5 course unit of teach, the student will receive a Satisfactory/Unsatisfactory grade and a written evaluation by the faculty member responsible for the course. The evaluation will be on comments of the students taking the course and the impressions of the faculty.
One-term course offered either term
Activity: Lecture
0.5 Course Units

ESE 899 Independent Study for PhD credit
For students who are studying a specific advanced subject area in electrical engineering. Students must submit a proposal outlining and detailing the study area, along with the faculty supervisor's consent, to the graduate group chair for approval. A maximum of 1 c.u. of ESE 899 may be applied toward the MSE degree requirements. A maximum of 2 c.u.'s of ESE 899 may be applied toward the Ph.D. degree requirements.
One-term course offered either term
Activity: Independent Study
1 Course Unit

ESE 995 Dissertation
Register for this after completing four years of full-time study including two course units each Summer Session (and usually equal to 40 course units).
One-term course offered either term
Activity: Dissertation
1 Course Unit

ESE 999 Thesis/Dissertation Research
For students working on an advanced research program leading to the completion of master's thesis or Ph.D. dissertation requirements.
One-term course offered either term
Activity: Independent Study
1 Course Unit
ENERGY MANAGEMENT AND POLICY (ENMG)

ENMG 503 Topics in Energy Policy
This seminar will explore a collection of ideas influencing energy policy development in the U.S. and around the world. Our platform for this exploration will be seven recent books to be discussed during the semester. These books each contribute important insights to seven ideas that influence energy policy: Narrative, Transition, Measurement, Systems, Subsidiarity, Disruption, Attachment. Books for 2018 will be chosen over the summer; the 2017 books are listed here as examples: Policy Paradox (2011) by Stone, Climate Shock (2015) by Wagner and Weitzman, Power Density (2015) by Smil, Connectography (2016) by Khanna, Climate of Hope (2017) by Bloomberg and Pope, Utility of the Future (2016) by MIT Energy Initiative, Retreat from a Rising Sea (2016) by Pilkey, Pilkey-Jarvis, Pilkey.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ENMG 505 Chokepoints and the Global Energy Systems
This research seminar will explore the movement of energy resources around the world, the physical and economic impact of that flow on these cities and regions, and the opportunities and challenges of these flows in the complex and uncertain energy transition currently underway. The discovery and invention of more concentrated forms of energy during the modern era has generated infrastructures for transporting fuels and transmitting electricity over increasingly large distances. These infrastructures have created landscapes characterized by land use patterns and inter-industry configurations that are massive, expensive, durable and highly specific. They continue to generate great wealth and wages, while also generating externalized climate, environmental, and health costs that are better regulated in some places than in others.
All of these conditions yield policy and design challenges for cities and nations, especially as the world slowly but steadily builds a policy regime for mitigating climate change. The global energy system is a key source of the greenhouse. Emissions driving climate change. As policies are developed and enforce to reduce and eliminate those emissions, these landscapes will change dramatically over the long transition of the next 50 years. How can cities and nations guide that transition with policy and design choices? How can nations use port cities and other elements of the energy landscape to meet their global climate commitments? The seminar will discuss weekly assigned readings and students can expect to read approximately a book a week throughout the semester. Students will write three 1-page papers on weekly readings and lead part of the seminar discussion on those readings. They will submit a 10-page final project in the form of a research agenda that identifies a set of important questions that could help guide policy and design choices facing energy flows and the industries and nations that influence them.
Taught by: Nick Pevzner, Mark Alan Hughes, Cornelia Colijn
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ENMG 507 Ideas in Energy Policy
This seminar will explore a collection of ideas influencing energy policy development in the U.S. and around the world. Our platform for this exploration will be seven recent books to be discussed during the semester. These books each contribute important insights to seven ideas that influence energy policy: Narrative, Transition, Measurement, Systems, Subsidiarity, Disruption, Attachment.
Taught by: Mark Alan Hughes
Activity: Seminar
1 Course Unit
ENGINEERING & APPLIED SCIENCE (EAS)

EAS 091 Chemistry Advanced Placement/International Baccalaureate Credit (Engineering Students Only)
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 097 Embed Controlled Gardening
A service course intended to integrate concepts of basic physics, biology and electronics and systems engineering for the benefit of Penn engineering students, teachers and students from two minority centered community public schools. The course will engage the participants in the design and implementation of indoors cultivating systems using photo-voltaic (PV) technology to energize LED emulating the needed solar radiation for plant growth, a liquid nutrient distribution system, sensors / actuators capable of selecting the harvestable plants and keeping track of overall system parameters.
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 203 Engineering Ethics
In this course, students will study the social, political, environmental and economic context of engineering practice. Students will develop an analytical toolkit to identify and address ethical challenges and opportunities in the engineering profession, including studies of risk and safety, professional responsibility, and global perspectives. The course will begin with a foundation in the history of engineering practice and major Western ethical and philosophical theories. Students will then apply this material to both historical case studies, such as Bhopal, the NASA Shuttle Program, and Three Mile Island, as well as contemporary issues in big data, artificial intelligence, and diversity within the profession. Students will consider how engineers, as well as governments, the media, and other stakeholders, address such issues.
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 205 Applications of Scientific Computing.
This course will discuss a number of canonical problems and show how numerical methods are used to solve them. Lectures will introduce the underlying theory and the relevant numerical methods. Students will be expected to implement solutions to the problems using MATLAB. The course will use the visualization capabilities of MATLAB to provide students with a geometric interpretation of the key ideas underlying the numerical methods. Topics to be covered will include: The solution of systems of linear systems equations with application to problems such as force balance analysis and global illumination computation. Representing and computing coordinate transformations with applications to problems in graphics, vision and robotics. Transform Coding with applications to the analysis of audio signals and image compression. Analysis of variance and the search for low dimensional representations for high dimensional data sets e.g.s Google's PageRank algorithm. Least Squares model fitting with applications to data analysis. Analysis of linear dynamical systems with applications to understanding the modes of vibration of mechanical systems. The analysis of stochastic systems governed by state transition matrices.
One-term course offered either term
Prerequisites: Prior exposure to computing via courses such as EAS 105, CIS 110, or ESE 112. MATH 114, Sophomore standing.
Activity: Lecture
1 Course Unit

EAS 244 Curiosity: Anc&Modern
Activity: Seminar
1 Course Unit

EAS 261 Emerg Tech & the Future
One-term course offered either term
Activity: Seminar
1 Course Unit

EAS 301 Climate Policy and Technology
The course will exam Pacala and Socolow's hypothesis that "Humanity already possesses the fundamental scientific, technical and industrial know-how to solve the carbon and climate problem for the next half-century." Fifteen "climate stabilization wedges" i.e., strategies that each have the potential to reduce carbon emissions by 1 billion tons per year by 2054, will be examined in detail. Technology and economics will be reviewed. Socio-political barriers to mass-scale implementation will be discussed. Pacala and Socolow note "Every element in this portfolio has passed beyond the laboratory bench and demonstration project; many are already implemented somewhere at full industrial scale".
One-term course offered either term
Also Offered As: EAS 505
Activity: Lecture
1 Course Unit

EAS 306 Electricity and Systems Markets
The course discusses the existing electricity system from technical, economic, and policy perspectives. Basic power system engineering will be reviewed early in the course. Generation, transmission, distribution, and end-use technologies and economics will be discussed. Additional topics will include system operation, industry organization, government regulation, the evolution of power markets, environmental policy, and emerging technologies.
One-term course offered either term
Also Offered As: EAS 506
Activity: Lecture
1 Course Unit
EAS 401 Energy and Its Impacts: Technology, Environment, Economics, Sustainability
The objective is to introduce students to one of the most dominating and compelling areas of human existence and endeavor: energy, with its foundations in technology, from a quantitative sustainability viewpoint with its association to economics and impacts on environment and society. This introduction is intended both for general education and awareness and for preparation for careers related to this field, with emphasis on explaining the technological foundation. The course spans from basic principles to applications. A review of energy consumption, use, and resources; environmental impacts, sustainability and design of sustainable energy systems; introductory aspects of energy economics and carbon trading; methods of energy analysis; forecasting; energy storage; electricity generation and distribution systems (steam and gas turbine based power plans, fuel cells), fossil fuel energy (gas, oil, coal) including nonconventional types (shale gas and oil, oil sands, coalbed and tight-sand gas), nuclear energy wastes: brief introduction to renewable energy use: brief introduction to solar, wind, hydroelectric, geothermal, biomass; energy for buildings, energy for transportation (cars, aircraft, and ships); prospects for future energy systems: fusion power, power generation in space. Students interested in specializing in one or two energy topics can do so by choosing them as their course project assignments.
Course usually offered in fall term
Also Offered As: EAS 501
Activity: Lecture
1 Course Unit
Notes: Any University student interested in energy and its impacts, who is a Junior or Senior. Students taking the course as EAS 501 will be given assignments commensurate with graduate standing.

The objective is to introduce students to the major aspects of renewable energy, with its foundations in technology, association to economics, and impacts on ecology and society. This introduction is intended both for general education and awareness and for preparation for careers related to this field. The course spans from basic principles to applications. A review of solar, wind, biomass, hydroelectric, geothermal energy, and prospects for future energy systems such as renewable power generation in space.
Course usually offered in spring term
Also Offered As: EAS 502
Prerequisite: Junior Standing
Activity: Lecture
1 Course Unit

EAS 403 Energy Systems and Policy
This is a survey course that will examine the current U.S. energy industry, from production to consumption, and its impacts on local, regional, and the global environment. The course will seek to provide a fuller understanding of existing energy systems, ranging from technical overviews of each, a review of industry organization, and an exploration of the well-established policy framework each operates within. Near-term demands upon each energy supply system will be discussed, with particular focus on environmental constraints. Policy options facing each energy industry will be reviewed.
One-term course offered either term
Also Offered As: EAS 503
Activity: Lecture
1 Course Unit

EAS 449 Product Development in Entrepreneurial Ventures
A product is any artifact, service or experience for which a buyer is willing to pay. Product Design & Development is at the core of entrepreneurship. Though in modern mythology it is a solitary effort by a passionate individual, entrepreneurship is frequently more successful when pursued in an interdisciplinary environment. Though it rarely requires the greatest time investment, concentration of personnel, the majority of the funding or even the greatest depth of expertise to accomplish, excellent product design can be the difference between a successful and failed venture. A poorly designed “product” can prevent a venture from being successful. An excellently designed product can make a competent business plan much more successful. A well defined and designed product solution will create differentiation, and can not only meet customer expectation but can create desirability. Through the review and discussion of case studies, lecture subjects, guest lecturers, field trips, and a semester long interdisciplinary team project, this class will provide insight into the problem identification and product design processes, user needs research, intellectual property research, experience design, Industrial Design, Interface Design, brand development and product centric fundraising processes.
Course usually offered in spring term
Also Offered As: IPD 549
Activity: Lecture
1 Course Unit

EAS 499 Senior Capstone Project
The Senior Capstone Project is required for all BAS degree students, in lieu of the senior design course. The Capstone Project provides an opportunity for the student to apply the theoretical ideas and tools learned from other courses. The project is usually applied, rather than theoretical, exercise, and should focus on a real world problem related to the career goals of the student. The one-semester project may be completed in either the fall or spring term of the senior year, and must be done under the supervision of a sponsoring faculty member. To register for this course, the student must submit a detailed proposal, signed by the supervising professor, and the student’s faculty advisor, to the Office of Academic Programs two weeks prior to the start of the term.
One-term course offered either term
Activity: Independent Study
1 Course Unit
The objective is to introduce students to one of the most dominating and compelling areas of human existence and endeavor: energy, with its foundations in technology, from a quantitative sustainability viewpoint with its association to economics and impacts on environment and society. This introduction is intended both for general education and awareness and for preparation for careers related to this field, with emphasis on explaining the technological foundation. The course spans from basic principles to applications. A review of energy consumption, use, and resources; environmental impacts, sustainability and design of sustainable energy systems; introductory aspects of energy economics and carbon trading; methods of energy analysis; forecasting; energy storage; electricity generation and distribution systems (steam and gas turbine based power plans, fuel cells), fossil fuel energy (gas, oil, coal) including nonconventional types (shale gas and oil, oil sands, coalbed and tight-sand gas), nuclear energy wastes: brief introduction to renewable energy use: brief introduction to solar, wind, hydroelectric, geothermal, biomass; energy for buildings, energy for transportation (cars, aircraft, and ships); prospects for future energy systems: fusion power, power generation in space. Students interested in specializing in one or two energy topics can do so by choosing them as their course project assignments.
Course usually offered in fall term
Also Offered As: EAS 401
Activity: Lecture
1 Course Unit
Notes: Any university student interested in energy and its impacts, who is a graduate student or who is an undergraduate Junior or Senior seeking graduate course credit. Students taking the course as EAS 501 will be given assignments commensurate with graduate standing.

The objective is to introduce students to the major aspects of renewable energy, with its foundations in technology, association to economics, and impacts on ecology and society. This introduction is intended both for general education and awareness and for preparation for careers related to this field. The course spans from basic principles to applications. A review of solar, wind, biomass, hydroelectric, geothermal energy, and prospects for future energy systems such as renewable power generation in space.
Course usually offered in spring term
Also Offered As: EAS 402
Activity: Lecture
1 Course Unit

EAS 503 Energy Systems and Policy
This is a survey course that will examine the current U.S. energy industry, from production to consumption, and its impacts on local, regional, and the global environment. The course will seek to provide a fuller understanding of existing energy systems, ranging from technical overviews of each, a review of industry organization, and an exploration of the well-established policy framework each operates within. Near-term demands upon each energy supply system will be discussed, with particular focus on environmental constraints.
One-term course offered either term
Also Offered As: EAS 403
Activity: Lecture
1 Course Unit

EAS 505 Climate Policy and Technology
The course will exam Pacala and Socolow's hypothesis that "Humanity already possesses the fundamental scientific, technical and industrial know-how t solve the carbon and climate problem for the next half-century" Fifteen "climate stabilization wedges" i.e., strategies that each have the potential to reduce carbon emissions by 1 billion ons per year by 2054, will be examined in detail. Technology and economics will be reviewed. Socio-political barriers to mass-scale implementation will be discussed. Pacala and Socolow note "Every element in this portfolio has passed beyond the laboratory bench and demonstration project; many are already implemented somewhere at full industrial scale".
One-term course offered either term
Also Offered As: EAS 301
Activity: Lecture
1 Course Unit

EAS 506 Electricity and Systems Markets
The course discusses the existing electricity system from technical, economic, and policy perspectives. Basic power system engineering will be reviewed early in the course. Generation, transmission, distribution, and end-use technologies and economics will be discussed. Additional topics will include system operation, industry organization, government regulation, the evolution of power markets, environmental policy, and emerging technologies.
Course usually offered in spring term
Also Offered As: EAS 306
Activity: Lecture
1 Course Unit

EAS 507 Intellectual Property and Business Law for Engineers
Engineers are often on the front line of innovation. The goal of this course is to introduce engineering students to the basics of Intellectual property (IP) and business laws that they will encounter throughout their careers. Understanding these laws is critical for the protection of IP and for the creation and success of high-tech start-up ventures. Market advantage in large part springs from a company’s IP. Without legal protection and correct business formation, proprietary designs, processes, and inventions could be freely used by competitors, ruining market advantage. A basic understanding of IP laws, contractual transactions, employment agreements, business structures, and debt-equity financing will help engineering students to become effective employees or entrepreneurs, to acquire investors, and to achieve success. Though open to students of all disciplines, the course will use case studies particular relevance to students of engineering and applied science.
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 510 Technical Communication and Academic Writing for Non-native Speakers of English
Students will improve the grammar, word choice and organization of their professional writing by completing weekly writing assignments and a full-length research paper. Students will also give short oral presentations and receive feedback on pronunciation, wording, grammar and organization.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Graduate students whose native language is English, but who would benefit from a course in Technical Communication, should take EAS 500.
EAS 512 Engineering Negotiation
The goal of this course is to teach students of engineering and applied science to be effective negotiators. It aims to improve the way these students communicate virtually any human interaction. The course intends to improve the ability of engineers and other technology disciplines to gain more support more quickly for projects, research product and services development, and marketing. For those wanting to be entrepreneurs or intrapreneurs, the course is designed essentially to find the most value possible in starting up and running companies. Based on Professor Diamond's innovative and renowned model of negotiation, it is intended to assist those for whom technical expertise is not enough to persuade others, internally and externally, to provide resources, promotions and project approvals; or to resolve disputes, solve problems and gain more opportunities. Rejecting the 40-year-old notions of power, leverage and logic, the course focuses on persuasion by making better human connections, uncovering perceptions and emotions, and structuring agreements to be both collaborative and fair. This course is entrepreneurial in nature and can provide many times more value than traditional persuasion. The Getting More book has sold more than 1 million copies around the world and is also used by universities, corporations (Google), and U.S. Special Operations (SEALs, Green Berets, Special Forces, Marines) to save lives and reduce conflict. From the first day, students will do interactive cases based their own engineering-related problems and based on current events in the news. There will be diagnostics enabling every student to assess his/her skill and improvements.
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 545 Engineering Entrepreneurship I
Engineers and scientists create and lead great companies, hiring managers when and where needed to help execute their vision. Designed expressly for students having a keen interest in technological innovation, this course investigates the roles of inventors and founders in successful technology ventures. Through case studies and guest speakers, we introduce the knowledge and skills needed to recognize and seize a high-tech entrepreneurial opportunity - be it a product or service - and then successfully launch a startup or spin-off company. The course studies key areas of intellectual property, its protection and strategic value; opportunity analysis and concept testing; shaping technology driven inventions into customer-driven products; constructing defensible competitive strategies; acquiring resources in the form of capital, people and strategic partners; and the founder's leadership role in an emerging high-tech company. Throughout the course emphasis is placed on decisions faced by founders, and on the sequential risks and determinants of success in the early growth phase of a technology venture. The course is designed for, but not restricted to, students of engineering and applied science and assumes no prior business education.
One-term course offered either term
Also Offered As: IPD 545
Prerequisite: Third or Fourth year or Graduate standing
Activity: Lecture
1 Course Unit

EAS 546 Engineering Entrepreneurship II
This course is the sequel to EAS 545 and focuses on the planning process for a new technology venture. Like its prerequisite, the course is designed expressly for students of engineering and applied science having a keen interest in technological innovation. Whereas EAS 545 investigates the sequential stages of engineering entrepreneurship from the initial idea through the early growth phase of a startup company, EAS 546 provides hands-on experience in developing a business plan for such a venture. Working in teams, students prepare and present a comprehensive business plan for a high-tech opportunity. The course expands on topics from EAS 545 with more in-depth attention to: industry and marketplace analysis; competitive strategies related to high-tech product/service positioning, marketing, development and operations; and preparation of sound financial plans. Effective written and verbal presentation skills are emphasized throughout the course. Ultimately, each team presents its plan to a distinguished panel of recognized entrepreneurs, investors and advisors from the high-tech industry.
One-term course offered either term
Prerequisite: EAS 545
Activity: Lecture
1 Course Unit

EAS 549 Engr Entrepreneurship Lab
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 590 Commercializing Information Technology
EAS 590 provides real world, hands-on learning on what it's like to actually start a high-tech company. We do that by using the Lean LaunchPad framework for Web start-ups. This class is not about how to write a business plan. Instead you will be getting your hands dirty talking to customers, partners, competitors, as you encounter the chaos and uncertainty of how a start-up actually works. EAS 590 provides real world, hands-on learning on what it's like to actually start a high-tech company. We do that by using the Lean LaunchPad framework for Web start-ups. This class is not about how to write a business plan. Instead you will be getting your hands dirty talking to customers, partners, competitors, as you encounter the chaos and uncertainty of how a start-up actually works.
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 591 Leading Technology Teams
Engineers routinely work in teams collaborating with experts from multiple fields to address increasingly large complex problems/opportunities. EAS 591, Leading Technology Teams, focuses on the dynamics of innovative, interdisciplinary, cross-functional teams. We examine ways to improve team performance by exploring technology leadership issues from multiple perspectives (i.e., the individual, the team, and the organization). Developing skills to be an effective technology team member, leader, and/or sponsor will provide you with a competitive advantage, not only for getting your first job but also for success throughout your career.
Activity: Lecture
0.5 Course Units
EAS 595 Foundations of Leadership
The goal of EAS 595 is to increase your capacity to effectively lead throughout your career and wherever you find yourself in an organization. This involves understanding and learning about yourself and about working effectively with others. The course starts with an identification of values, strengths, preferences and passions. It then proceeds with the personal and interpersonal and moves through the strategic aspects of leadership by bringing together aspects of management science, social psychology, psychology of personality and behavioral economics. Topics include teamwork and team dynamics, identifying life’s goals and dreams, decision making, valuing differences, understanding the dynamics of influence, using power with integrity, giving and receiving feedback, leading change, and discovering where we can make our contribution.
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 898 CPT Research Practicum.
One-term course offered either term
Activity: Lecture
1 Course Unit

EAS 900 Responsible Conduct for Research in Engineering
One-term course offered either term
Activity: Seminar
1 Course Unit
ENGINEERING (ENGR)

ENGR 101 Introduction to Engineering
This course is intended to introduce students to the field of engineering. It will expose students to the engineering disciplines through hands-on laboratory experiences. In addition, the course will provide tutorials on how to use important software packages as well as a “Professional Preparation” module through studies of communication (writing and speaking skills), ethics, leadership and teamwork. This course is ideal for any freshman interested in exploring the possibility of studying engineering at Penn. The course counts as an engineering requirement in SEAS.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ENGR 105 Introduction to Scientific Computing
This course will provide an introduction to computation and data analysis using MATLAB - an industry standard programming and visualization environment. The course will cover the fundamentals of computing including: variables, functions, decisions, iteration, and recursion. These concepts will be illustrated through examples and assignments which show how computing is applied to various scientific and engineering problems. Examples will be drawn from the simulation of physical and chemical systems, the analysis of experimental data, Monte Carlo numerical experiments, image processing, and the creation of graphical user interfaces. This course does not assume any prior programming experience but will make use of basic concepts from calculus and Newtonian physics.
Activity: Lecture
1 Course Unit

ENGR 212 Concepts in Micro- and Nanotechnology
Seminar/Lecture course on micro- and nanotechnology intended for nonspecialists. This course will discuss how very small structures and devices, as well as systems comprising these devices, are fabricated and characterized, with application examples from microelectronics, microelectromechanical systems, and quantum devices and systems. Current societal and ethical implications of micro- and nanotechnology, as well as creation and exploitation of commercial opportunities, will be discussed.
One-term course offered either term
Prerequisites: Math 104 and Physics 93/140 (or higher), or permission of the instructor
Activity: Lecture
1 Course Unit

ENGR 250 Energy Systems, Resources and Technology
The course will present a comprehensive overview of the global demand for energy, and the resource availability and technology used in its current and future supply. Through a personal energy audit, students will be made aware of the extensive role that energy plays in modern life, both directly, through electricity and transportation fuel, and indirectly in the manufacturing of goods they use. The course will cover how that energy is supplied, the anticipated global growth in energy demand, the resource availability and the role of science and technology in meeting that demand in a world concerned about climate change. The roles of conservation, improved efficiency and renewable energy in meeting future demand in a sustainable, environmentally benign way will be covered.
One-term course offered either term
Prerequisites: Basic understanding of chemistry and physics
Activity: Lecture
1 Course Unit

ENGR 503 Engineering in Oil, Gas and Coal, from Production to End Use
While conventional wisdom is that the world is running out of fossil fuels, technical advances such as deep water production, directional drilling, hydrofracturing, and the refining of non-conventional crude oil sources has increased the resource base significantly and there are well over 100 years of reserves of oil, natural gas and coal. The effect of technology advances has been most profound in the United States, where net energy imports are projected to fall to 12% of consumption by 2020. Excellent, highly technical careers are available in these industries, with opportunities to reduce their impact on the environment and in particular on climate change. The course will cover engineering technology in oil, natural gas and coal from production through end use. It will equip graduating students with the knowledge to contribute in these industries and to participate in informed debate about them.
One-term course offered either term

ENGR 504 Fundamental Concepts in Nanotechnology
This is a Master’s level course that seeks to teach the physics needed to begin a study of engineering and science at the nanometer scale. Since the nanometer scale is so close to the quantum scale, much of the course deals with an introduction to quantum mechanics but the course also includes discussions in solid-state physics, electricity and magnetism and mechanics. The objective of the course is to teach the physics that an engineering student would need to have in order to do experimental work at the nanometer scale. In addition, this course will prepare the student to take more advanced courses in the Nanotechnology Program.
One-term course offered either term
Prerequisites: Some Differential Equations, Senior or Master’s standing in Engineering or permission of the instructor
Activity: Lecture
1 Course Unit
ENGINEERING MATHEMATICS (ENM)

ENM 240 Differential Equations and Linear Algebra
This course discusses the theory and application of linear algebra and differential equations. Emphasis is placed on building intuition for the underlying concepts and their applications in engineering practice along with tools for solving problems. We will also use computer simulations in MATLAB to augment this intuition.
One-term course offered either term
Prerequisite: Math 114 or equivalent
Activity: Lecture
1 Course Unit

ENM 251 Analytical Methods for Engineering
This course introduces students to physical models and mathematical methods that are widely encountered in various branches of engineering. Illustrative examples are used to motivate mathematical topics including ordinary and partial differential equations, Fourier analysis, eigenvalue problems, and stability analysis. Analytical techniques that yield exact solutions to problems are developed when possible, but in many cases, numerical calculations are employed using programs such as Matlab and Maple. Students will learn the importance of mathematics in engineering.
Course usually offered in spring term
Prerequisites: MATH 240 or equivalent along with sophomore standing in SEAS, or permission of the instructor(s)
Activity: Lecture
1 Course Unit

ENM 321 Engineering Statistics
This is a first course in applied statistics and probability for students in engineering. The course covers basic concepts of probability, discrete and continuous random variables, probability distributions, data description techniques, random samples, estimations, hypothesis testing, regression, and statistical quality control.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ENM 360 Introduction to Data-driven Modeling
From recognizing voice, text or images to designing more efficient airplane wings and discovering new drugs, machine learning is introducing a transformative set of tools in data analysis with increasing impact across engineering, sciences, and commercial applications. In this course, you will learn about principles and algorithms for extracting patterns from data and making effective automated predictions. We will cover concepts such as regression, classification, density estimation, feature extraction, sampling and probabilistic modeling, and provide a formal understanding of how, why, and when these methods work in the context of analyzing physical, biological, and engineering systems.
One-term course offered either term
Prerequisites: ENGR 105, MATH 240, basic programming
Activity: Lecture
1 Course Unit

ENM 375 Biological Data Science I - Fundamentals of Biostatistics
The goal of this course is to equip bioengineering undergraduates with fundamental concepts in applied probability, exploratory data analysis and statistical inference. Students will learn statistical principles in the context of solving biomedical research problems.
Course usually offered in spring term
Prerequisites: Sophomores and Juniors only.
Activity: Lecture
1 Course Unit

ENM 427 Finite Elements and Applications
The objective of this course is to equip students with the background needed to carry out finite elements-based simulations of various engineering problems. The first part of the course will outline the theory of finite elements. The second part of the course will address the solution of classical equations of mathematical physics such as Laplace, Poisson, Helmholtz, the wave and the Heat equations. The third part of the course will consist of case studies taken from various areas of engineering and the sciences on topics that require or can benefit from finite element modeling. The students will gain hand-on experience with the multiphysics, finite element package FemLab.
Course usually offered in fall term
Prerequisites: MATH 241 or ENM 251 and PHYS 151
Activity: Lecture
1 Course Unit

ENM 502 Numerical Methods and Modeling
This course provides an advanced introduction to various numerical methods for solving systems of algebraic equations (linear and non-linear) and differential equations (ordinary and partial). Techniques covered include Newton's method, implicit and explicit time stepping, and the finite difference and finite element methods. The MATLAB software package will be used to implement the various methods and execute representative calculations.
Course usually offered in spring term
Prerequisites: Basic knowledge of a computer programming language; MATH 240, 241 and/or ENM 510 (or their equivalents) are highly recommended
Activity: Lecture
1 Course Unit
ENM 503 Introduction to Probability and Statistics
Course usually offered in fall term
Prerequisite: MATH 240 or equivalent
Activity: Lecture
1 Course Unit

ENM 510 Foundations of Engineering Mathematics - I
This is the first course of a two semester sequence, but each course is self contained. Over the two semesters topics are drawn from various branches of applied mathematics that are relevant to engineering and applied science. These include: Linear Algebra and Vector Spaces, Hilbert spaces, Higher-Dimensional Calculus, Vector Analysis, Differential Geometry, Tensor Analysis, Optimization and Variational Calculus, Ordinary and Partial Differential Equations, Initial-Value and Boundary-Value Problems, Green’s Functions, Special Functions, Fourier Analysis, Integral Transforms and Numerical Analysis. The fall course emphasizes the study of Vector Analysis: space curves, Frenet-Serret formulas, vector theorems, reciprocal systems, co- and contra-variant components, orthogonal curvilinear systems. Matrix theory: Gauss-Jordan elimination, eigenvalues and eigenvectors, quadratic and canonical forms. Variational calculus: Euler-Lagrange equation. Tensor Analysis: Einstein summation, tensors of arbitrary order, dyads and polyads, outer and inner products, quotient law, metric tensor, Euclidean and Riemannian spaces, physical components , covariant differentiation, detailed evaluation of Christoffel symbols, Ricci’s theorem, intrinsic differentiation, generalized acceleration, Geodesics. The spring course emphasizes the study of Vector Analysis: space curves, Frenet-Serret formulas, vector theorems, reciprocal systems, co- and contra-variant components, orthogonal curvilinear systems. Matrix theory: Gauss-Jordan elimination, eigenvalues and eigenvectors, quadratic and canonical forms. Variational calculus: Euler-Lagrange equation. Tensor Analysis: Einstein summation, tensors of arbitrary order, dyads and polyads, outer and inner products, quotient law, metric tensor, Euclidean and Riemannian spaces, physical components, covariant differentiation, detailed evaluation of Christoffel symbols, Ricci’s theorem, intrinsic differentiation, generalized acceleration, Geodesics.
Course usually offered in spring term
Prerequisite: ENM 510 or equivalent
Activity: Lecture
1 Course Unit

ENM 512 Nonlinear Dynamics and Chaos
Prerequisites: Some Differential Equations and Senior or Master’s standing in Engineering or permission of the instructor.
Activity: Lecture
1 Course Unit
ENM 520 Principles and Techniques of Applied Math I
This course is targeted to engineering PhD students in all areas. It will focus on the study of linear spaces (both finite and infinite dimensional) and of operators defined on such spaces. This course will also show students how powerful methods developed by the study of linear spaces can be used to systematically solve problems in engineering. The emphasis in this course will not be on abstract theory and proofs but on techniques that can be used to solve problems. Some examples of techniques that will be studied include Fourier series, Green’s functions for ordinary and partial differential operators, eigenvalue problems for ordinary differential equations, singular value decomposition of matrices, etc.
Course usually offered in fall term
Prerequisites: Basic theory of ordinary and partial differential equations
Activity: Lecture
1 Course Unit

ENM 521 Principles and Techniques of Applied Math II
This course is a continuation of ENM 520 (or equivalent) and deals with classical methods in applied mathematics. The topics to be covered include: Functions of a Complex Variable, Partial Differential Equations, Asymptotic and Perturbation Methods, and Convex Analysis and Variational Methods.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ENM 540 Topics In Computational Science and Engineering
This course is focused on techniques for numerical solutions of ordinary and partial differential equations. The content will include: algorithms and their analysis for ODEs; finite element analysis for elliptic, parabolic and hyperbolic PDEs; approximation theory and error estimates for FEM.
Course not offered every year
Prerequisites: Background in ordinary and partial differential equations; proficiency in a programming language such as MATLAB, C, or Fortran
Activity: Lecture
1 Course Unit
ENGLISH (ENGL)

ENGL 001 Approaches to Genre
Usually housed in the Program for Comparative Literature, this seminar engages questions of literary genre, including its function as a mediating presence for thinking about audience, literary history, and the marketplace. The theme of the seminar will change with the instructor. Customarily this course will be affiliated with Communication within the Curriculum (CWIC), and so will have a speaking and presentation component to it. See the English Department’s website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 002 Approaches to Literary Studies
Usually housed in the program for Comparative Literature, this seminar engages questions of method and interdisciplinarity. It will therefore cover not only a range of approaches to literary texts, but also explore how the methodologies of other disciplines might be brought efficaciously to bear on the objects of literary study. The theme of the seminar will change with the instructor. Customarily this course will be affiliated with Communication within the Curriculum (CWIC), and so will have a speaking and presentation component to it. See the English Department’s website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 003 Introduction to Queer Theory
This course provides an introduction to the field of queer studies. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 009 Introduction to Digital Humanities
This course provides an introduction to foundational skills common in digital humanities (DH). It covers a range of new technologies and methods and will empower scholars in literary studies and across humanities disciplines to take advantage of established and emerging digital research tools. Students will learn basic coding techniques that will enable them to work with a range data including literary texts and utilize techniques such as text mining, network analysis, and other computational approaches. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 010 Introduction to Creative Writing
A course designed to introduce students to many of the elements of creative writing, including fiction, poetry, journalism, creative nonfiction, and memoir. Students can expect to read from a variety of assigned texts, respond to regular writing prompts, and workshop their own creative work in a collaborative setting. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course does not satisfy the writing requirement.

ENGL 015 Topics in Literature
An introduction to Writing about Literature, with emphasis on a particular theme, genre, or period. See the English Department’s website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: https://www.english.upenn.edu

ENGL 016 Topics in Literature
Freshman Seminars under the title "Topics in Literature" will afford entering students who are considering literary study as their major the opportunity to explore a particular and limited subject with a professor whose current work lies in that area. Topics may range from the lyric poems of Shakespeare's period to the ethnic fiction of contemporary America. Small class-size will insure all students the opportunity to participate in lively discussions. Students may expect frequent and extensive writing assignments, but these seminars are not writing courses; rather, they are intensive introductions to the serious study of literature. One of them may be counted toward the English major and may be applied to a period, genre, or thematic requirement within the major.
See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Freshman Seminar

ENGL 018 Old English
This course introduces students to the powerful and influential corpus of Old English literature. We will read a wide variety of texts: short poems such as The Wonderer, The Seafarer, The Wife’s Lament and the passionate religious poem The Dream of The Rood; chronicles such as The Battle Of Maldon Against The Vikings, The Old Testament, Exodus and Beđe’s Conversion Of The English; and selections from the greatest of all English epics, Beowulf. Readings will be in Old English, and the first few weeks of the course will be devoted to mastering Old English prosody, vocabulary, and grammar (as well as a crash course on the early history of the English language). During the last few weeks we may read modern criticism of Old English poetry, or we will consider the modern poetic reception of Old English literature and explore theories and problems of translation, reading translations of Old English poems by Yeats, Auden, Tolkien, and Heaney. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 020 Literature Before 1660
This course will introduce students to key works of English literature written before 1660. It will explore the major literary genres of this period, as well as the social and cultural contexts in which they were produced. The course will examine how literature texts articulate changes in language and form, as well as in concepts of family, nation, and community during the medieval and early modern periods. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
ENGL 021 Medieval Literature and Culture
This course introduces students to four hundred years of English literary culture, from approximately 1100 to 1500. This period was marked by major transformations, not only with respect to government, law, religious practice, intellectual life, England’s relation to the Continent (during the 100 Years War), the organization of society (especially after the Black Death), the circulation of literary texts, and the status of authors. Topics may include medieval women writers, manuscript production, literatures of revolt, courtly culture, Crusades, cross-Channel influences, and religious controversy. See the English Department’s website at www.english.upenn.edu for a description of the current offerings. 
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 022 Romance
This course will focus on what is arguably the most extravagant, adventuresome, and fantastical of the literary genres: the Romance. We will read a number of medieval and renaissance romance narratives, in verse and prose, beginning with the Arthurian romances (Malory’s Morte D’Arthur, Sir Gawain And The Green Knight) and continuing with as many (and as much) of the great renaissance romances as time will allow: Sir Philip Sidney’s Arcadia, Edmund Spenser’s The Faerie Queen, and Lady Mary Wroth’s Urania. See the English Department’s website at www.english.upenn.edu for a description of the current offerings. 
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 024 Introduction to American and British Film and Media
This is a course on the history of Hollywood. It seeks to unravel Hollywood’s complex workings and explain how the business and politics of the film industry translate into the art of film. We will trace the American film industry from Edison to the internet, asking questions such as: What is the relationship between Hollywood and independent film? How has the global spread of Hollywood since the 1920s changed the film industry? How has Hollywood responded to crises in American politics (e.g., world wars, the cold war, terrorism)? And how have new technologies such as synchronized sound and color cinematography, television and the VCR, and new digital technologies changed film and the film industry? We will look closely at representative studios (Paramount, Disney, and others), representative filmmakers (Mary Pickford, Frank Capra, and George Lucas, among many others), and we will examine the impact of industrial changes on the screen. See the English Department’s website at www.english.upenn.edu for a description of the current offerings. 
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 025 The Age of Chaucer
In this class we come to speak as people spoke in England some six centuries ago: in medieval or ‘Middle’ English. We do this by reading the poetry of Geoffrey Chaucer, a great poet who has influenced everyone from William Shakespeare to Sylvia Plath. Since Middle English takes some getting used to, class assignments are not heavy: usually about 800 lines per class. A typical class might begin by looking at a few of the easier passages in the Canterbury Tales, proceed to reading the greatest poem of love in the English language (Chaucer’s Troilus And Criseyde), before moving on to other contemporary writers in medieval culture. We will likely compare representations of medieval Christianity, Judaism, and Islam, as well as aspects of film adaptation by Italian filmmaker Pasolini (and perhaps by Chaucer scholar Terry Jones). We will consider what it might have been like to live secure in an age of faith; yet to live insecure, as a dizzying new profusion of trades and occupations sprang up in unprecedented “divisions of labor.” We will imagine being a medieval woman, and may visit and handle medieval manuscripts. Above all, we will enjoy the poetry. See the English Department’s website at www.english.upenn.edu for a description of the current offerings. 
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 026 Early Drama
Early drama in English had its roots as much in Christianity as in Classical antiquity. What grew into the theater of Shakespeare began as networks of strolling players and church authorities in market towns sponsoring cycles of "miracle" and "mystery" plays. This course will introduce students to major dramatic works of the medieval and early modern periods, including plays written for the public stage, closet dramas, masques, mayoral pageants and other kinds of performances. The course will also pay attention to the development of different dramatic genres during these periods, as well as the social and cultural contexts in which they were produced. Students thus will explore the history of drama in English through the renaissance to the closing of the theaters in 1641 and their eventual reopening in 1660. See the English Department’s website at www.english.upenn.edu for a description of the current offerings. 
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 029 Classical Antiquity and English Literature
This course will examine the relationship between English literature and that of ancient Greece and Rome. At times we will discuss how classical theories of genre and aesthetics were appropriate and reinvented in medieval, renaissance, and seventeenth-century texts. What does it mean to call Hamlet and Oedipus The King tragedies, or The Frogs and The Way Of The World comedies? Should we consider the development of English drama and poetry as an extension of an imposing classical tradition or as a sustained and resistant response to it? See the English Department’s website at www.english.upenn.edu for a description of the current offerings. 
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: ?Formerly ENGL 096?
ENGL 031 Introduction to Renaissance Literature and Culture
This course will survey the cultural history of sixteenth and seventeenth century England. Interdisciplinary in nature and drawing on the latest methodologies and insights of English studies, we will explore how aesthetics, politics, social traditions, impacted literature at this vital and turbulent time of English history. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: ?Formerly ENGL 030?

ENGL 033 The Bible As Literature
Successive generations have found the Bible to be a text which requires - even demands - extensive interpretation. This course explores the Bible as literature, considering such matters as the artistic arrangement and stylistic qualities of individual episodes as well as the larger thematic patterns of both the Old and New Testaments and the Apocrypha. A good part of the course is spent looking at the place of the Bible in cultural and literary history and the influence of such biblical figures as Adam and Eve, David, and Susanna on writers of poetry, drama, and fiction in the English and American literary traditions. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 034 Cultures of The Book
The impact of various technologies (from writing to various forms of manuscript to print to electronics) on the way the written word gives shape to a culture. The emphasis is on western cultures from Plato to the present, but participation by students with interest or expertise in non-western cultures will be of great value to the group as a whole. The course offers an ideal perspective from which students can consider meta-issues surrounding their own special interests in a wide variety of fields, as well as learn to think about the way in which traditional fields of study are linked by common inherited cultural practices and constructions. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Humanities and Social Science S
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: ?Formerly ENGL 071?

ENGL 038 The Age of Milton
The seventeenth century was a time of revolution and upheaval, of excesses both puritanical and cavalier. It saw the execution of one kind and the restoration of another, and survived the English Civil War and the Great Fire and Great Plague of London. This course explores the literature of this century through the works of John Milton's major works (selected sonnets, Comus, Areopagitica, Paradise Lost, Paradise Regained, and Samson Agonistes), and his contemporaries. We will concentrate on a number of issues that governed writing in the period, particularly the tension between individual interiority and historical, social and political activity. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 040 British Poetry 1660 - 1914
This course provides students with a survey of British poetry and poetics from the Restoration to the Modern period, and usually will include writers ranging from Aphra Behn and Alexander Pople to Thomas Hardy. The course may be offered in various forms, some covering less, and some more historical back ground. Most will provide a sampling of eighteenth-century, Romantic, and Victorian poets. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 041 18th-Century British Literature
An introduction to British literary and cultural history in the eighteenth century. Typically, this course will contain materials from the later seventeenth to the early nineteenth centuries—from the Restoration and Glorious Revolution through the Enlightenment, the American and French Revolutions, and the Napoleonic Wars—though it need not cover the entire period. We will read plays, poetry and prose in order to understand the aesthetic, intellectual, social and political issues of literary production and achievement in this period. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 045 18th-Century Novel
This survey of the novel addresses key questions about the novel's "rise" in the eighteenth century on both sides of the Atlantic, as well as attending to the cultural conditions that attended this new literary form. How did the concurrent "rise" of the middle classes and the emergence of an increasingly female reading public affect the form and preoccupations of early novels? What role did institutions like literary reviews, libraries, and the church play in the novel's early reception? While reading will vary from course to course, students should expect to read authors such as Austen, Behn, Brockden Brown, Burney, Defoe, Fielding, Richardson, Rowlandson, Rowson, Scott, and Smollett. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
ENGL 046 Drama from 1660 - 1840
This course surveys drama from the Restoration through the Romantic period, and in so doing explores arguably the most tumultuous period of British and American Theater history. These years saw the reopening of the theaters in London in 1660 after their having been closed through two decades of Civil War and Puritan rule. They witnessed the introduction of actresses to the stage, the development of scenery and the modern drop-apron stage, the establishment of theatrical monopolies in 1660 and stringent censorship in 1737, and the gradual introduction, acceptance, and eventual celebration of the stage in America. Perhaps most importantly, they oversaw some of the best comedies and farces in the English language, the introduction of pantomime and the two-show evening, sustained experimentation with music and spectacle on stage, and the transformation of tragedy into a star vehicle for actors and actresses like David Garrick, Sarah Siddons, John Philip Kemble, and Edmund Kean. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 050 The Romantic Period
This course offers an introduction to the literature of the Romantic period (ca. 1770-1830). Some versions of this course will incorporate European romantic writers, while others will focus exclusively on Anglo-American romanticism, and survey authors such as Austen, Blake, Brodken Brown, Byron, Coleridge, Emerson, Irving, Keats, Radcliffe, Scott, Shelley, and Wordsworth. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 051 19th-Century British Literature
In 1815 in the wake of the battle of Waterloo, Great Britain controlled a staggering quarter of the world's landmass and half of its gross national product. This course will begin with the Napoleonic Wars and this Regency afterward to survey a century of British literature – from Romanticism through the revolutions of 1848 and the Victorian and Edwardian periods to the beginning of the first World War. Most versions of this course will read both novels and poetry, often focusing on the relation between the two and their function within nineteenth century culture. Others may incorporate drama and non-fiction prose. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 052 19th-Century American Literature
A consideration of outstanding literary treatments of American culture from the early Federalist period to the beginnings of the First World War. We will traverse literary genres, reading autobiographies and travel accounts as well as fiction and poetry. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 083?

ENGL 054 Sounding Poetry: Music and Literature
Never before has poetry been so inescapable. Hip hop, the soundtrack of our times, has made rhyme, meter, and word-play part of our daily lives. How did this happen? This course begins not on the page, but in the bardic traditions of Homer's Iliad, which encoded many of the values of its time in oral formulas. Poetry was, however, no mere encyclopedia, but also a source of risk, as we will read in Plato's warning against its hypnotic powers, and in the excesses of the Bacchae. We continue through 19th and 20th century attempts to recover these classic traditions (Wordsworth, Longfellow, Pound). Yet Europe was not the only center of poetic production. How does the Homeric tradition relate to living traditions of West African singing poets (griots) and Southern African praise songs? And what traces of these traditions can we hear in the blues? We will listen to early blues recordings and discuss the politics of collecting folklore, and the genius of African American modernists (Langston Hughes, Claude McKay, Georgia Douglas Johnson) who bought vernacular speech onto the page. We will read and listen to a number of 20th century poets inspired when page meets stage in jazz poetry, dub poetry, spoken word, and hip hop. Assignments will include 2 papers, 2 small-group performances, memorization exercises, and a creative adaptation of one poem. See the English Department's website at www.english.upenn.edu for a description of current offerings.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ENGL 055 19th-Century Novel
During the nineteenth century the novel became the dominant literary form of its day, supplanting poetry and drama on both sides of the Atlantic. In this introduction to the novelists of the period, we will read the writers who secured the novel's cultural respectability and economic prominence. Likely authors will include Austen, the Brontes, Collins, Dickens, Eliot, Hardy, Hawthorne, Melville, Poe, Thackeray, Scott, and Stowe. The course will explore the themes, techniques, and styles of the nineteenth-century novel. It will focus not only on the large structural and thematic patterns and problems within each novel but also on the act of reading as a historically specific cultural ritual in itself. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 056 Modern Drama
This course will explore the major dramatic and theatrical movements that constitute the "modern," from the successive rises of melodrama and "realism" in the nineteenth century, to those theatrical aesthetics that positioned themselves beyond or against realism at the turn of the twentieth century, to the present day. We'll explore political theatre, the invention of the avant garde, the rise of the auteur-director, performance art, feminist and queer theatres, and the integration of non-western theatre into shared theatre practice in the colonial and post-colonial world. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
ENGL 057 Literature of the Americas to 1900
This course examines U.S. literature and culture in the context of the global history of the Americas. Historical moments informing the course will range from the origins of the Caribbean slave-and-sugar trade at the beginning of the nineteenth century, to the Monroe Doctrine of 1823 and the U.S. Mexico and Spanish-American wars. Readings will include works by authors such as Frances Calderon de la Barca, Frederick Douglass, Helen Hunt Jackson, Henry Wadsworth Longfellow, Jose Marti, Herman Melville, John Rollin Ridge, Maria Amparo Ruiz de Burton, and Felix Varela. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Formerly ENGL 080

ENGL 058 Irish Literature
This course will provide an introduction to modern Irish literature, focusing on the tension between Ireland’s violent history and its heroic mythology. This tension leaves its mark not only on the ravaged landscape, but also on the English language, which displays its “foreignness” most strongly in the hands of Irish writers. Readings will span the genres of poetry, drama, fiction, and history, and will include works by Somerville and Ross, Yeats, George Moore, Joyce, Synge, O’Casey, Beckett, Edna O’Brien, and Brian Friel. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Formerly ENGL 063?

ENGL 059 Modernisms and Modernities
This class explores the international emergence of modernism, typically from the middle of the 19th century to the middle of the 20th century. We will examine the links between modernity, the avant-garde, and various national modernisms that emerged alongside them. Resolutely transatlantic and open to French, Spanish, Italian, German, or Russian influences, this course assumes the very concept of Modernism to necessitate an international perspective focusing on the new in literature and the arts — including film, the theatre, music, and the visual arts. The philosophies of modernism will also be surveyed and concise introductions provided to important thinkers like Marx, Nietzsche, Sorel, Bergson, Freud, and Benjamin. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 060 Rise of the Novel
This course explores the history of the British novel and the diverse strategize of style, structure, characterization, and narrative techniques it has deployed since the late seventeenth century. While works from the eighteenth and nineteenth centuries will form the core of the reading, some versions of this course will include twentieth-century works. All will provide students with the opportunity to test the advantages and limitations of a variety of critical approaches to the novel as a genre. Readings may include works by Behn, Swift, Defoe, Richardson, Fielding, Lennox, Smollett, Smollett, Scott, Austen, the Brontes, Dickens, Eliot, Hardy, Conrad, Joyce, Lawrence, Woolf, Rhys, Greene, Naipaul, Carter, Rushdie, and Coetzee. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 061 20th-Century British Literature
This course introduces major works in twentieth-century British literature. We will read across a range of fiction, poetry, plays, and essays, and will consider aesthetic movements such as modernism as well as historical contexts including the two World Wars, the decline of empire, and racial and sexual conflict. Authors treated might include: Conrad, Yeats, Joyce, Eliot, Lawrence, Forster, Shaw, Woolf, Auden, Orwell, Beckett, Achebe, Rhys, Synge, Naipaul, Rushdie, Heaney, and Walcott. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 062 20th-Century Poetry
From abstraction to beat, from socialism to negritude, from expressionism to ecopoetry, from surrealism to visual poetry, from collage to digital poetry, the poetry of the twentieth century has been characterized by both the varieties of its forms and the range of its practitioners. This course will offer a broad overview of many of the major trends and a few minor eddies in the immensely rich, wonderfully varied, ideologically and aesthetically charged field. The course will cover many of the radical poetry movements and individual innovations, along with the more conventional and idiosyncratic work, and will provide examples of political, social, ethnic, and national poetics, both in the Americas and Europe, and beyond to the rest of the world. While most of the poetry covered will be in English, works in translation, and indeed the art of translation, will be an essential component the course. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
ENGL 064 Modern America
This course is concerned with American literature and cultural life from the turn of the century until about 1950. The course emphasizes the period between the two World Wars and emphasizes as well the intellectual and cultural milieu in which the writers found themselves. Works by the following writers are usually included: James, Eliot, Frost, Fitzgerald, Faulkner, West, Stevens, DuBois, Williams, Wharton, Stein, West, Moore, and Hemingway. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: ?Formerly ENGL 084?

ENGL 065 20th-Century British Novel
This course traces the development of the novel across the twentieth-century. The course will consider the formal innovations of the modern novel (challenges to realism, stream of consciousness, fragmentation, etc.) in relation to major historical shifts in the period. Authors treated might include: Conrad, Lawrence, Joyce, Forster, Woolf, Cather, Faulkner, Hemingway, Achebe, Greene, Rhys, Baldwin, Naipaul, Pynchon, Rushdie, and Morrison. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 067 American Theatre and Performance
This course examines the development of the modern American theatre from the turn of the century to the present day. Progressing decade by decade the course investigates the work of playwrights such as Eugene O'Neil, Arthur Miller, Tennessee Williams, Edward Albee, David Mamet, August Wilson and Tony Kushner, theatre companies such as the Provincetown Players and the Group Theatre, directors, actors, and designers. Some focus will also be given to major theatrical movements such as the Federal Theatre Project, Off-Broadway, regional theatre, experimental theatre of the Sixties, and feminist theatre. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 069 Poetry and Poetics
What is poetry and what place does it have among literary forms? What is its relation to culture, history, and our sense of speakers and audiences? This course will focus on various problems in poetic practice and theory, ranging from ancient theories of poetry of Plato and Aristotle to contemporary problems in poetics. In some semesters a particular school of poets may be the focus; in others a historical issue of literary transmission, or a problem of poetic genres, such as lyric, narrative, and dramatic poetry, may be emphasized. The course will provide a basic knowledge of scansion in English with some sense of the historical development of metrics. This course is a good foundation for those who want to continue to study poetry in literary history and for creative writers concentrating on poetry. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 070 Latina/o Literature and Culture
A survey of cultural productions by Latinas/os (i.e. people of Latin American descent who have been raised in the U.S.) that usually will focus on the twentieth century, but might at times examine earlier periods instead. The course will take a culturally and historically informed approach to a wide range of novels, poems, plays, and films, and will sometimes include visual art and music. Writers and artists might include Americo Paredes, Piri Thomas, Cherrie Moraga, Sandra Cisneros, Julia Alvarez, Junot Diaz, Cristina Garcia, El Teatro Campesino, John Leguizamo, Carmen Lomas Garza, the Hernandez Brothers, and Los Tigres del Norte. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 071 Literature of Africa and the African Diaspora
This course will serve as an introduction to a particularly rich arena of literature in English. It will also help students to begin to understand many other racial subtexts underlying the culture wars in America, where too often, in the full glare of cameras, an anguished voice informs the audience that 'as an African, I cannot expect justice in this America.' See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Humanities and Social Science Sector
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 072 Asian American Literature
An overview of Asian American literature from its beginnings at the turn of the twentieth century to the present. This course covers a wide range of Asian American novels, plays, and poems, situating them in the contexts of American history and minority communities and considering the variety of formal strategies these different texts take. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 074 Contemporary American Literature
The readings for this course expose the student to a wide range of American fiction and poetry since World War II, giving considerable attention to recent work. Works may include All The King's Men by Robert Penn Warren, Herzog by Saul Bellow, On The Road by Jack Kerouac, V by Thomas Pynchon, Of Love and Dust by Ernest J.Gaines, A Flag For Sunrise by Robert Stone, The Killing Ground by Mary Lee Settle, and selected poem by Ginsberg, Plath, and Walcott. Readings vary from term to term. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: ?Formerly ENGL 085?
ENGL 075 Science and Literature
This course will explore the emergence of modern science fiction as a genre, the ways it has reflected our evolving conceptions of ourselves and the universe, and its role as the mythology of modern technological civilization. We will discuss such characteristic themes as utopias, the exploitation of space and time, biological engineering, superman, robots, aliens, and other worlds—and the differences between European and American treatment of these themes. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 078 Television and New Media
As a complex cultural product, television lends itself to a variety of critical approaches that build-on, parallel, or depart from film studies. This introductory course in television studies begins with an overview of the medium's history and explores how technical and industrial changes correspond to developing conventions of genre, programming, and aesthetics. Along the way, we analyze key concepts and theoretical debates that shaped the field. In particular, we will focus on approaches to textual analysis in combination with industry research, and critical engagements with the political, social and cultural dimensions of television as popular culture. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 079 Jewish-American Literature
This topic course explores aspects of Hebrew Literature, Film and Culture. Specific course topics vary from semester to semester. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 080 Literatures of Jazz
That modernism is steeped as much in the rituals of race as of innovation is most evident in the emergence of the music we have come to know as jazz, which results from collaborations and confrontations taking place both across and within the color line. In this course we will look at jazz and the literary representations it engendered in order to understand modern American culture. We will explore a dizzying variety of forms, including autobiography and album liner notes, biography, poetry, fiction, and cinema. We'll examine how race, gender, and class influenced the development of jazz music, and then will use jazz music to develop critical approaches to literary form. Students are not required to have a critical understanding of music. Class will involve visits from musicians and critics, as well as field trips to some of Philadelphia's most vibrant jazz venues. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 081 African-American Literature
An introduction to African-American literature, typically ranging across a wide spectrum of moments, methodologies, and ideological postures, from Reconstruction and the Harlem Renaissance to the Civil Rights Movement. Most versions of this course will begin in the 19th century; some versions of the course will concentrate only on the modern period. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 082 Native-American Literature
From oral traditions to Youtube videos of Native American hip hop, this course surveys the diverse body of Native American literature through its many transformations across the centuries. The course will focus primarily on contemporary Native American literature, an era known as the Native American Renaissance. We will read literary works by Black Elk, Leslie Marmon Silko, Sherman Alexie, N. Scott Momaday, and others. The course will also include films such as Smoke Signals and Whale Rider. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 084 Music and Literature
This course introduces students to the intersection of music (both instrumental and lyrical) and literature. Some versions of the course may focus on the long history of intersection between these two media; others may focus on a particular moment, genre, or style. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit
ENGL 085 War and Representation
This class will explore complications of representing war in the 20th and 21st centuries. War poses problems of perception, knowledge, and language. The notional "fog of war" describes a disturbing discrepancy between agents and actions of war; the extreme nature of the violence of warfare tests the limits of cognition, knowledge, and memory; war's traditional dependence on declaration is often warped by language games—"police action," "military intervention," "nation-building," or palpably unnamed and unacknowledged state violence. Faced with the radical uncertainty that forms of war bring, modern and contemporary authors have experimented in historically, geographically, experientially and artistically particular ways, forcing us to reconsider even seemingly basic definitions of what a war story can be. Where does a war narrative happen? On the battlefield, in the internment camp, in the suburbs, in the ocean, in the ruins of cities, in the bloodstream? Who narrates war? Soldiers, refugees, gossips, economists, witnesses, bureaucrats, survivors, children, journalists, descendants and inheritors of trauma, historians, those who were never there? How does literature respond to the rise of terrorist or ideology war, the philosophical and material consequences of biological and cyber wars, the role of the nuclear state? How does the problem of war and representation disturb the difference between fiction and non-fiction? How do utilitarian practices of representation—propaganda, nationalist messaging, memorialization, xenophobic depiction—affect the approaches we use to study art? Finally, is it possible to read a narrative barely touched or merely contextualized by war and attend to the question of war's shaping influence? The class will concentrate on literary objects—short stories, and graphic novels—as well as film and television. Students of every level and major are welcome in and encouraged to join this class, regardless of literary experience. For BA Students: Humanities and Social Science S Taught by: Fischler One-term course offered either term Activity: Seminar 1 Course Unit

ENGL 086 Artist in Residence
This course offers students the opportunity to study with a major figure in contemporary literature, culture, and the arts. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Lecture 1 Course Unit

ENGL 087 Theatre, History and Culture I, Classical Athens to Elizabethan London
This course will explore the forms of public performance, most specifically theatre, as they emerge from and give dramatic shape to the dynamic life of communal, civic and social bodies, from their anthropological origins in ritual and religious ceremonies, to the rise of great urban centers, to the closing of the theaters in London in 1642. This course will focus on development of theatre practice in both Western and non-Western cultures intersects with the history of cities, the rise of market economies, and the emerging forces of national identity. In addition to examining the history of performance practices, theatre architecture, scenic conventions and acting methods, this course will investigate, where appropriate, social and political history, the arts, civic ceremonies and the dramaturgic structures of urban living. See the English Department's website at www.english.upenn.edu for a description of the current offerings. For BA Students: Arts and Letters Sector One-term course offered either term Activity: Lecture 1 Course Unit

ENGL 088 American Poetry
Some versions of this course survey American poetry from the colonial period to the present, while others begin with Whitman and Dickinson and move directly into the 20th century and beyond. Typically students read and discuss the poetry of Williams, Stein, Niedecker, H.D., Pound, Stevens, Fearing, Rakoksi, McKay, Cullen, Wilbur, Plath, Rich, Ginsberg, Kerouac, Waldman, Creeley, Ashberry, O'Hara, Corman, Bernstein, Howe, Perelman, Silliman, and Retallack. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Lecture 1 Course Unit

ENGL 089 American Fiction
Some versions of this course survey the American novel from its beginnings to the present, focusing on the development of the form, while others concentrate on the development of American fiction in one or two periods. Readings may include novels by writers such as Brown, Cooper, Hawthorne, Melville, Wharton, Morrison, Twain, James, Adams, Chopin, Howells, Norris, Whitman, Dreiser, Fitzgerald, Hemingway, Faulkner, Dos Passos, Ellison, and Nabokov. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Lecture 1 Course Unit
ENGL 090 Gender, Sexuality, and Literature
This course will focus on questions of gender difference and of sexual desire in a range of literary works, paying special attention to works by women and treatments of same-sex desire. More fundamentally, the course will introduce students to questions about the relation between identity and representation. We will attend in particular to intersections between gender, sexuality, race, class, and nation, and will choose from a rich vein of authors: Mary Wollstonecraft, Jane Austen, Mary Shelley, Lord Byron, the Brontes, Christina Rossetti, George Eliot, Oscar Wilde, Henry James, Gertrude Stein, Zora Neale Hurston, E. M. Forster, Virginia Woolf, Nella Larsen, Radclyffe Hall, Willa Cather, Elizabeth Bishop, Jean Rhys, James Baldwin, Sylvia Plath, Bessie Head, Audre Lorde, Adrienne Rich, Cherrie Moraga, Toni Morrison, Michael Cunningham, Dorothy Allison, Jeanette Winterson, and Leslie Feinberg. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 091 World Film History to 1945
This course is an introduction to the history of cinema from the 1890s to the present. In demonstrating how history energizes and complicates the movies, we will examine numerous film cultures and historical periods, including Hollywood silent cinema, Italian neo-realism, the French New Wave, recent films from Iran, and a variety of other film movements from different historical epochs and cultures. Screenings will feature movies such as Sergei Eisenstein’s THE BATTLESHIP POTEMKIN (1925), Jean Renoir’s THE GRAND ILLUSION (1937), Nicholas Ray’s REBEL WITHOUT A CAUSE (1955), Jean-Luc Godard’s CONTEMPT (1963), Spike Lee’s DO THE RIGHT THING (1989), Sally Potter’s ORLANDO (1992), and Pedro Almodovar’s TALK TO HER (2003). Our aim is to establish a broad historical and global foundation for the understanding of film as a complex exchange between art, technology, politics, and economics. Screenings will be mandatory. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 092 World Film History 1945-Present
This course is an introduction to the analysis of film as both a textual practice and a cultural practice. We will examine a variety of films—from Fritz Lang’s M (1931) to Julia Dash’s DAUGHTERS OF THE DUST (1991)—in order to demonstrate the tools and skills of “close reading.” We will concentrate on those specifically filmic features of the movies, such as mise-en-scene, cinematography, editing and sound strategies, as well as those larger organizational forms, such as narrative and non-narrative structures and movie genres. Because our responses to the movies always extend beyond the film frame, we will additionally look closely at the complex business of film distribution, promotion, and exhibition to show how the less visible machinery of the movie business also shapes our understanding and enjoyment of particular films. Along the way, we will discuss some of the most influential and productive critical schools of thought informing film analysis today, including realism, auteurism, feminism, postmodernism, and others. Screenings are mandatory. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 093 Introduction to Postcolonial Literature
English is a global language with a distinctly imperial history, and this course serves as an essential introduction to literary works produced in or about the former European colonies. The focus will be poetry, film, fiction and non fiction and at least two geographic areas spanning the Americas, South Asia, the Caribbean and Africa as they reflect the impact of colonial rule on the cultural representations of identity, nationalism, race, class and gender. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 094 Introduction to Literary Theory
This course introduces students to major issues in the history of literary theory, and provides an excellent foundation for the English major or minor. Treating the work of Plato and Aristotle as well as contemporary criticism, we will consider the fundamental issues that arise from representation, making meaning, appropriation and adaptation, categorization and genre, historicity and genealogy, and historicity and temporality. We will consider major movements in the history of theory including the "New" Criticism of the 1920's and 30's, structuralism and post-structuralism, Marxism and psychoanalysis, feminism, cultural studies, critical race theory, and queer theory. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 095 Introduction to Film Theory
This course offers students an introduction to the major texts in film theory across the 20th and 21st centuries. The course gives students an opportunity to read these central texts closely, to understand the range of historical contexts in which film theories are developed, to explore the relationship between film theory and the major film movements, to grapple with the points of contention that have emerged among theorists, and finally to consider: what is the status of film theory today? This course is required for all Cinema Studies majors, but is open to all students, and no prior knowledge of film theory is assumed.
Requirements: Close reading of all assigned texts; attendance and participation in section discussions; 1 midterm exam; 1 take-home final exam. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
ENGL 096 Theories of Gender and Sexuality
What makes men and women different? What is the nature of desire? This course introduces students to a long history of speculation about the meaning and nature of gender and sexuality—a history fundamental to literary representation and the business of making meaning. We will consider theories from Aristophanes’ speech in Platos Symposium to recent feminist and queer theory. Authors treated might include: Plato, Shakespeare, J. S. Mill, Mary Wollstonecraft, Sigmund Freud, Virginia Woolf, Simone de Beauvoir, Adrienne Rich, Audre Lorde, Michel Foucault, Gayle Rubin, Catherine MacKinnon, Eve Kosofsky Sedgwick, Judith Butler, bell hooks, Leo Bersani, Gloria Anzaldúa, David Halperin, Cherrie Moraga, Donna Haraway, Gayatri Spivak, Diana Fuss, Rosemary Hennesy, Chandra Tadpole Mohanty, and Susan Stryker. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Humanities and Social Science Sector
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 097 Theatre, History and Culture II
This course examines theatre and performance in the context of the border urban, artistic and political cultures housing them from the Renaissance to the mid-19th century. Encompassing multiple cultures and traditions, it will draw on a variety of readings and viewings designed to locate the play, playwright, trend or concept under discussion within a specific socio-historical context. The evolution of written and performed drama, theatre architecture, and scenography will be examined in tandem with the evolution of various nationalisms, population shifts, and other commercial and material forces on theatrical entertainment. Readings consequently will be drawn not only from plays and other contemporary documents, but also from selected works on the history, theory, design technology, art, politics or society of the period under discussion. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

ENGL 100 Introduction to Literary Study
Literature does not exist for your protection. So dangerous is it, that Socrates argued poets ought to be banned from his ideal Republic. And Socrates himself—one of the most subversive of all poetic thinkers—was condemned to death for corrupting the young with his speeches. All great literature is unsettling and alarming. Along with its beauty and delicacy and rhetorical power and ethical force, it can be terrifyingly sublime and even downright ugly: full of contempt and horror and grandiosity and malice. From Socrates’ day to our own, countless writers have been jailed, exiled, and murdered, their works censored, banned, burned, for daring to say what others wish would remain unsaid—about religion and the State; sexuality, gender, and the body; art, science, and commerce; freedom and order; love and hate—and for saying it in ways that are aesthetically innovative, surprising, seductive, ravishingly unanticipated.
This course will introduce you to fundamentals of literary style, form, and history, and to approaches to reading and interpretation. It will also mean paying close attention to your own writing, in a series of brief essays and blog contributions in which you’ll learn better how to meet the demands of college-level writing while striving always to be a dangerous writer yourself. See the English Department’s website at www.english.upenn.edu for a description of current offerings.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: This course is intended to serve as a foundation for students interested in going on to become English majors.

ENGL 101 Study of an Author
This course introduces students to literary study through the works of a single author—often Shakespeare, but other versions will feature writers like Jane Austen, Geoffrey Chaucer, Herman Melville, and August Wilson. Readings an individual author across his or her entire career offers students the rare opportunity to examine works from several critical perspectives in a single course. What is the author’s relation to his or her time? How do our author’s works help us to understand literary history more generally? And how might be understand our author’s legacy through performance, tributes, adaptations, or sequels? Exposing students to a range of approaches and assignments, this course is an ideal introduction to literary study for those students wishing to take an English course but not necessarily intending to major. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 102 Study of a Literary Theme
This is an introduction to literary study through the works of a compelling literary theme. The theme’s function within specific historical contexts, within literary history generally, and within contemporary culture, are likely to be emphasized. Some versions of this course will also serve as an introduction to other members of the English faculty, who will visit the class as guest lecturers. This course is designed for the General Requirement, and is ideal for the students wishing to take an English course but not necessarily intending to major. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
ENGL 103 Literary Genres
An introduction to literary study through a genre, either the short story or poetry. Versions of this course will vary widely in the selection of texts assigned. Some versions will begin with traditional stories or poems, including a sampling of works in translation. Others will focus exclusively on modern and contemporary American short fiction or poetry. This course is designed for the General Requirement, and is ideal for the students wishing to take an English course but not necessarily intending to major. See the English Department's website at www.english.upenn.edu for a description of the current offerings. For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 104 Study of a Literary Period
This is an introduction to literary study through a survey of works from a specific historical period. Some versions will begin with traditional stories or poems, including a sampling of works in translation. Others will focus exclusively on modern and contemporary American short fiction or poetry. This course is designed for the General Requirement, and is ideal for the students wishing to take an English course but not necessarily intending to major. See the English Department's website at www.english.upenn.edu for a description of the current offerings. For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 105 Topics in Literature and Society
While the topic of this course varies from semester, its subject is always the relation between literature and socio-economic realities: political, economic, social, and of identity. Past versions of English 105 have included "The World of Work," "Disability Narratives," and "Conflict in Print." Each devotes a number of weeks to the economic and social theories underlying its given subject in order to provide students with adequate background. See the English Department's website at www.english.upenn.edu for a description of the current offerings. For BA Students: Humanities and Social Science Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 107 Literature and Medicine
This course offers a comprehensive study of significant changes and continuities in the history of medicine from 1650-1850, alongside works of literature that exemplify the shifting notions of the doctor and sickness in the Western medical tradition. See the English Department's website at www.english.upenn.edu for a description of the current offerings. For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

ENGL 111 Experimental Writing
A creative writing workshop committed to experimentation. The workshop will be structured around writing experiments, collaborations, intensive readings, and new and innovative approaches to composition and form. See English Department's website at www.english.upenn.edu for a description of the current offerings. One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 112 Workshop for Fiction Writers
This course emphasizes the study and practice of basic techniques of short fiction, with assignments divided between readings and discussion of student-written material. See English Department's website at www.english.upenn.edu for a description of the current offerings. One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit with a different instructor.

ENGL 113 Poetry Writing Workshop
This is a workshop for students who are interested in exploring a variety of approaches to poetry. Students will encounter a diverse series of readings, in-class writing activities, weekly writing assignments, and creative methods for heightening your abilities as a reader and writer. See the English Department's website at www.english.upenn.edu for a description of the current offerings. One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit with a different instructor.

ENGL 114 Playwriting Workshop
The expressive possibilities and limitations of the stage medium through close reading of plays of various styles and period, study of the various resources of various types of theater, and original exercise in dramatic writing. See the English Department's website at www.english.upenn.edu for a description of the current offerings. One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit with different instructor.

ENGL 115 Workshop for Advanced Fiction Writers
An advanced workshop in the writing of fiction, with reading assignments and discussion of student works in progress. Topics may include the short story or the art of the novel. See the English Department's website at www.english.upenn.edu for a description of the current offerings. One-term course offered either term
Prerequisites: ENGL 112 or the equivalent.
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen. May be repeated for credit with a different instructor. Permission needed from instructor; writing sample required.

ENGL 116 Screenwriting Workshop
This course will look at the screenplay as both a literary text and a blueprint for production. Several classic screenplay texts will be critically analyzed (REBEL WITHOUT A CAUSE, DOCTOR STRANGELOVE, PSYCHO, etc.) Students will then embark on writing their own scripts. We will intensively focus on: character enhancement, creating "believable" cinematic dialogue, plot development and story structure, conflict, pacing, dramatic foreshadowing, the element of surprise, text and subtext and visual story-telling. Class attendance is mandatory. Students will submit their works-in-progress to the workshop for discussion. See English Department's website at www.english.upenn.edu for a description of the current offerings. One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit with a different instructor.
ENGL 117 The Arts and Popular Culture
A creative writing workshop that concentrates on various aspects of writing about artistic endeavor, including criticism, reviews, profiles, interviews and essays. For the purposes of this class, the arts will be interpreted broadly, and students are able – and, in fact, encouraged – to write about both the fine arts and popular culture, including music, theater, film, fashion, photography and television. Students will write on a weekly basis, and many assignments will be tailored to each student’s individual interests and are likely to include reporting and research. Writing subjects can range from a local band to a museum, from a theater group to a comedian. Course offerings may include Writing about Music, Writing about Popular Culture, or other topics and themes. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Students who have previously taken ENGL 117 should also be able to take this course in the spring term file.

ENGL 118 Advanced Poetry Writing Workshop
This workshop is especially valuable for creative writing concentrators in poetry within the English Major, for those who are working on longer works, or for those who wish to work on a series of poems connected by style and subject matter. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This workshop is designed for those students who have taken the introductory workshop ENGL 113 or its equivalent and desire advance study. Students wishing to take this course must submit a writing sample as part of the selection process. May be repeated for credit with a different instructor. Writing sample required.

ENGL 120 Working with Translations
In this class we will study and translate some of the major figures in 20th century poetry, including Rainer Maria Rilke, Claire Malroux, Pablo Neruda, Cesare Pavese, Anna Akhmatova, and Bei Dao. While the curriculum will be tailored to the interests and linguistic backgrounds of the students who enroll, all those curious about world poetry and the formidable, irresistible act of translation are welcome. Students should have at least an intermediate knowledge of a language other than English. We will study multiple translations of seminal poems, render our own versions in response, and have the additional opportunity to work directly from the original. Students may also work in pairs, or groups. A portion of the course will be set up as a creative writing workshop in which to examine the overall effect of each others’ translations so that first drafts can become successful revisions. While class discussions will explore the contexts and particularity of (among others) Urdu, Italian, French, and Polish poetry, they might ultimately reveal how notions of natural literature have radically shifted in recent years to more polyglottic and globally textured forms. Through guest speakers, essays on translation theory, and our own ongoing experiments, this course will celebrate the ways in which great poetry underscores the fact that language itself is a translation. In addition to the creative work, assignments will include an oral presentation, informal response papers, and a short final essay. See the English Department’s website at www.english.upenn.edu for a description of current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen.

ENGL 121 Writing for Children
This is a course for students who have always thought it would be challenging, fun, curious, or rewarding to write a children’s book. The class will be conducted as a seminar, using a wide variety of published children’s books in all genres—picture books, chapter books, young fiction, older fiction as examples of successful books for young readers. See English Department website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 122 Grotesque Forms
An introduction to letterpress printing and bookmaking and writing for the artist book, focusing on the history of the artist book, competence in letterpress technique, print composition and design skills, and alternative book binding. Course readings will focus on the work of Joanna Drucker and Jerome Rothenberg, and the examination of multi-media works. Field trips to local artist book collections will supplement course reading, projects, and the final project. The entire class will be taught, and practiced, through the lens of “the grotesque” in art and literature. As a final project, each student will make their own limited-edition artist book that considers the course theme of “the grotesque” through writing, image, printing and binding. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 130 Advanced Screenwriting
This is a workshop-style course for students who have completed a screenwriting class, or have a draft of a screenplay they wish to improve. Classes will consist of discussing student’s work, as well as discussing relevant themes of the movie business and examining classic films and why they work as well as they do. See English Department website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 135 Creative Non-Fiction Writing
A workshop course in the writing of creative nonfiction. Topics may include memoir, family history, travel writing, documentary, and other genres in which literary structures are brought to bear on the writing of nonfiction prose. See the English Department’s website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshman.

ENGL 144 Speculative Fiction
A creative writing course devoted to speculative fiction. Topics may include science fiction, fantasy, horror, or other related genres. Students will study the literary origins of these genres and create their own original work. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Activity: Seminar
1 Course Unit
ENGL 145 Advanced Non-Fiction Writing
An advanced writing course devoted to creative nonfiction. Topics may include writing for literary magazines; writing for journals of opinion; memoir; family history; travel writing; documentary; or other topics and genres in which literary structures inform the writing of nonfiction prose. Offerings may address writing as a public act, questions of ethics and policy, methods of research and fact-checking, marketing, and how to understand and enter the world of publishing. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen. May be repeated for credit with a different instructor.

ENGL 155 Writing in the Documentary Tradition
This course will function as a workshop, with a select group of students. It’s a course that will honor the spirit and tradition of “documentary” writing. The word “documentary” has meant many things over time. Here, it means a kind of nose-close observation and reportage. It means a level of being with one’s subject matter in a way that other creative writing courses do not allow because of their format and structure. In English 155, a student writer at Penn will dare to “hang” with a topic—a girl’s high-school basketball team; a medical intern in a HUP emergency room; a janitor doing the graveyard shift in a classroom building; a food-truck operator crowding the noontime avenues; a client-patient in the Ronald McDonald House near campus; a parish priest making a solitary and dreary and yet redemptive rounds of the sick and the dying in the hospital—for the entire term. At the term’s end, each writer in the course will have produced one extended prose work: a documentary piece of high creative caliber. This is our goal and inspiration. The piece will be 35 to 40 pages long, at minimum. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 156 Photographs and Stories
A creative writing course built entirely around the use of photographs, and the crafting of compelling nonfiction narratives from them. The essential concept will be to employ photographs as storytelling vehicles. So we will be using curling, drugstore printed Kodak shots from our own family albums. We will be using searing and famous images from history books. We will be taking things from yesterday's newspaper. We will even be using pictures that were just made by the workshop participants outside the campus gates. In all of this, there will be one overriding aim to achieve memorable, full-bodied stories. To locate the strange, evocative, storytelling universes that are sealed inside the four rectangular walls of photograph. They are always there, if you know how to look. It's about the quality of your noticing, the intensity of your seeing. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 157 Introduction to Journalistic Writing
This workshop is designed as an introduction to journalistic writing. Topics may include Writing about Food, Journalism and the Environment, Digital Newswriting, and other themes. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 158 Advanced Journalistic Writing
A workshop in creative writing devoted to original student work in journalism. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 159 Political Writing in the Digital Age
A primer on writing about U.S. politics, in an era of major technological upheaval and serious voter polarization. Today's 24/7, wi-fi’d, blogging environment--along with the rise of new conservative media--are changing the ways that writers cover politics and deliver the information. See English Department website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit with a different instructor.

ENGL 160 Long-form Journalism
This course in long-form journalism is required of all journalistic writing minors. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 161 The Art of the Profile
One of the toughest challenges for any journalist is to master the art of the profile-writing. In this course, students will read and critique some of the classic profile articles of the past 40 years and, most importantly, write profile articles of their own. Writing about people is often very rewarding, but rarely easy. In this course, students will debate the questions that have plagued and energized journalists for generations: How do you persuade someone that theirs is a worthy topic for a profile? How do you ask sensitive questions? If the person is a celebrity, how do you avoid being manipulated into writing a "puff piece"? Do you tape the interviews or just take notes? How do you structure a profile in order to keep the reader's attention? Is it even possible to capture the essence of a person on the written page? Are you a friend to the profile subject—or a manipulator? A journalist at The New Yorker once said that a writer's relationship with the profile subject is "a kind of love affair." On the other hand, a famous author once said that a profile writer is typically "gaining their trust and betraying without remorse." Which is closer to the truth? Students, in addition to writing their own profiles, will kick around these questions while reading some of the best contemporary profile writers, including Susan Orlean, Gay Talese, David Remnick, Mark Bowden, and Judy Bachrach. The instructor will also offer several of his own. See the English Department's website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
ENGL 162 Covering Political Elections
In this course, students with a passion for both writing and politics will have the unique opportunity to track the news as it unfolds weekly, to critique it in class, and, most importantly, to write about it in a variety of formats, ranging from "straight" news to informed opinion. Students can expect spirited class debate about the elusive nature of "objectivity," the often thin line between truth and rumor, the challenges of fact-checking a candidate's "spin," the challenges of writing responsibly in an era when even facts seem to be polarized, the challenges of analyzing election results and writing effectively, the growing pressure on journalists to reveal their political beliefs, and much more. Some of the writing will happen in class; students will view excerpts from election debates and broadcasts, and will file their reports "on deadline." And students will have a chance, in class, to critique some of the nation's best political writers—reporters, feature writers, columnists, and bloggers. Topics for this course may include reporting on Congressional midterms and reporting on the Presidential election. See English Department website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen.

ENGL 165 Writing through Culture and Art
This is a year-long creative writing class, given as a collaboration between the Center for Programs in Contemporary Writing and the Philadelphia Museum of Art. Students will be encouraged to develop correspondent methods of responding to the PMA's exhibitions. The class will involve regular trips to attend concerts, museums and lectures. The students will have access to the most cutting-edge artists today via class visits and studio visits. English 165 will culminate in a publication of student work. See English Department website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit with a different instructor.

ENGL 199 Independent Study in Writing
Supervised study in writing.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Interested students must receive permission by the professor and the English Department.

ENGL 200 Junior Research Seminar
This course offers junior English majors the opportunity to design and undertake a semester-long research and writing project in an advanced seminar setting. Discussions will address debates within the field/period/topic of the course, research methods, and advanced writing and critical thinking issues. See the English Department's website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is required of most English Majors.

ENGL 209 Topics in Digital Humanities
This course focuses intensively on a particular issue in digital humanities (DH) and computational approaches to literary texts. See the English Departments website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 210 Critical-Creative Approaches to Literature
These courses enable students to think and write creatively as a means to the critical understanding of literary texts. The topic of the course will vary from semester to semester, but the course will always seek to advance students understanding of literature, its formal elements, and its relationship to culture and history through the use of creative projects instead of or alongside more traditional critical writing. See the English Department's website at www.english.upenn.edu for a description of current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors.

ENGL 212 Study Abroad
See the English Department's website at www.english.upenn.edu.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 218 Topics In Old English
This course investigates in-depth a topic in the history of the English language or of linguistic theory more broadly. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English majors

ENGL 219 Topics in the History of Language
This course explores an aspect of Anglo-Saxon culture intensively, specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 220 Study Abroad
See the English Department’s website at www.english.upenn.edu.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 221 Topics In Medieval Literature
This seminar explores an aspect of medieval literature intensively; specific course topics will vary from year to year. Topics in the past have included the medieval performance, medieval women, and medieval law and literature. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 220?. Spaces will be reserved for English majors
ENGL 222 Topics In Romance
This seminar explores an aspect of epic or romance intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English majors

ENGL 225 Topics In Chaucer
This course explores an aspect of Chaucer's writings intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 226 Topics In Drama to 1660
This course explores an aspect of drama before 1660 intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English majors

ENGL 229 Topics In Classicism and Literature
This advanced seminar will examine the classical backgrounds to English poetry, in particular the Biblical and Greco-Roman antecedents to Renaissance lyric verse and verse drama (such as, preeminently, Shakespeare). Different versions of this course will have different emphases on Biblical or Hellenist backgrounds. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 296?. Spaces will be reserved for English majors

ENGL 231 Topics In Renaissance Literature
This course explores an aspect of renaissance literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 230?. Spaces will be reserved for English majors

ENGL 234 Topics In The History of the Book
This course explores an aspect of the History of the Book intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 297 or 298?. Spaces will be reserved for English majors

ENGL 236 Topics In Renaissance Drama
Through specialized readings, writing assignments, and in-class acting exercises, the class will develop methods of interpreting Shakespeare's plays through theatrical practice. Topics include Shakespeare's use of soliloquy, two and three person scenes, the dramatic presentation of narrative source material, modes of defining and presenting the "worlds" of the plays, and the use of theatrical practice to establish authoritative text. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 238 Topics In 17th-Century Literature
This course explores an aspect of 17th-century literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 241 Topics In 18th-Century Literature
This course explores an aspect of 18th-century literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 243 Topics In Early American Literature
This course explores an aspect of early American literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 244 Topics In The 18th-Century Novel
This course explores an aspect of 18th-century novel intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 246 Spirituality and Global Warming
This course listed as secondary in ENGL and primary in RELS 246. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English majors
ENGL 248 Topics In Trans-Atlantic Literature
This course examines in-depth a topic in trans-Atlantic literature, literature that emerges from and deals with the links and tensions between Europe and the Americas. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English majors

ENGL 250 Topics In Romanticism
This course explores an aspect of Romantic literature intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 251 Topics In 19th-Century Literature
This course explores an aspect of 19th-century literature intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 253 Topics In 19th-Century American Literature
This course explores an aspect of 19th-century American literature intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 283? Spaces will be reserved for English majors

ENGL 254 Topics In Music and Literature
The particular of the seminar will change depending on the instructor, and so it is particularly recommended that students consult the actual course description for that semester. These are housed on the Department of English’s website at: www.english.upenn.edu
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors.

ENGL 255 Topics In The 19th-Century Novel
This course explores an aspect of the 19th-century novel intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 256 Topics In Modern Drama
This course explores an aspect of Modern drama intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 271?. Spaces will be reserved for English majors

ENGL 258 Topics in Irish Literature
This course explores an aspect of modern Irish literature intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 259 Topics In Modernism
This course explores an aspect of literary modernism intensively; specific course topics will vary from year to year. Past offerings have included seminars on the avant-garde, on the politics of modernism, and on its role in shaping poetry, music, and the visual arts. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Prerequisites: Pre-requisites some knowledge of 20th-century poetry.
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 210? Spaces will be reserved for English majors

ENGL 260 Topics In The Novel
This course explores an aspect of the novel intensively, asking how novels work and what they do to us and for us. Specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 261 Topics In 20th-Century Literature
The course explores an aspect of 20th-century literature intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 262 Topics In 20th-Century Poetry
The course explores an aspect of 20th-century poetry intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English majors
ENGL 263 Topics In 20th-Century American Literature
The course explores an aspect of 20th-century American literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English majors

ENGL 264 Topics In Modern American Literature
This course explores an aspect of Modern American literature intensively; specific course topics will vary, and have included "American Expatriotism," "The 1930's," and "Intimacy and Distance: William Faulkner, Zora Neale Hurston, Eudora Welty, and Richard Wright." See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: ?Formerly ENGL 284?. Spaces will be reserved for English majors

ENGL 265 Topics In The 20th-Century Novel
This course explores an aspect of the 20th-century novel intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English Majors

ENGL 266 Topics In Law and Literature
This course explores an aspect of law and literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English majors

ENGL 269 Topics In Poetry and Poetics
This course explores an aspect of poetry and poetics intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: ?Formerly ENGL 285?. Spaces will be reserved for English majors

ENGL 270 Topics In Latina/o Literature
This course explores an aspect of Latina/o literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English Majors

ENGL 271 Topics In the Literature of Africa and the African Diaspora
This course explores an aspect of the literature of Africa and the African Diaspora intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English Majors

ENGL 272 Topics In Asian American Literature
This seminar is an advanced-level topics-based version of ENGL 072, Introduction to Asian American Literature. The intended audience is junior and senior English majors and advanced students in Asian studies, Asian American studies, contemporary U.S. and world history, ethnic studies, urban studies, etc. Typical versions of this seminar will include representations and images of Asians in contemporary U.S. novels and films; Asian American literature by women; Asian American film narrative and film aesthetics; studies in Asian American literature and visual art; Asian American literature and immigration; Asian American literature in the context of the literature of exile and journey; Asian American literature 1929-1945; Asian American literature, 1945 to the present; Anglophone/South Asian literature in England, 1970 to the present; Southeast Asia, Vietnam, and American literature, 1970-1990; etc. Students will typically present research projects and write several long essays. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English Majors

ENGL 274 Topics In Contemporary American Literature
This course explores an aspect of Modern American literature intensively; specific course topics will vary from year to year but have included "The Literary History of The Cold War, 1947-1957" and the "Kelly House Fellows Seminar." See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English Majors

ENGL 276 Topics In Theatre History
The purpose of this course is to introduce students to the basic materials and methods of theatre history and historiography, as applied to a particular topic, organized around a specific period, national group, or aesthetic issue. This course is concerned with methodological questions: how the history of theatre can be documented; how primary documents, secondary accounts, and historical and critical analyses can be synthesized; how the various components of the theatrical event--acting, scenography, playhouse architecture, audience composition, the financial and structural organization of the theatre industry, etc.--relate to one another; and how the theatre is socially and culturally constructed as an art form in relation to the politics and culture of a society in a particular time and place. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English Majors

ENGL 277 Topics In Theatre History
The purpose of this course is to introduce students to the basic materials and methods of theatre history and historiography, as applied to a particular topic, organized around a specific period, national group, or aesthetic issue. This course is concerned with methodological questions: how the history of theatre can be documented; how primary documents, secondary accounts, and historical and critical analyses can be synthesized; how the various components of the theatrical event--acting, scenography, playhouse architecture, audience composition, the financial and structural organization of the theatre industry, etc.--relate to one another; and how the theatre is socially and culturally constructed as an art form in relation to the politics and culture of a society in a particular time and place. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Course not offered every year Activity: Seminar 1 Course Unit Notes: Spaces will be reserved for English Majors
ENGL 278 Topics in Digital and New Media
This course explores a particular topic in the study of digital and new media in an intensive and in-depth manner. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Activity: Seminar
1 Course Unit

ENGL 279 Topics In Jewish and Jewish-American Literature
This course explores an aspect of Jewish and/or Jewish-American literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: ?Formerly ENGL 287? Spaces will be reserved for English Majors

ENGL 281 Topics In African-American Literature
In this advanced seminar, students will be introduced to a variety of approaches to African American literatures, and to a wide spectrum of methodologies and ideological postures (for example, The Black Arts Movement). The course will present an assortment of emphases, some of them focused on geography (for example, the Harlem Renaissance), others focused on genre (autobiography, poetry or drama), the politics of gender and class, or a particular grouping of authors. Previous versions of this course have included "African American Autobiography," "Backgrounds of African American Literature," "The Black Narrative" (beginning with eighteenth century slave narratives and working toward contemporary literature), as well as seminars on urban spaces, jazz, migration, oral narratives, black Christianity, and African-American music. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 282 A History of Films by and about Indigenous Cultures
This course will examine films by and about Native Americans. From the very beginnings of film history, Native Americans have been a centrally important subject. While much of the writing about Native American films tends to focus on the perpetuation of stereotypes, this class will concentrate on four primary themes: 1) the role that film plays in helping the audience to understand the exceedingly complex place of indigenous people in "American" identity; (with "American" signifying, in this instance, a hemispheric sense of identity); 2) the myriad of ways that indigenous people have been involved in the history of film as extras, actors, directors, producers; 3) how representations changed when Native Americans took control of production; 4) the ways in which films by and about Native Americans have helped to heal the historical trauma resulting from teh "Indian Wars" that have gone on for 500+ years on the North American continent. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: RELS 208 is primary.

ENGL 283 Topics In American Poetry
This course explores an aspect of American poetry intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 284 Topics In Race and Ethnicity
This course explores an aspect of race and ethnicity intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 285 Topics In American Literature
This course explores an aspect of American literature intensively; specific course topics will vary, and have included "American Authors and the Imagined Past" and "American Gothic." See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 286 Topics In American Poetry
This course explores an aspect of American poetry intensively; specific course topics will vary, and have included "American Poetry and Democratic Culture," this course devotes itself to the study of twentieth-century American poetry. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 287 Topics In American Poetry
Sometimes limiting itself to the works of one or two authors, sometimes focusing on a particular theme such as "American Poetry and Democratic Culture," this course devotes itself to the study of twentieth-century American poetry. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 288 Topics In American Poetry
The advanced women's studies course in the department, focusing on a particular aspect of literature by and about women. Topics might include: "Victorian Literary Women"; "Women, Politics, and Literature"; "Feminist Literary Theory"; and similar foci. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 289 Topics In American Poetry
The advanced women's studies course in the department, focusing on a particular aspect of literature by and about women. Topics might include: "Victorian Literary Women"; "Women, Politics, and Literature"; "Feminist Literary Theory"; and similar foci. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 290 Topics In Gender, Sexuality, and Literature
The advanced women's studies course in the department, focusing on a particular aspect of literature by and about women. Topics might include: "Victorian Literary Women"; "Women, Politics, and Literature"; "Feminist Literary Theory"; and similar foci. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 291 Topics In Film History
This course explores an aspect of Film History intensively; specific course topics vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 292 Topics In Film Studies
This course explores an aspect of Film Studies intensively; specific course topics vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors
ENGL 293 Topics In Postcolonial Literature
This course explores an aspect of Postcolonial literature intensively; specific course topics vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

ENGL 294 Topics In Literary Theory
This course explores an aspect of literary theory intensively; specific course topics vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 204? Spaces will be reserved for English majors

ENGL 295 Topics In Cultural Studies
This course explores an aspect of cultural studies intensively; specific course topics vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English majors

ENGL 299 Independent Study in Language and Literature
Supervised reading and research.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Interested students must receive permission by the professor and the English Department

ENGL 311 The Honors Program
An essay of substantial length on a literary or linguistic topic, written under the supervision of a faculty adviser. See the English Department's website at www.english.upenn.edu for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Students must receive permission from the Director of English Honors Program.

ENGL 318 Topics In Old English
This seminar explores an aspect of Anglo-Saxon culture intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 323 Topics In Medieval Poetry
This course explores an aspect of Medieval poetry intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 326 Topics In Drama to 1660
This course explores an aspect of drama before 1660 intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 329 Topics In Classicism and Literature
This advanced seminar will examine the classical backgrounds to English poetry, in particular the Biblical and Greco-Roman antecedents to Renaissance lyric verse and verse drama (such as, preeminently, Shakespeare). Different versions of this course will have different emphases on Biblical or Hellenist backgrounds. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 338 Topics In 17th-Century Literature
This course explores an aspect of 17th-Century literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 341 Topics In 18th-Century Literature
This course explores an aspect of 18th-Century British literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 345 Topics In The 18th Century Novel
This course explores an aspect of 18th-Century novel intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar
ENGL 353 Topics In 19th-Century American Literature
This course explores an aspect of 19th-Century American literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 383?. Benjamin Franklin Seminar

ENGL 355 Topics In The 19th-Century Novel
This course explores an aspect of the 19th-Century novel intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 356 Topics In Modern Drama
This course explores an aspect of Modern drama intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 359 Topics In Modernism
This course explores an aspect of literary modernism intensively; specific course topics will vary from year to year. Past offerings have included seminars on the avant-garde, on the politics of modernism, and on its role in shaping poetry, music, and the visual arts. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 360 Topics In The Novel
This course explores an aspect of the novel intensively, asking how novels work and what they do to us and for us. Specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 310?. Benjamin Franklin Seminar

ENGL 361 Topics In 20th-Century Literature
The course explores an aspect of 20th-Century literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 363 Topics In 20th-Century American Literature
The course explores an aspect of 20th-Century American literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 364 Topics In Modern American Literature
This course explores an aspect of Modern American literature intensively; specific course topics will vary, and have included "American Expatriotism," "The 1930's," and "Intimacy and Distance: William Faulkner, Zora Neale Hurston, Eudora Welty, and Richard Wright." See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 365 Topics In 19th-Century American Poetry
This course explores an aspect of 19th-Century American poetry. See the English Department's website at www.english.upenn.edu for a description of current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 370?. Benjamin Franklin Seminar

ENGL 366 Topics Africana Studies
This course explores an aspects of topics in African Studies; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of current offerings.
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 367 Topics In American Poetry
Sometimes limiting itself to the works of one or two authors, sometimes focusing on a particular theme such as "American Poetry and Democratic Culture," this course devotes itself to the study of twentieth-century American poetry. See the English Department's website at www.english.upenn.edu for a description of the current offerings. Specific course topics will vary, and have included "American Expatriotism," "The 1930's," and "Intimacy and Distance: William Faulkner, Zora Neale Hurston, Eudora Welty, and Richard Wright." See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 368 Topics In American Poetry
This course explores an aspect of American poetry and poetics intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 369 Topics In Poetry and Poetics
This course explores an aspect of American literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 370 Topics In Gender, Sexuality, and Literature
The advanced women's studies course in the department, focusing on a particular aspect of literature by and about women. Topics might include: "Victorian Literary Women," "Women, Politics, and Literature," "Feminist Literary Theory," and similar foci. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar
ENGL 392 Topics In Film Studies
This course explores an aspect of Film Studies intensively; specific course topics vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 393 Topics In Postcolonial Literature
This course explores an aspect of Postcolonial literature intensively; specific course topics vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

ENGL 394 Topics Literary Theory
This course explores an aspect of literary theory intensively; specific course topics vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: ?Formerly ENGL 304? Benjamin Franklin Seminar

ENGL 399 Independent Study in Language and Literature
Supervised reading and research.
One-term course offered either term
Activity: Independent Study
2 Course Units
Notes: Interested students must receive permission of the professor and the English department. This course number is for two course units and created for LPS students.

ENGL 501 Introduction to Old English Language and Literature
This is an accelerated study of the basic language of Anglo-Saxon England, together with a critical reading of a variety of texts, both prose and poetry. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 505 Electronic Literary Studies Proseminar
This course is designed to introduce advanced undergraduate and graduate students to the range of new opportunities for literary research afforded by recent technological innovation. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 524 Topics Medieval Studies
This course covers topics in Medieval literature. Its emphasis varies with instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 525 Chaucer
An advanced introduction to Chaucer's poetry and Chaucer criticism. Reading and discussion of the dream visions, Troilus and Criseyde, and selections from Canterbury Tales, from the viewpoint of Chaucer's development as a narrative artist. See the English Department's website at www.english.upenn.edu for a description of current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 537 Renaissance Epic
An introduction to the practice and theory of epic in the early modern period. Specific texts vary with instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 538 Major Renaissance Writers
This is a monographic course, which may be on Spenser, Milton, or other major figures of the period. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 540 Topics in 18th Century British Literature
This course covers topics in 18th Century British literature. Its emphasis varies with instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 545 Eighteenth-Century Novel
A survey of the major novelists of the period, often beginning with Defoe and a few of the writers of amatory fiction in the early decades of the century and then moving on to representative examples of the celebrated novels by Richardson, Fielding, and others of the mid-century and after. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
ENGL 546 The Novel and Marriage
A survey of the significant subgenres of English prose fiction from the late Renaissance to Defoe. We will study such manifestations of prose fiction as the picaresque (with a glance at the tradition in Spain, Germany, and France), the romance (from Sidney to Lyly to Congreve and Behn, with consideration of French influence in the later seventeenth century), the fictions of travel (Hakluyt, Defoe, Swift), religious fiction (Bunyan and his successors), and the achievement of England's first major novelist, Defoe. See the English Department's website at www.english.upenn.edu for a description of current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 548 English Literature and Culture, 1650-1725
English 548, with its companion, English 549, studies the literature of this period in the context of the artistic and cultural milieu of the later seventeenth and early eighteenth centuries. Texts usually include works by Dryden, Rochester, Swift, Pope, and Defoe. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 550 Topics in Romanticism
This class explores the cultural context in which the so-called Romantic Movement prospered, paying special attention to the relationship between the most notorious popular genres of the period (gothic fiction and drama) and the poetic production of both canonical and emerging poets. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 553 British Women Writers
A study of British women writers, often focusing on the women authors who came into prominence between 1775 and 1825. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 556 Topics in 19th-Century British Literature
This course covers topics in nineteenth-century British Literature, its specific emphasis varying with the instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 560 The Novel
This course will provide an intensive introduction to the study of the novel, approaching the genre from a range of theoretical, critical, and historical perspectives. It may examine conflicting versions of the novel's history (including debates about its relationship to the making of the individual, the nation-state, empire, capital, racial and class formations, secularism, the history of sexuality, democracy, print and other media, etc.), or it may focus on theories of the novel, narratology, or a particular problem in novel criticism. It may attend to a specific form or subgenre of fiction, or it may comprise a survey of genres and texts. See the English Department's website at: www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 563 Topics in 20th-Century British Literature
This course focuses on British modernism and/or postmodernism, with specific emphases determined by the instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 564 British Modernism
An introduction to British Literary Modernism. Specific emphasis will depend on instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 569 Topics in 20th-Century American Literature
This course covers topics in 20th-century literature, its emphasis varying with instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 570 African-American Literature
This course treats some important aspect of African-American literature and culture. Some recent versions of the course have focused on the emergence of African-American women writers, on the relation between African-American literature and cultural studies, and on the Harlem Renaissance. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
ENGL 572 Topics in African Literature
This course is based on a selection of representative texts written in English, as well as a few texts in English translation. It involves, a study of themes relating to social change and the persistence of cultural traditions, followed by an attempt at sketching the emergence of literary tradition by identifying some of the formal conventions of established writers in their use of old forms and experiments with new. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 573 Topics in Criticism and Theory
This course covers topics in literary criticism and theory. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 574 Introduction to Bibliography
This course offers an introduction to the principles of descriptive and analytic bibliography and textual editing. The history of authorship, manuscript production, printing, publishing, and reading will be addressed as they inform an understanding of how a particular text came to be the way it is. Diverse theories of editing will be studied and put into practice with short passages. The course is generally suitable for students working in any historical period, but particular emphases specified in the current offerings on the English website. www.english.upenn.edu
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 582 American Literature to 1810
In this course we shall examine the ways various voices—Puritan, Indian, Black, Female, Enlightened, Democratic—intersect with each other and with the landscape of America to produce the early literature(s) of America. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 584 Environmental Imaginaries
Drawing on theories of worldmaking and ethnographic works on culture and environment, this seminar will examine the production of Cartesian-based environmental imaginaries and their alternatives across a range of genres and practices. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 589 Twentieth-Century American Poetry
See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 590 Recent issues in Critical Theory
This course is a critical exploration of recent literary and cultural theory, usually focusing on one particular movement or school, such as phenomenology, psychoanalysis, the Frankfurt School, or deconstruction. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 591 Topics Russian Soviet Cultural History
This course treats some aspect of literary and cultural politics in the 20th-Century with an emphasis on comparative literature and culture. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 592 20th-Century Literature and Theory
This course treats some aspect of literary and cultural politics in the 20th-Century with emphasis varying by instructor. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 593 Topics in Literature and Society
See the English Department’s website at: www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 594 Post-Colonial Literature
This course covers topics in Post-Colonial literature with emphasis determined by the instructor. The primary focus will be on novels that have been adapted to film. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 595 Topics in Contemporary Art
Topics varies. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 596 Topics in Modern Drama
This course will survey several basic approaches to analyzing dramatic literature and the theatre. The dramatic event will be broken into each of its Aristotelian components for separate attention and analysis: Action (plot), Character, Language, Thought, Music and Spectacle. Several approaches to analysing the dramatic text will be studied: phenomenological, social-psychological, semiotic, and others. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
ENGL 600 Proseminar
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 705 Interdisciplinary Approaches to Literature
This course will explore one or more interdisciplinary approaches to literature. Literary relationships to science, art, or music may provide the focus. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 707 Orality and Literacy
Major lines of study of the subject of literacy are traceable in at least three disciplines: history of Western literature (especially classical and medieval studies), anthropology, and ethnography of education, including education development in the Third World and psychological and developmental education theory and practice. The linkages between oral and literary communicative modes in different cultures are studied, from a folklorist's viewpoint. The overall task of the course is not to isolate topics of narrowly defined folkloric interest in the broad field of literacy, but to integrate and critique the diverse approaches to literacy as a communicative mode or modes, from the point of view of folklore as a discipline. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 715 Middle English Literature
This seminar will study a number of selected Middle English texts in depth. Attention will be paid to the textual transmission, sources, language, genre, and structure of the works. Larger issues, such as the influence of literary conventions (for example, "courtly love"), medieval rhetoric, or medieval allegory will be explored as the chosen texts may require. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 721 Medieval Poetics
This course may include some of the following fields: studies of medieval stylistic practices, formal innovations, and theories of form; medieval ideas of genre and form; medieval thought about the social, moral, and epistemological roles of poetry; interpretive theory and practice; technologies of interpretation; theories of fiction (fabula) and allegory; sacred and secular hermeneutics; theories of language and the histories of the language arts; vernacular(s) and Latinity; material texts. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 730 Topics in 16th-Century History and Culture
This is an advanced course treating topics in 16th Century history and culture particular emphasis varying with instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 731 Renaissance Poetry
An advanced seminar in English poetry of the early modern period. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 734 Renaissance Drama
This is an advanced course in Renaissance drama which will include plays by non-Shakespearean dramatists such as Marlowe, Jonson, and Middleton. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 736 Renaissance Studies
This is an advanced topics course treating some important issue in contemporary Renaissance studies. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 739 Milton
An examination of Milton's major poetry and prose with some emphasis on the social and political context of his work. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 745 Restoration and 18th-Century Fiction
This is an advanced course in the fiction of the Restoration and the 18th-Century, the period of "The rise of the novel". See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 748 Semester in 18th Century Literature
This course varies in its emphases, but in recent years has explored the theory of narrative both from the point of view of eighteenth-century novelists and thinkers as well as from the perspective of contemporary theory. Specific attention is paid to issues of class, gender, and ideology. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
ENGL 753 Victorian British Literature
An advanced seminar treating some topics in Victorian British Literature, usually focusing on non-fiction or on poetry. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 760 Topics in the Novel
A study of the literary and cultural self-presentations of a decade obsessed by its own momentousness as the end of a century and even, perhaps, the end of Time. The class examines writers' new pride in decadence, the primacy of termination and death, and the impact of the women's movement on fictions, art, poetry, and theater of the 1890's. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 761 British Modernism
This course treats one or more of the strains of British modernism in fiction, poetry, or the arts. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 765 Topics in 20th-Century Literature
An advanced seminar treating a specific topic or issue in 20th-Century Literature and Culture. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 769 Feminist Theory
Specific topic varies. The seminar will bring together the study of early modern English literature and culture with histories and theories of gender, sexuality and race. Contact with 'the East' (Turkey, the Moluccas, North Africa and India) and the West (the Americas and the Caribbean) reshaped attitudes to identity and desire. How does this history allow us to understand, and often interrogate, modern theories of desire and difference? Conversely, how do postcolonial and other contemporary perspectives allow us to re-read this past? See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 770 Afro-American Literature
An advanced seminar in African-American literature and culture. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 771 Textual Production
This course is based on library work and is intended as a practical introduction to graduate research. It addresses questions of the history of the book, of print culture, and of such categories as "work," "character," and "author," as well as of gender and sexuality, through a detailed study of the (re)production of Shakespearean texts from the seventeenth to the twentieth century. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 773 Modernism
An interdisciplinary and international examination of modernism, usually treating European as well as British and American modernists. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 774 Postmodernism
An advanced seminar on postmodernist culture. Recently offered as a study of relationship between poetry and theory in contemporary culture, with readings in poststructuralist, feminist, marxist, and postcolonial theory and in poets of the Black Mountain and Language groups. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 775 African Literature
An advanced seminar in anglophone African literature, possibly including a few works in translation. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 778 20th-Century Aesthetics
This course explores notions that have conditioned 20th century attitudes toward beauty among them ornament, form, fetish, the artifact "women", the moves to 20th century fiction, art manifestos, theory, and such phenomena as beauty contests and art adjudications. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 783 Major American Author
A seminar treating any one of the major American Writers. Past versions have focused on Melville, Whitman, Twain, James, Pound, Eliot, and others. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
ENGL 790 Recent Issues in Critical Theory
See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 794 Postcolonial Literature
An advanced seminar treating a specific topic or issue in Postcolonial Literature. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 795 Topics in Poetics
Topics in poetics will vary in its emphasis depending on the instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 797 Topics in 20th-Century Culture
Usually focusing on non-fictional texts, this course varies in its emphasis depending on the instructor. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 799 Topics in American Literature
An advanced topics course in American literature, with the curriculum fixed by the instructor. Recently offered with a focus on American Literature of Social Action and Social Vision. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

ENGL 800 Teaching of Literature and Composition
A course combining literary study with training in teaching. These courses will normally be taken by students in their first semester of teaching.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ENGL 850 Field List
Students work with an adviser to focus the area of their dissertation research. They take an examination on the field in the Spring and develop a dissertation proposal.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 851 Dissertation Proposal
A continuation of ENGL 850.
One-term course offered either term
Activity: Seminar
1 Course Unit

ENGL 998 Independent Study
Open to students who apply to the graduate chair with a written study proposal approved by the advisor. The minimum requirement is a long paper. Limited to 1 CU.
Course offered summer, fall and spring terms
Activity: Independent Study
1 Course Unit
Notes: Limited to 1 CU

ENGL 999 Independent Reading
Open only to candidates who have completed two semesters of graduate work.
One-term course offered either term
Activity: Independent Study
1 Course Unit
ENVIRONMENTAL STUDIES (ENVS)

ENVS 073 Topics in Ethics
Topics vary each semester.
Taught by: Meyer, M.
Course not offered every year
Activity: Seminar
1 Course Unit

ENVS 100 Introduction to Environmental Science
This course will explore the physical science of the Earth's environment and human interactions with it. Coverage will include the Earth's various environmental systems, various environmental problems, and the direct and indirect causes of these environmental problems.
For BA Students: Physical World Sector
Taught by: Plante
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ENVS 150 Water Worlds
As a result of climate change, the world that will take shape in this century will be decidedly more inundated with water than we're accustomed to. The polar ice caps are melting, glaciers are retreating, ocean levels are rising, and the climate is changing. In response to this new reality, countries are jockeying for control over new Arctic passage, while low-lying cities and small island nations are confronting the possibility of their own demise. Catastrophic flooding events are increasing in frequency, as are extreme droughts. Hurricane-related storm surges, tsunamis, and raging rivers have devastated regions on a local and global scale. In this seminar we will turn to the narratives and images that the human imagination has produced in response to the experience of overwhelming watery invasion, from Noah to New Orleans. Objects of analysis will include mythology, ancient and early modern diluvialism, literature, art, film, and commemorative practice.
For BA Students: Arts and Letters Sector
Taught by: Richter, Simon
Activity: Lecture
1 Course Unit

ENVS 181 Comparative Cultures of Sustainability
Sustainability is more than science, engineering, policy, and design. Surveying the world, we see that the politics and practice of sustainability play out in different ways depending on cultural factors. Some cultures are more prone to pursue ecological goals than others. Why? Do the environmental history and experience of a nation affect policy? Do nature and the environment play a crucial role in the cultural memory of a nation? Can cultural components be effectively leveraged in order to win approval for a politics of sustainability? And what can we, as residents of a country where climate change and global warming are flashpoints in an enduring culture war, learn from other cultures? This course is designed to equip undergraduate students with the historical and cultural tools necessary to understand the cultural aspects of sustainability in two countries noted for their ecological leadership and cultural innovation, Germany and the Netherlands.
Taught by: Simon Richter
Course usually offered summer term only
Activity: Lecture
1 Course Unit

ENVS 152 Liquid Histories and Floating Archives
Activity: Lecture
1 Course Unit

ENVS 211 Religion & Ecology
Activity: Lecture
1 Course Unit

ENVS 246 Spirituality in the Age of Global Warming: How Can Science & the Humanities Work Together?
We are living in the midst of one of the most severe crises in the Earth's history. Science confirms the glaciers are melting, hurricanes are growing more intense, and the oceans are rising. But there is also a deeply spiritual dimension to global warming that does not factor into the scientific explanations. This part of the problem has been more powerfully expressed in film, literature, and art. We will be looking at films like Lee's "When the Levees Broke," about how the people of New Orleans turned to music and storytelling to rebuild their communities in the wake of Hurricane Katrina and Linda Hogan's novel, "Solar Storm" which explores how Native American women draw upon spirituality to heal their community after a dam flooded their ancestral homeland. The class will also work on an ongoing research project in partnership with the Canadian government and Ojibwe First Nations who submitted a successful UNESCO World Heritage Site application to preserve the boreal forest and the Native people's traditional knowledge about their land. The class will be working on an interactive map to document how photographs, oral histories, and artwork helped convince UNESCO to preserve the land and the Traditional Ecological Knowledge (TEK) of the people who have lived on that land for thousands of years.
Taught by: Timothy Powell
Activity: Seminar
1 Course Unit
ENVS 279 Nature's Nation: Americans and Their Environment
The United States has been described as "nature's nation. The presence of enormous, resource-rich and sparsely settled continent has been a component of American identity, prosperity and pride—it has even been described as the source of the democratic political system. From the beginning, Americans transformed their natural environment, even as, over time, they grew to value environmental preservation and protection. This course traces the interaction of Americans and the natural world in, studying how Americans changes the natural environment over time, in order to understand why environmental change occurred and occurred in the manner it did. What have Americans believed about the nature of the nation's nature, and what attitudes and policies have followed from these ideas? After surveying American environmental history from the 17th to the 20th century, we will examine specific topics and problems in the long relationship between Americans and their environment. (Possible topics: national parks and wilderness preservation, environmental politics, chemical pollution, invasive species). This seminar fulfills the research requirement for the History major because students will complete a 20-page paper of original research.
Taught by: Greene
Course not offered every year
Activity: Seminar
1 Course Unit

ENVS 295 Maritime Science and Technology: Woods Hole Sea Semester
A rigorous semester-length academic and practical experience leading to an understanding of the oceans. The Sea Semester is composed of two intensive six-week components taken off-campus. The Shore Component is six weeks at Woods Hole, Massachusetts, with formal study in: Oceanography, Maritime Studies, and Nautical Science. This is followed by six weeks aboard a sailing research vessel, during which students conduct oceanographic research projects as part of the courses, Practical Oceanography I and II. Maritime Studies. A multidisciplinary study of the history, literature, and art of our maritime heritage, and the political and economic problems of contemporary maritime affairs.
Taught by: Andrews
One-term course offered either term
Prerequisites: Laboratory course in physical or biological science or its equivalent; college algebra or its equivalent.
Activity: Independent Study
1 Course Unit
Notes: This set of courses requires special application procedures. Contact Maria Andrews for information and an application. Only the "SEA semester: Ocean Exploration" and "SEA Semester: Oceans and Climates" can be taken for Penn credit without taking a leave, and all students must have permission from Maria Andrews before registering at SEA.

ENVS 299 Independent Study
Directed study for individuals or small groups under supervision of a faculty member.
One-term course offered either term
Prerequisite: Permission of department
Activity: Independent Study
1 Course Unit
Notes: May be repeated for credit

ENVS 301 Environmental Case Studies
A detailed, comprehensive investigation of selected environmental problems. Guest speakers from the government and industry will give their accounts of various environmental cases. Students will then present information on a case study of their choosing.
Taught by: Dmochowska
Course usually offered in fall term
Prerequisite: ENVS 200
Activity: Lecture
1 Course Unit

ENVS 312 Ocean-Atmosphere Dynamics and Implications for Future Climate Change
This course covers the fundamentals of atmosphere and ocean dynamics, and aims to put these in the context of climate change in the 21st century. Large-scale atmospheric and oceanic circulation, the global energy balance, and the global energy balance, and the global hydrological cycle. We will introduce concepts of fluid dynamics and we will apply these to the vertical and horizontal motions in the atmosphere and ocean. Concepts covered include: hydrostatic law, buoyancy and convection, basic equations of fluid motions, Hadley and Ferrel cells in the atmosphere, thermohaline circulation, Sverdrup ocean flow, modes of climate variability (El-Nino, North Atlantic Oscillation, Southern Annular Mode). The course will incorporate student led discussions based on readings of the 2007 Intergovernmental Panel on Climate Change (IPCC) report and recent literature on climate change. Aimed at undergraduate or graduate students who have no prior knowledge of meteorology or oceanography or training in fluid mechanics. Previous background in calculus and/or introductory physics is helpful. This is a general course which spans many subdisciplines (fluid mechanics, atmospheric science, oceanography, hydrology).
Taught by: Marinov
Course usually offered in spring term
Prerequisites: MATH 114 or permission of the instructor.
Activity: Lecture
1 Course Unit

ENVS 325 Sustainable Goods
The study of sustainability—the long term viability of humans in harmony with the environment—has been identified as a critical issue for society and industry and is evolving to examine how society should conduct itself in order to survive. This issue impacts the consumer goods that we use in our lives, the processes that are designed to make these goods, and the raw materials that we obtain to create these goods. The questions that we will examine will be: can these goods be obtained, made, and consumed in a fashion that allows the current quality of life to be maintained (or enhanced) for future generations? Can these processes be sustainable? A review of consumer goods is necessary as the starting point in order to understand the basic needs of people in society and why people consume goods as they do. Subsequently, each student will choose a product to examine in detail and will research the product for its impact with respect to natural resource selection, production, use, and disposal/reuse.
Taught by: Hagan
Activity: Lecture
1 Course Unit
ENVS 326 GIS: Mapping Places & Analyzing Spaces
This course is a hands-on introduction to the concepts and capabilities of geographic information systems (GIS). Students will develop the skills necessary for carrying out basic GIS projects and for advanced GIS coursework. The class will focus on a broad range of functional and practical applications, ranging from environmental science and planning to land use history, social demography, and public health. By the end of the course, students will be able to find, organize, map, and analyze data using both vector (i.e. drawing-based) and raster (i.e. image-based) GIS tools, while developing an appreciation for basic cartographic principles relating to map presentation. This course fulfills the spatial analysis requirement for ENVS and EASC Majors. Previous experience in the use of GIS is not required.
Taught by: Heilen
Activity: Lecture
1 Course Unit

ENVS 327 Principles of Sustainability
What is sustainability? Can any fundamental concepts, principles or framework be constructed that adequately describes the search for sustainability? Is there a meaningful methodology? Sustainability science is a trans-disciplinary approach in which the quantitative and qualitative, natural and social, and theory and practice are reconciled and creatively combined. The objective of this course is to provide an in-depth analysis of the foundational concepts, principles, processes and practices of sustainability science. The course will explore three foundational laws governing sustainability: the law of limits to growth, the second law of thermodynamics, and the law of self-organization. Students will examine how these laws operate in biological, ecological, and physical systems, and then apply them to social, economic and political systems.
Taught by: Alain Plante
Activity: Lecture
1 Course Unit

ENVS 399 Environmental Studies Research Seminar for Juniors
This seminar is designed to help Juniors prepare for the Senior Thesis research. Topic selection, advisor identification, funding options, and basic research methods will be discussed.
Taught by: Andrews
Course usually offered in spring term
Prerequisite: ENVS 100
Activity: Seminar
1 Course Unit

ENVS 400 Environmental Studies Seminar
Application of student and faculty expertise to a specific environmental problem, chosen expressly for the seminar.
Taught by: Plante, Jerolmack, Kulik
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit

ENVS 404 Urban Environments: Speaking About Lead in West Philadelphia
Lead poisoning can cause learning disabilities, impaired hearing, behavioral problems, and at very high levels, seizures, coma and even death. Children up to the age of six are especially at risk because of their developing systems; they often ingest lead chips and dust while playing in their home and yards. In ENVS 404, Penn undergraduates learn about the epidemiology of lead poisoning, the pathways of exposure, and methods for community outreach and education. Penn students collaborate with middle school and high school teachers in West Philadelphia to engage middle school children in exercises that apply environmental research relating to lead poisoning to their homes and neighborhoods.
For BA Students: Natural Science and Math Sector
Taught by: Pepino
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: ABCS Course. Requires community service in addition to class time.

ENVS 406 Community Based Environmental Health
From the fall of the Roman Empire to Love Canal to the epidemics of asthma, childhood obesity and lead poisoning in West Philadelphia, the impact of the environment on health has been a continuous challenge to society. The environment can affect people's health more strongly than biological factors, medical care and lifestyle. The water we drink, the food we eat, the air we breathe, and the neighborhood we live in are all components of the environment that impact our health. Some estimates, based on morbidity and mortality statistics, indicate that the impact of the environment on health is as high as 80%. These impacts are particularly significant in urban areas like West Philadelphia. Over the last 20 years, the field of environmental health has matured and expanded to become one of the most comprehensive and humanly relevant disciplines in science. This course will examine not only the toxicity of physical agents, but also the effects on human health of lifestyle, social and economic factors, and the built environment. Topics include cancer clusters, water borne diseases, radon and lung cancer, lead poisoning, environmental tobacco smoke, respiratory diseases and obesity. Students will research the health impacts of classic industrial pollution case studies in the US. Class discussions will also include risk communication, community outreach and education, access to health care and impact on vulnerable populations. Each student will have the opportunity to focus on Public Health, Environmental Protection, Public Policy, and Environmental Education issues as they discuss approaches to mitigating environmental health risks.
Taught by: Kulik
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: ABCS Course. Requires community service in addition to class time.
ENVS 407 Urban Environments: Prevention of Tobacco Smoking in Adolescents
Cigarette smoking is a major public health problem. The Centers for Disease Control and Prevention Control reports that more than 80% of current adult tobacco users started smoking before age 18. The National Youth Tobacco Survey indicated that 12.8% of middle school students and 34.8% of high school students in their study used some form of tobacco products. In ENVS 407, Penn undergraduates learn about the short and long term physiological consequences of smoking, social influences and peer norms regarding tobacco use, the effectiveness of cessation programs, tobacco advocacy and the impact of the tobacco settlement. Penn students will collaborate with teachers in West Philadelphia to prepare and deliver lessons to middle school students. The undergraduates will survey and evaluate middle school and Penn student smoking. One of the course goals is to raise awareness of the middle school children to prevent addiction to tobacco smoke during adolescence. Collaboration with the middle schools gives Penn students the opportunity to apply their study of the prevention of tobacco smoking to real world situations.
Taught by: Pepino
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: ABCS Course. Requires community service in addition to class time.

ENVS 408 Urban Environments: The Urban Asthma Epidemic
Asthma as a pediatric chronic disease is undergoing a dramatic and unexplained increase. It has become the number one cause of public school absenteeism and now accounts for a significant number of childhood deaths each year in the USA. The Surgeon General of the United States has characterized childhood asthma as an epidemic. In ENVS 408, Penn undergraduates learn about the epidemiology of urban asthma, the debate about the probable causes of the current asthma crisis, and the nature and distribution of environmental factors that modern medicine describes as potential triggers of asthma episodes. Penn students will co-teach asthma classes offered in public schools in West Philadelphia and survey asthma caregivers, providing them with the opportunity to apply theoretical knowledge to real-world situations, promote community education and awareness about asthma, and use problem-solving learning to enhance student education in environmental health.
Taught by: Kulik
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: ABCS Course. Requires community service in addition to class time.

ENVS 410 The Role of Water in Urban Sustainability and Resiliency
This course will provide an overview of the cross-disciplinary fields of civil engineering, environmental sciences, urban hydrology, landscape architecture, green building, public outreach and politics. Students will be expected to conduct field investigations, review scientific data and create indicator reports, working with stakeholders and presenting the results at an annual symposium. There is no metaphor like water itself to describe the cumulative effects of our practices, with every upstream action having an impact downstream. In our urban environment, too often we find degraded streams filled with trash, silt, weeds and dilapidated structures. The water may look clean, but is it? We blame others, but the condition of the creeks is directly related to how we manage our water resources and our land. In cities, these resources are often our homes, our streets and our communities. This course will define the current issues of the urban ecosystem and how we move toward managing this system in a sustainable manner. We will gain an understanding of the dynamic, reciprocal relationship between practices in an watershed and its waterfront. Topics discussed include: drinking water quality and protection, green infrastructure, urban impacts of climate change, watershed monitoring, public education, creating strategies and more.
Taught by: Neukrug
Course not offered every year
Prerequisites: ENVS 100, GEOL 100 or equivalent
Activity: Seminar
1 Course Unit
Notes: An academically-based curriculum service learning approach to using water, science and politics to create a sustainable Philadelphia.

ENVS 411 Air Pollution: Sources & Effects in Urban Environments
This is an ABCS course designed to provide the student with an understanding of air pollution at the local, regional and global levels. The nature, composition, and properties of air pollutants in the atmosphere will also be studied. The course will focus on Philadelphia's air quality and how air pollutants have an adverse effect on the health of the residents. The recent designation by IARC of Air Pollution as a known carcinogen will be explored. How the community is exposed to air pollutants with consideration of vulnerable populations will be considered. Through a partnership with Philadelphia Air Management Service (AMS) agency the science of air monitoring and trends over time will be explored. Philadelphia’s current non-attainment status for PM2.5 and ozone will be studied. Philadelphia’s current initiatives to improve the air quality of the city will be discussed. Students will learn to measure PM2.5 in outdoor and indoor settings and develop community-based outreach tools to effectively inform the community of Philadelphia regarding air pollution. The outreach tools developed by students may be presentations, written materials, apps, websites or other strategies for enhancing environmental health literacy of the community. A project based approach will be used to include student monitoring of area schools, school bus routes, and the community at large. The data collected will be presented to students in the partner elementary school in West Philadelphia. Upon completion of this course, students should expect to have attained a broad understanding of and familiarity with the sources, fate, and the environmental impacts and health effects of air pollutants.
For BA Students: Natural Science and Math Sector
Taught by: Andrews and Howarth
Course usually offered in fall term
Activity: Seminar
1 Course Unit
ENVS 416 Freshwater Ecology
Survey of the physical, chemical and biological properties of freshwater ecosystems, both riverine and lentic, natural and polluted.
Taught by: Bott
Course not offered every year
Prerequisites: BIOL 101 or 121 and one semester of college chemistry
Activity: Lecture
1 Course Unit

ENVS 417 The anthropocene: Human-dominated Earth
How much have humans altered the planet they live on? Beyond climate change, humans have altered the Earth's land, oceans and biosphere to such an extent that the concept of a new geologic epoch defined by the ejection of humans is seriously debated. This seminar will examine the origins of the Anthropocene, the ways in which humans have altered Earth systems, whether or not these alterations warrant a new geologic designation, and what the future potentially holds for both humans and the planet.
Taught by: Alain Plante
Activity: Seminar
1 Course Unit

ENVS 421 Science in Elementary & Middle School
A intensive approach to current methods, curricula, and trends in teaching science as basic learning, K-8. "hands-on" activities based on cogent, current philosophical and psychological theories including: S/T/S and gender issues. Focus on skill development in critical thinking. Content areas: living things, the physical universe, and interacting ecosystems.
Taught by: Bergey
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ENVS 498 Senior Thesis
The culmination of the Environmental Studies major. Students, while working with an advisor in their concentration, conduct research and write a thesis.
Taught by: Dmoschowski
Two terms. student may enter either term.
Prerequisites: ENVS 400-level course and declaration of the ENVS major
Activity: Senior Thesis
0.5 Course Units
Notes: The Environmental Studies major, as of the fall of 2008, requires 1 semester of ENVS399 and two semesters of ENVS498.

ENVS 507 Wetlands
The course focuses on the natural history of different wetland types including climate, geology, and hydrology factors that influence wetland development. Associated soil, vegetation, and wildlife characteristics and key ecological processes will be covered as well. Lectures will be supplemented with weekend wetland types, ranging from tidal salt marshes to non-tidal marshes, swamps, and glacial bogs in order to provide field experience in wetland identification, characterization, and functional assessment. Outside speakers will discuss issues in wetland seed bank ecology, federal regulation, and mitigation. Students will present a short paper on the ecology of a wetland animal and a longer term paper on a selected wetland topic. Readings from the text, assorted journal papers, government technical documents, and book excerpts will provide a broad overview of the multifaceted field of wetland study.
Taught by: Willig
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ENVS 541 Modeling Geographical Objects
This course offers a broad and practical introduction to the acquisition, storage, retrieval, maintenance, use, and presentation of digital cartographic data with both image and drawing based geographic information systems (GIS) for a variety of environmental science, planning, and management applications. Its major objectives are to provide the training necessary to make productive use of at least two well known software packages, and to establish the conceptual foundation on which to build further skills and knowledge in late practice.
Taught by: Tomlin
Course usually offered in fall term
Activity: Lecture
1 Course Unit

ENVS 601 Proseminar: Contemporary Issues in Environmental Studies
A detailed, comprehensive investigation of selected environmental problems. This is the first course taken by students entering the Master of Environmental Studies Program.
Taught by: Bordeaux/Colijn
One-term course offered either term
Activity: Seminar
1 Course Unit

ENVS 604 Conservation and Land Management
Using protected lands in the Delaware Valley, this field-based course will explore various strategies for open-space conservation and protection. In addition, students will be introduced to land management techniques used on such sites to restore or preserve land trust properties in accordance with goals set for their use or protection. Sustainable land uses such as community supported agriculture, ecovillages, and permaculture design will be covered. Emphasis will be placed on developing skills in "Reading the Landscape" to determine conservation and restoration priorities. Students will produce a site assessment report on sites that they visit.
Taught by: Brightman
Course usually offered summer term only
Activity: Lecture
1 Course Unit
Notes: Some Saturday field trips will be required.

ENVS 605 Bioremediation
This course is an introduction to current and developing techniques for analyzing environmental contamination and for remediation of damaged environments. Knowledge of these options is important for students interested in public/law applications and environmental/landscape design and as a starting point for those pursuing a more science-oriented understanding. The first portion of this course will address bioindicators-the use of living systems to assess environmental contamination. These include systems ranging from biochemical assays to monitoring of whole organisms or ecosystems, as well as techniques ranging from laboratory to field and satellite surveys. The second portion of the course will introduce technologies for bioremediation-the use of living systems to restore contaminated environments. The technologies scale from single-species systems to complex ecosystems such as constructed wetlands; case studies will be examined. Students will be expected to participate in field trips, as well as prepare a final paper examining a particular technology in detail.
Taught by: Vann
Course not offered every year
Activity: Lecture
1 Course Unit
ENVS 606 Avifaunal Ecology: Studying ornithological principles & behaviors to indicate ecosystem health
This class will explore the foundations of avifaunal biology and ecology using a combination of hands-on classroom and in-the-field experiences. Classroom content includes physiology, anatomy, and morphology of birds. The fall migration of birds in North America is an epic and often tragic event. Sampling birds in migration has resulted in foundational understandings about stopover habitats, species-specific energy budgets and has helped realize the complete life cycle of hundreds of species. We will enter the field and participate in actual ornithological research, explore avifaunal ecology through birdwatching, and meet with regional leaders in the ornithological field.
Taught by: McGraw
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ENVS 610 Regional Field Ecology
Over the course of six Sunday field trips, we will travel from the barrier islands along the Atlantic Ocean in southern New Jersey to the Pocono Mountains in northeastern Pennsylvania, visiting representative sites of the diverse landscapes in the region along the way. At each site we will study and consider interactions between geology, topography, hydrology, soils, vegetation, wildlife, and disturbance. Students will summarize field trip data in a weekly site report. Evening class meetings will provide the opportunity to review field trips and reports and preview upcoming trips. Six all-day Sunday field trips are required.
Taught by: Willig
Course usually offered summer term only
Activity: Lecture
1 Course Unit
Notes: Some Sunday field trips required.

ENVS 615 Climate Change & Health
Main causes of climate change and direct consequences on air temperature, weather patterns, glacial melting, sea level, air and water quality, water and food supply, natural disasters, and ecosystems; how climate change can affect health in different ways, and how certain groups of people are more vulnerable to health impacts.
Course not offered every year
Activity: Seminar
1 Course Unit

ENVS 616 Risk Assessment: Science & Policy Challenges
How do government policy-makers make decisions about potential threats to human health and the environment in the face of scientific uncertainty? The course develops the concept of Risk Assessment from the publication of the 1983 National Research Council (NRC) report commonly known as the "Red Book" which was used to rank the initial hazardous waste sites under the Superfund program. Using a variety of teaching tools, including lectures, panel discussions, and case studies, the course examines how public policy decisions regarding environmental risk are made and how effective those decisions are at reducing risks to affected populations. The course focuses on the complex interaction of science, economics, politics, laws, and regulations in dealing with environmental and public health risks. The course will begin with a review of the policy process and methods used in evaluating human health and environmental risks, including the traditional steps in the risk assessment process, including quantitative and qualitative aspects of hazard identification, dose-response assessment, exposure assessment, and risk characterization. The course will then focus on how scientific uncertainty, risk perceptions, socio-economic disparities, risk communication, and politics influence environmental risk-based decision-making. Issues such as special populations (e.g., children, elderly, immune-compromised, woman of pregnancy age, etc.) must be considered when developing risk reduction strategies. The use of the "precautionary principle" will be discussed in the context of different types of environmental stressors (e.g., pesticides, chemicals, climate change, air pollution, water quality, and land use) and how this important controversial principle is applied differently in contrasting national and European risk management policies.
Taught by: Pepino
Course usually offered summer term only
Activity: Seminar
1 Course Unit
ENVS 617 Sustainable Estuaries: An Investigation of Resources & Recovery
This course will evaluate the multiple factors that must function to ensure the sustainability of estuaries of national significance. Since the beginning of the environmental movement in the 1960s, we have attempted to protect and improve our watersheds and estuaries through a series of environmental laws, but we learned over the last three decades that regulatory-based "command & control" approaches may have achieved their limits of success, and we now need to think more holistically in order to achieve the Clean Water Act goal of "fishable and swimmable" waters. In this course we will explore the new collaborative strategies and partnerships, which are available, and how social, economic and cultural factors are equally important as regulation to achieve estuary restoration. The National Estuary Program (NEP) was established in 1987 by amendments to the Clean Water Act (Section 320) to identify, restore and protect estuaries along the coasts of the U.S. Unlike traditional regulatory approaches to environmental protection, the NEP targets a broad range of issues and engages local communities in the process. The program focuses not just on improving water quality in an estuary, but on maintaining the integrity of the whole system - its chemical, physical, and biological properties, as well as its economic, recreational, and aesthetic. This course will examine the twenty estuaries of national significance, including the Chesapeake and the Delaware Bays, in an effort to define the condition of estuaries in the US and what strategies can be utilized to attain water quality and habitat goals while achieving important socioeconomic needs of the estuary's diverse stakeholders. You will examine the history of estuary management, the factors that stress water quality and habitat, and what strategies are commonly used to reduce risks while safeguarding the environment and public health.
Taught by: Pepino
Course usually offered summer term only
Activity: Seminar
1 Course Unit

ENVS 620 Developing Environmental Policy
When we think of environmental policies in the USA, we may think of one or more laws geared to improve our nation's air, water, ecosystems, and biodiversity. However, environmental policies and policy-making comprise more than just specific laws and regulations. Making and implementing environmental policy is a process influenced by multiple political, cultural, and economic factors in addition to scientific factors, all of which impact the ability of policies to be effective, that is, to actually improve the environment. In this course, we develop a framework to analyze the effectiveness of the social actors, process and outcomes of environmental policy-making. We ask questions such as: How do policy makers define environmental problems and solutions? Who are the social actors involved in the process? How are policies created and negotiated? What underlying assumptions and realities about the roles of government and society shape policy instruments and design? Are science and risk accurate or distorted? How are social and environmental justice intertwined? To answer these complex questions, we contextualize and critically analyze policies to determine how both government and society impact on regulatory approaches. We study the institutions involved and examine social and ecological outcomes of environmental policies. We also discuss contemporary issues and policy situations that arise throughout the course of the semester, and comment on them in a class blog. Finally, students will select an environmental issue and formulate a policy proposal to recommend to decisionmakers.
Taught by: Kulik
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ENVS 622 Environmental Enforcement
The goal of the course is to provide students with an introduction to the role of enforcement in federal, state and local environmental regulatory programs. Emphasis will be placed on federal enforcement actions initiated by the U.S. Environmental Protection Agency and U.S. Department of Justice. The course will provide students with an introduction to the American Legal System and legal concepts, like standing, jurisdiction, and burden of proof. A number of case studies and classroom exercises will be utilized as part of the discussion of civil and criminal enforcement actions. For example, a detailed case study will be presented concerning a successful prosecution by the federal government of a wastewater treatment plant operator (from the receipt of the initial tip through the sentencing of the defendant). A theme of all classes, presentations and assignments will be the role of the environmental professional in the enforcement context (e.g., the environmental professional who testifies as an expert in a judicial proceeding, or performs an audit that becomes the subject of a self-disclosure to EPA).
Taught by Lisa
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ENVS 627 Politics of Water
Course usually offered in spring term
Activity: Seminar
1 Course Unit
ENVS 629 The US Water Industry in the 21st Century
The course will explore all 4 sectors of the water business in the United States: The Drinking Water Industry, The Stormwater Utility, Water Resources (rivers, streams, reservoirs) Management and the Water Pollution Control Industry. The course will have 2 primary foci: 1. The influences on the industry from new technologies and infrastructure, acceptable levels of risk, public and private sector competition, climate change, the bottled water industry, resource recovery, rates and affordability and other influences will be investigated. 2. The management of a 21st century utility will be explored, including topics of organization and leadership, the role of environmentalism, infrastructure financing, water / wastewater treatment facility operations, public affairs and media, and designing a capital improvement program are examples of topic areas.
Taught by: Neukrug
Course usually offered in fall term
Activity: Seminar
1 Course Unit

ENVS 634 Topics in Water Policy
This course will explore various themes such as the UN Millennium Development Goals, EPA regulatory practices, and global water policy and governance.
Taught by: Laskowski
One-term course offered either term
Activity: Seminar
1 Course Unit

ENVS 642 Global Water Conference in Stockholm, Sweden
The global water and sanitation crisis kills over 4,000 children each day and represents one of the biggest health problems in the world. At the University of Pennsylvania school year 2010-2011 was declared the "Year of Water" in recognition of the many challenges that lie ahead as global increases in population and affluence and the influences of climate change will stress limited water resources. Each year the Stockholm International Water Institute convenes a Conference with experts from around the globe to exchange the latest water research findings and develop new networks. Students will attend the Conference, present research by presentations/posters, document a key issue, interview experts, and meet colleagues with common interests. They will also help other organizations at the Conference.
Taught by: Laskowski
Course usually offered summer term only
Activity: Seminar
1 Course Unit

ENVS 643 The Historical, Scientific, & Policy Dimensions of "Brownfields"
This course is intended to give students an overview of the genesis of the so-called "Brownfield" problem and of the various efforts our society is taking to solve or, at least, ameliorate it. The course will place the "Brownfield" problem in the broader context of the growth and decline of the industrial base of cities like Philadelphia. Students will study the general constitutional and statutory framework within which we approach the problems of orphan, polluted sites and the disposal of contemporary solid wastes. They will also analyze the principal actions that have been taken by Federal and state government to address remediation and redevelopment of abandoned industrial sites. The course will also explore environmental equity issues. The students will collaborate with high school students at the West Philadelphia High School to identify sites in their neighborhoods and to learn how to determine the sites ownership and land use history. The students will study ways of determining environmental risk and the various options that are available for remediation in light of community ideas about re-use. Students will be expected to participate actively in the seminar and the sessions with high school students. Students in the course are required to prepare and present a term paper on a topic in the general area of "Brownfield" analysis and remediation.
Taught by: Keene
Course not offered every year
Activity: Seminar
1 Course Unit

ENVS 644 Energy, Waste and the Environment
The aim of this course is to provide an incentive to use geochemical and mineralogical principles to address and solve major environmental problems. The students identify the problems that are associated with different types of waste. This course covers a wide range of problems associated with the waste arising from the generation of electricity. The main topics will be the uranium cycle, characterization of nuclear waste, and the containment and disposal of nuclear waste. Based on insights from the nuclear fuel cycle, solutions are presented that diminish the environmental impacts of coal and biomass combustion products, incineration of municipal solid waste, toxic waste due to refuse incineration, and landfills and landfill gases.
Taught by: Giere
Course usually offered in spring term
Activity: Seminar
1 Course Unit

ENVS 645 Energy Geopolitics in Eurasia
Russia is one of the major players in the international energy market: the largest oil producer (including lease condensate) and second-largest (after the U.S.) natural gas producers (2016 data). It is also a top coal and nuclear power producer. But the geopolitical might that the country holds with respect to energy markets stems not as much from how much energy it produces as from how much energy it exports. Today Russia leads global natural gas exports and trails only the Kingdom of Saudi Arabia in oil exports. Russia is also reliably one of the top coal-exporting countries. This class will explore the geopolitics of energy from the perspective of Russia and its interests. In doing so, it will provide a slightly different understanding of global energy geopolitics, which is usually taught from either the U.S. or OPEC angle.
Taught by: Mikulska
Course usually offered in fall term
Activity: Hybrid Course
1 Course Unit
ENVS 674 Life Cycle Assessment
In order to make sensible decisions on products or projects, people need to understand the environmental impacts of these actions. Life cycle assessment (LCA) is a process to assess environmental impacts throughout the different stages of a product or project's life. This seminar is intended to be comprehensive and covers material extraction, processing, manufacture, distribution, use and end of life reuse, recovery or disposal. The objective of conducting an LCA is to compare the full range of environmental impacts that emanate from the provision of these products or services and then use that information to improve the situation to minimize or eliminate harm. The focus of this class will be to understand the phases of an LCA as well as conduct LCAs that compare the impacts of two related options. This course will enable the student to conduct LCAs and examine the use of software that could be used in this regard. The classic examples are cloth vs. disposable diapers, paper vs. ceramic cups, and so on. This course will enable the student to conduct LCAs and examine the use of software that could be used in this regard.
Taught by: Hagan/English
Course usually offered in fall term
Prerequisites: ENVS 667 Introduction to Sustainability or the approval of the instructors.
Activity: Seminar
1 Course Unit

ENVS 681 Modeling Geographical Space
This course explores the nature and use of raster-based geographic information systems (GIS) for the analysis and synthesis of spatial patterns and processes through ‘cartographic modeling’. Cartographic modeling is a general but well defined methodology that can be used to address a wide variety of analytical mapping applications in a clear and consistent manner. It does so by decomposing both data and data-processing tasks into elemental components that can then be recomposed with relative ease and with great flexibility.
Taught by: Tomlin
Course usually offered in spring term
Activity: Lecture
1 Course Unit

ENVS 699 Masters of Environmental Studies Capstone Seminar
This course is designed to help students successfully complete their MES Capstone. A set of milestones will be set and regular meetings will be held in groups and individually to aid the student as they complete the research portion of their degree. We will be working together to complete a series of steps towards the final project. These steps fall into five major areas 1) Reviewing the literature; 2) Finding a model; 3) Framing your research; 4) managing data; and 5) Writing your results. Throughout the semester, we will also discuss career goals and the job search.
Taught by: Bordeaux
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: Project proposal and Online Application required for course registration. See MES Office and "Guide to the Capstone" for more information.

ENVS 999 Independent Study
Directed study for individuals or small groups under supervision of a faculty member.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Permission of instructor required

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EPIDEMIOLOGY (EPID)

EPID 510 Introductory Epidemiology
This course provides an introduction to the fundamentals of research in clinical epidemiology. It covers definitions of epidemiology; measures of disease frequency, measures of effect and association; epidemiologic study designs, including randomized clinical trials, cohort and case-control studies, cross-sectional surveys, meta-analysis and decision analysis; and an overview of the conduct and analysis of epidemiologic studies. The course is composed of a series of lectures and discussion sessions designed to reinforce concepts introduced in the preceding lecture.
Taught by: Bewtra
Course usually offered summer term only
Prerequisite: Permission of Instructor
Activity: Lecture
1 Course Unit

EPID 516 Disease Ecology
The transmission of infectious diseases is a complex and ever-changing process, and the measures we have to protect ourselves against pathogens—vaccines, antibiotics, bed nets—can have equally complex and unpredictable outcomes. The aim of disease ecology is to understand pathogens and their hosts as interacting populations and to use such understanding to design rational strategies to curb or eliminate disease transmission. A disproportionate number of emerging infectious diseases and recent disease outbreaks in the United States and elsewhere have shared a common characteristic: they affect veterinary as well as human populations. Many are also vector-borne, passing between different species of hosts through insects and other invertebrates. In some cases humans are only ‘spillover hosts’ whose infection is incidental to the transmission cycle. Interdisciplinary approaches are especially important to control such diseases. As a particular focus of the course, students will learn the tools needed for successful collaborations to address the growing problem of zoonotic and vector-borne diseases.
Taught by: Levy, Smith
Prerequisite: Permission of Instructor
Activity: Lecture
1 Course Unit

EPID 518 Geography & Public Health
Taught by: Wiebe
Course usually offered in spring term
Activity: Lecture
1 Course Unit

EPID 526 Biostatistics for Epidemiologic Methods I
The first half of this will cover graphical methods, probability, discrete and continuous distributions, estimation, confidence intervals, and one sample hypothesis testing. Emphasis is placed on understanding the proper application and interpretation of the methods. The second half of this course will cover two sample hypothesis testing, nonparametric techniques, sample size determination, correlation, regression, analysis of variance, and analysis of covariance. Emphasis is placed on understanding the proper application and underlying assumptions of the methods presented. Laboratory sessions focus on the use of the STATA statistical package and applications to clinical data.
Taught by: Cucchiara, Li
Prerequisite: Permission of Instructor
Activity: Lecture
1 Course Unit
Notes: This course runs from mid Summer to mid Fall term. There is a corresponding lab.

EPID 527 Biostatistics for Epidemiologic Methods II
The first half of this covers concepts in biostatistics as applied to epidemiology, primarily categorical data analysis, analysis of case-control, cross-sectional, cohort studies, and clinical trials. Topics include simple analysis of epidemiologic measures of effect, stratified analysis; confounding; interaction, the use of matching, and sample size determination. The second half of this course covers concepts in biostatistics as applied to epidemiology, primarily multivariable models in epidemiology for analyzing case-control, cross-sectional, cohort studies, and clinical trials. Topics include logistic, conditional logistics, and Poisson regression methods; simple survival analyses including Cox regression. Emphasis is placed on understanding the proper application and underlying assumptions of the methods presented. Laboratory sessions focus on the use of the STATA statistical package and applications to clinical data.
Taught by: Landis, Hwang
Prerequisite: EPID 526 or equivalent
Activity: Lecture
1 Course Unit
Notes: This course runs from mid fall to mid spring term. There is a corresponding lab.

EPID 532 Database Management for Clinical Epidemiology
This course provides students with an introduction to the techniques of database management as they apply to clinical research. Students learn how to design and implement computerized databases, perform basic query and reporting operations, migrate data between various file formats, prepare databases for statistical analysis, and perform quality assurance procedures. This course focuses on the practical issues of database management and is intended to support each student’s planned research enterprise. Each class session will be preceded by a one-hour online lecture and brief self-assessment quiz to be completed prior to attending class. This lecture is intended to prepare students for the class for the week, which will be dedicated to practical experience in a laboratory setting.
Taught by: Holmes
Course usually offered in spring term
Prerequisite: Permission of Instructor
Activity: Lecture
0.5 Course Units
Notes: Restricted to MSCE degree students
EPID 534 Qualitative Methods in the Study of Health, Disease and Medical Systems
This course combines informal lecture and discussion with practical exercises to build specific skills for conducting qualitative research on healthcare, broadly defined. Readings include books and papers about research methodology and articles that provide exemplars and pitfalls of qualitative research. Specific topics covered include: the role of theory in qualitative research, method-research question fit, collecting different types of qualitative data (observation, interview, focus group, text, video), ethical issues in qualitative research, establishing rigor in qualitative research, introduction to qualitative data analysis using software, mixing methods, approaches for obtaining grant funding for qualitative research and writing up qualitative research studies for publication. The objectives of this course are: To introduce the student to the epistemological underpinning of qualitative methodology; To review how to select the best qualitative approach for different research questions; To introduce the student to different qualitative data collection techniques; To review standards of methodological rigor in qualitative research; To introduce the basic principles of qualitative data analysis using NVivo software; To provide practical advice about planning, getting funding for and and implementing a qualitative study.
Taught by: Szymczak
Course usually offered in spring term
Prerequisite: Previous course work in research methods or permission of course director
Activity: Lecture
1 Course Unit

EPID 542 Measurement of Health in Epidemiology
Epidemiologic analyses involve three types of procedures: measuring variables (e.g. risk factors), estimating population parameters (e.g. risk ratios), and testing statistical hypotheses. This course addresses the first of these procedures: measurement, which broadly encompasses the tasks involved in obtaining data, without which analyses cannot proceed. Course topics include: defining concepts of exposure, disease, and health; approaches to measuring exposure, which may be personal or environmental; approaches to measuring disease and health status; assessing the validity and reliability of measurement instruments; problems of misclassification of exposure status and disease status and problems of missing data; instrument (e.g. questionnaire) development; and qualitative methods.
Course usually offered in fall term
Prerequisite: Permission of course director. Introductory Epidemiology (EPID 510) and Biostatistics for Epidemiologic Methods I (EPID 526) previously or concurrently.
Activity: Lecture
1 Course Unit

EPID 549 Methods in Epidemiology
The application of epidemiology to clinical medicine involves the use of a number of different methods that encompasses measuring variables, estimating population parameters and testing statistical hypotheses. This course is designed to broaden students’ understanding of a number of important procedures including: measuring and obtaining data about exposure, disease, and health; assessing the validity and reliability of measurement instruments; problems of data quality including misclassification of exposure status and disease status and problems of missing data; qualitative data methods; and the application of data for decision making and health economics. The primary goal is to expose students to a variety of commonly used epidemiologic methods to prepare them to explore these in more depth if they are applicable to the students’ research interests.
Course usually offered in fall term
Prerequisites: Permission of course director. Introductory Epidemiology (EPID 510) and Biostatistics for Epidemiologic Methods I (EPID 526) previously or concurrently.
Activity: Lecture
1 Course Unit

EPID 550 Clinical Economics and Clinical Decision Making
This course focuses on the application of decision analysis and economic analysis to clinical and policy research. The course begins with material about the selection, use, and analysis of diagnostic tests using two by two tables, likelihood ratios, and ROC curves. The course continues with the introduction of more general tools for decision analysis, including decision trees and other mathematical models. Special emphasis is placed on the assessment and use of utilities in these models. A major focus of the course is the application of economic principles to the evaluation of health outcomes. During seminars, students will carry out practical exercises that include problem solving, critically analyzing published articles, and learning to use computer software that facilitates decision and economic analyses.
Taught by: Glick, Williams
Course usually offered in spring term
Also Offered As: HPR 550
Prerequisite: Permission of Instructor
Activity: Lecture
1 Course Unit

EPID 551 Qualitative Methods in the Study of Health, Disease and Medical Systems
This course combines informal lecture and discussion with practical exercises to build specific skills for conducting qualitative research on healthcare, broadly defined. Readings include books and papers about research methodology and articles that provide exemplars and pitfalls of qualitative research. Specific topics covered include: the role of theory in qualitative research, method-research question fit, collecting different types of qualitative data (observation, interview, focus group, text, video), ethical issues in qualitative research, establishing rigor in qualitative research, introduction to qualitative data analysis using software, mixing methods, approaches for obtaining grant funding for qualitative research and writing up qualitative research studies for publication. The objectives of this course are: To introduce the student to the epistemological underpinning of qualitative methodology; To review how to select the best qualitative approach for different research questions; To introduce the student to different qualitative data collection techniques; To review standards of methodological rigor in qualitative research; To introduce the basic principles of qualitative data analysis using NVivo software; To provide practical advice about planning, getting funding for and and implementing a qualitative study.
Taught by: Szymczak
Course usually offered in spring term
Prerequisite: Previous course work in research methods or permission of course director
Activity: Lecture
1 Course Unit

EPID 556 Issues in Research Protocol Development
This course focuses on major issues in research protocol development, including methodological issues regarding different research designs, development of research questions, and plans for analysis. Each student will present his or her research proposal for open discussion during one of the sessions.
Course usually offered in spring term
Activity: Seminar
0.25 Course Units
Notes: Restricted to MSCE degree students

EPID 570 Critical Appraisal of the Medical Literature
This course focuses on techniques for critical appraisal of the medical literature. Each student will be responsible for at least one critical appraisal session covering different epidemiologic topics.
Course usually offered in spring term
Activity: Lecture
0.25 Course Units
Notes: Restricted to MSCE degree students.
EPID 575 Introduction to Genetic Epidemiology
There is an increasing need for researchers to understand the genetic basis of incorporating the collection and analysis of genetic information into studies of health. The objectives of this course are to provide students with an understanding of the value of molecular and genetic epidemiology. This course consists of a series of discussions focused on the critical appraisal of genetic/molecular epidemiology. After completing this course, students will be able to read and interpret the literature, and understand data collection and analysis approaches in molecular and genetic epidemiological studies.
Taught by: DeVoto, Saleheen
Course usually offered in spring term
Prerequisites: Permission of course director. Students enrolling in this course are expected to have a working knowledge of epidemiology, biostatistics, and human genetics. Students who do not meet these requirements may be allowed to enroll in the class, but may be required to undertake supplemental readings and/or tutorials to obtain the necessary background.
Activity: Lecture
1 Course Unit

EPID 580 Outcomes Research
This course is divided into two main parts. The first part addresses issues related to the measurement of quality in health care. Included is a review of the classical structure-process-outcome quality paradigm. The paradigm's strengths and limitations are addressed. This part especially focuses on outcome measures of quality and examines the validity of alternative measures. The second part deals with observational, or quasi-experimental, research studies. It addresses the advantages and limitations of alternative designs, and covers the role of clinical risk adjustment in observational studies of medical interventions. It focuses on the problem of selection bias, and reviews recent methods for dealing with this bias, such as instrumental variables.
Taught by: Silber
Course usually offered in fall term
Also Offered As: HPR 580
Prerequisites: Introductory course in statistics including regression methods. Permission of instructor.
Activity: Lecture
1 Course Unit

EPID 582 Systematic Review and Meta-Analysis
This course will provide an introduction to the fundamentals of systematic reviews and meta-analysis. It will cover introductory principles of meta-analysis; protocol development; search strategies; data abstraction methods; quality assessment; meta-analytic methods; and applications of meta-analysis.
Taught by: Umscheid, Chen
Course offered fall, odd-numbered years
Prerequisites: EPID 510, EPID 526 (may be taken concurrently)
Activity: Lecture
1 Course Unit

EPID 584 Health Disparities Research
This course will provide an overview of research in health disparities. It will cover the historical aspects, concepts, policy, economic, genomic and social perspectives of health disparities. It will provide students with methodological tools for health disparities research and introduce students to ongoing health disparities research by current Penn and affiliated faculty members. The course is composed of a series of weekly small group lectures and discussion, including critical appraisal of published papers, guest faculty presentations, and student presentations. Students will be expected to attend weekly meetings and participate in class discussions, prepare and lead discussions of assigned papers, review assigned readings, and draft and present a scientific protocol of their choosing related to health disparities.
Taught by: Guevara
Course usually offered in spring term
Prerequisite: EPID 510 or equivalent course; EPID 526 or equivalent course
Activity: Lecture
1 Course Unit

EPID 600 Data Science for Biomedical Informatics
Data science refers broadly to using statistics and informatics techniques to gain insights from large datasets. Biomedical informatics refers to a range of disciplines that use computational approaches to analyze biomedical data to answer pre-specified questions as well as to discover novel hypotheses. In this course, we will use R and other freely available software to learn fundamental data science applied to a range of biomedical informatics topics, including those making use of health and genomic data. After completing this course, students will be able to retrieve and clean data, perform exploratory analyses, build models to answer scientific questions, and present visually appealing results to accompany data analyses; be familiar with various biomedical data types and resources related to them; and know how to create reproducible and easily shareable results with R and github.
Taught by: Himes
Course usually offered in fall term
Prerequisites: Familiarity with basic statistical (e.g., EPID 526/7 or other first-year graduate level stats course) concepts is expected, as this course will not cover basic concepts in depth. A background in biology and computing would be helpful, but no formal requirements will be enforced.
Activity: Lecture
1 Course Unit

EPID 602 Topics in Biom/Hlth Info
Activity: Lecture
1 Course Unit
EPID 621 Longitudinal and Clustered Data in Epidemiologic Research
An introduction to the principles of and methods for longitudinal and clustered data analysis with special emphasis on clinical, epidemiologic, and public health applications. Designed for advanced MS and PhD-level students in epidemiology and related fields. Marginal and conditional methods for continuous and binary outcomes. Mixed effects and hierarchical models. Simulations for power calculations. Each student will be required to participate in 4 labs and complete associated problem sets. They may also use their own data to fulfill these requirements in part. Software will include Stata and R.
Taught by: Shults
Course usually offered in fall term
Prerequisites: Completion of EPID 526, 527 or equivalent preparation in biostatistics, including generalized linear models. Completion of semester course in principles of epidemiology or equivalent. Good working knowledge of Stata and SAS and familiarity with principles of first-year calculus and matrix algebra. Permission of course director.
Activity: Lecture
1 Course Unit

EPID 622 Applied Regression Models for Categorical Data
This course will provide in-depth treatment of several topics in categorical data analysis. After a brief review of methods for contingency tables, we will introduce the idea of generalized linear models, and focus on two special cases: multiple logistic regression and loglinear models. Each topic will be presented in detail by stating the model and covering parameter estimation and interpretation, inference, model building, regression diagnostics and assessment of model fit. Finally, we will cover extensions to both models, including models for multinomial data, analysis of matched-pair data, and random effects models. Topics will be illustrated in class with examples, and we will discuss the use of STATA to conduct the analyses.
Taught by: Xiao
Course usually offered in fall term
Prerequisites: EPID 510, EPID 526, EPID 527
Activity: Lecture
0.5 Course Units
Notes: Offered first half of fall term

EPID 623 Applied Survival Analysis
This course will focus on statistical methods for survival or time-to-event data. Topics covered will include: the concepts of survival data and censoring, estimation of survival functions, comparison of groups, regression analysis, sample size and power considerations, and methods for competing risks. All methods will be illustrated by in class examples and homework sets.
Taught by: Li
Course usually offered in fall term
Prerequisites: EPID 510, EPID 526, EPID 527. Additionally, students should be comfortable with basis calculus concepts (e.g. derivatives, integrals, etc).
Activity: Lecture
0.5 Course Units
Notes: Offered second half of fall term

EPID 624 Methods in PCOR
The goal of this course is to provide a broad overview of methods used in patient centered outcomes research (PCOR). Expert faculty will lecture on topics such as standards for research questions, patient centeredness, systematic reviews, causal inference, heterogeneity of treatment effect handling missing data, data networks, Bayesian designs, data registries, and diagnostic tests. Topics may also include advanced observational study design, statistical methods for observational studies, health status/quality of life as applied to PCOR and case studies of patient engagement.
Taught by: Gelfand
Course usually offered in spring term
Prerequisite: Permission of instructor
Activity: Lecture
1 Course Unit

EPID 625 Advanced Biostatistical Methods for Multivariable Prediction Models
This course is an introduction to statistical methods that can be used to evaluate biomarker prognostic studies and multivariate prediction models. It is designed for advanced MS and PhD-level students in epidemiology and related fields (nursing, health policy, social work, demography). Topics will include biostatistical evaluation of biomarkers, predictive models based on various regression modeling strategies and classification trees, assessing the predictive ability of a model; internal and external validation of models; and updating prognostic models with new variables or for use in different populations. Students will learn about the statistical methods that are required by current reporting guidelines for biomarker prognostic studies or the reporting guidelines for multivariable prediction models.
Taught by: Gimotty
Course usually offered in spring term
Prerequisites: Completion of EPID 526, EPID 527 and either EPID 622 or 623 or equivalent preparation in either categorical analysis or survival analysis. Working knowledge of either Stata, SAS or R to fit regression, logistic regression and/or Cox regression models. Permission of course director for students outside of School of Medicine graduate programs.
Activity: Lecture
0.5 Course Units

EPID 630 Clinical Trials
This course is to serve as a general introduction to clinical trials, with emphasis on trial design issues. This is not a course on the biostatistics of clinical trials. It is expected that at the conclusion of the course, a student will be able to plan a clinical trial. Each class will consist of a two-hour lecture followed by a one hour discussion.
Taught by: Farrar
Course usually offered in spring term
Prerequisite: EPID 510 or equivalent; EPID 526 or equivalent; permission of instructor
Activity: Lecture
1 Course Unit
EPID 632 Intro Biomed Informatics: Introduction To Biomedical and Health Informatics
This course is designed to provide an overview of the major topic areas in biomedical informatics, especially as they apply to clinical research, and more specifically to clinical epidemiology. Through a series of lectures and demonstrations, students will learn about topics such as databases, natural language, clinical information systems, networks, artificial intelligence and machine learning applications, decision support, imaging and graphics, and the use of computers in medical education.
Taught by: Holmes
Course not offered every year
Prerequisite: Permission of Instructor
Activity: Lecture
1 Course Unit

EPID 634 Clinical Trial Outcomes: Measurement, Analysis and Interpretation
This course is intended to teach students the skills necessary to select and/or design appropriate outcomes for a clinical trial. Students will focus on recent changes in our understanding of clinical trial outcome measurements, analyses, and interpretation for both subjective and objective phenomenon, such as adherence, use of multiple outcomes, and clinical importance. While design issues for clinical trials are the main focus, other types of clinical studies will be considered as appropriate. Student will be expected to learn about the problems inherent in the design of outcome measures of health and how to apply different epidemiologic and biostatistical concepts toward a solution. It is expected that at the conclusion of the course, students will be able to plan a clinical trial with a valid, responsive, and interpretable outcome.
Taught by: Farrar
Course usually offered in fall term
Prerequisite: EPID 510 or equivalent; permission of instructor
Activity: Lecture
1 Course Unit

EPID 635 Database Theory and Applications for Biomedical Research
This course is intended to provide in-depth, practical exposure to the design, implementation, and use of databases in biomedical research. This course is intended to provide students with the skills needed to design and conduct a research project using primary and secondary data. Topics to be covered include: database architectures, data modeling approaches, data normalization, database implementation, client-server databases, concurrency, validation, Structured-Query Language (SQL) programming, reporting, maintenance, and security. All examples will use problems or data from biomedical domains. MySQL will be used as the database platform for the course, although the principles apply generally to biomedical research and other relational databases.
Taught by: Holmes
Course usually offered in spring term
Prerequisite: There are no pre-requisites for this course. However, we will be working exclusively with biomedical data and research problems. It is expected that all students will have some knowledge and/or experience in working in biomedical research.
Activity: Lecture
1 Course Unit

EPID 636 Epidemiological Methods in Acute Care
This is an advanced seminar that will cover nuanced methodological considerations and logistical challenges of research in acute care settings (e.g., prehospital, emergency department, hospital, and intensive care units). Topics to be covered with regards to primary data collection include: recruitment and consent, outcomes measurement, survey and qualitative research, clinical trials, quality improvement, decision making and cognitive biases, end-of-life issues, and acute care research networks. Topics to be covered with regards to secondary data analysis include: data sources, risk adjustment, missing data, causal inference, predictive modeling, decision rules, variability in care, organizational factors, and economic analysis. The course will finish with a discussion of the landscape for obtaining funding for acute care research. Weekly sessions will include expert guest lectures, review of landmark papers, and round-table discussion of the students' ongoing research projects as they pertain to issues covered in the course.
Taught by: Delgado, Holena
Course not offered every year
Prerequisites: EPID 510, EPID 526; Permission of Instructor
Activity: Lecture
1 Course Unit

EPID 638 Topics in Clinical Trial Design and Analysis
This course is intended to follow, and be complementary to EPID 630: Clinical Trials. It will build on the basic principles of design, conduct, and analysis introduced in that course and will go into more detail on particular approaches. Topics covered will include noninferiority trials, phase 1 designs, multi-stage and other adaptive designs, graphical data presentations and current ethical controversies in clinical trials.
Taught by: Ellenberg
Course usually offered in fall term
Prerequisite: EPID 630 or equivalent
Activity: Lecture
1 Course Unit

EPID 640 Advanced Topics in Epidemiology
This course is designed to introduce students to advanced epidemiologic methods through a series of readings and discussions. The course aims to deepen the students' understanding of important concepts and controversies in contemporary epidemiology and to enhance their ability to think critically about empirical epidemiologic research. The course is intended for students who are already familiar with the fundamentals of epidemiology and biostatistics, and who wish to gain an understanding of the complex issues underlying epidemiologic study design and interpretation.
Taught by: Naj
Course usually offered in spring term
Prerequisites: EPID 510 or equivalent, EPID 526 or equivalent, EPID 527 or equivalent; permission of instructor
Activity: Lecture
1 Course Unit
EPID 644 Cardiopulmonary Epidemiology
This is an advanced course that addresses epidemiological research issues as they apply to important clinical topics in cardiovascular and pulmonary medicine. Lectures and workshops are designed to acquaint students with the classic literature in the fields of cardiovascular and pulmonary epidemiology. To use a body of literature to demonstrate the strengths and weaknesses of epidemiological research designs as they have been applied to cardiovascular and pulmonary medicine to expose students to the range of topics studied to teach advanced epidemiological principles using a problem-based approach, and to stimulate students to develop independent research questions.
Taught by: Kimmel
Course usually offered summer term only
Prerequisites: EPID 510 or equivalent, EPID 526 or equivalent, EPID 527 or equivalent, and permission of instructor
Activity: Lecture
1 Course Unit

EPID 645 Research Methods in Cancer Epidemiology
Research in cancer etiology, prevention, treatment, and control includes a wide range of subject matter science, from the initial molecular changes which precede the development of cancer to issues of primary guidelines for cancer survivors. The course reviews the possible study designs applied to cancer etiology, prevention, treatment, and control. These include randomized controlled trials and multiple types of observational studies (cohort, case-control, cross-sectional). Other topics will include causal inference, bias, and effect modification.
Taught by: Aplenc, Getz
Course usually offered summer term only
Prerequisites: EPID 510 or equivalent, EPID 526 or equivalent, EPID 527 or equivalent, and permission of instructor
Activity: Lecture
1 Course Unit

EPID 646 Reproductive Epidemiology
This is an advanced course that addresses epidemiological research issues as they apply to important clinical topics in obstetrics and gynecology and related clinical disciplines. Lectures and workshops are designed to acquaint students with seminal issues in the field of reproductive epidemiology, to use a body of literature to demonstrate the strengths and weaknesses of epidemiological research designs as they have been applied to obstetrics and gynecology and related clinical disciplines, to expose students to the range of topics studied, to teach advanced epidemiological principles using a problem-based approach, and to stimulate students interested in reproductive epidemiology to develop independent research questions.
Taught by: Barnhart
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit

EPID 652 Renal and Urologic Epidemiology
The objective of this course is to prepare students to function as effective, independent researchers in the fields of renal and urologic epidemiology by providing the students an understanding of how epidemiologic research can and has advanced the knowledge of diseases in treatments of renal and urologic medicine. The structure of the course consists of a lecture series, workshops, and student presentations.
Taught by: Feldman
Prerequisites: EPID 510 or equivalent, EPID 526 or equivalent, EPID 527 or equivalent, and permission of instructor
Activity: Lecture
1 Course Unit

EPID 656 Research Methods in Infectious Diseases Epidemiology
This is an advanced course addressing epidemiological issues as they apply to important clinical topics in infectious diseases. Lectures and discussions will serve two primary goals: 1) to explore epidemiologic methods specific to infectious diseases (e.g. adherence to therapy) or which have important applications to infectious diseases (e.g. molecular epidemiology); and 2) to explore the epidemiology of particular infectious diseases or syndromes (e.g. HIV). This course will acquaint students with the classic literature in the field of infectious diseases epidemiology, teach advanced epidemiological principles using a problem-based approach, and demonstrate the strengths and weaknesses of research methodologies as they have been applied to infectious diseases.
Taught by: Gross, Han
Course usually offered summer term only
Prerequisites: EPID 510 or equivalent, EPID 526 or equivalent,a course that covers logistical regression such as EPID 527 or equivalent,and permission of instructor(s)
Activity: Lecture
1 Course Unit

EPID 658 Gastroenterology Epidemiology
This course provides an in-depth presentation of advanced methodological issues in conducting clinical epidemiological research in the field of gastroenterology.
Taught by: Yang
Course offered spring; odd-numbered years
Prerequisites: EPID 510 or equivalent, EPID 526 or equivalent, EPID 527 or equivalent, and permission of instructor
Activity: Lecture
1 Course Unit

EPID 664 Methods in Neurologic Clinical Epidemiology
This course will introduce students to methods and study design principles that are specific or unique to clinical research and trials in neurology, child neurology, neuro-ophthalmology, neurosurgery, and related fields.
Taught by: Farrar, Waldman
Course offered spring; even-numbered years
Prerequisite: Permission of Instructor
Activity: Lecture
0.5 Course Units
**EPID 666 Pharmacoepidemiology Research Methods**
The purpose of this course is to explore and integrate concepts and considerations that are key to the conduct of pharmacoepidemiologic research. The format will be a mixture of seminar, instructor-led discussion, student-led discussion, and student presentations. Papers from the applied and methods literature will be used to illustrate concepts and as springboards for discussion. Topics covered include use of automated databases, pharmacoogenomics, and approaches to addressing confounding.

Taught by: Hennessy
Course usually offered in spring term
Prerequisites: EPID 510 or equivalent, EPID 526 or equivalent, a course that covers logistical regression such as EPID 527 or equivalent, and permission of instructor(s)
Activity: Lecture
1 Course Unit

**EPID 672 Biostatistical Methods for Addressing Confounding**
This course is designed to teach epidemiology students the statistical principles of analysis specific to pharmacoepidemiology study designs including the use of propensity scores, inverse probability weighting, time varying confounding analyses, disease risk scores, and instrumental variables. Each session includes both a lecture component and laboratory component. Students will learn the statistical principles and then apply them to example study datasets. Laboratory sessions will be conducted on the students laptops using STATA software.

Taught by: Ogdie-Beatty, Stephens-Shields
Course usually offered summer term only
Prerequisites: EPID 526 and EPID 527, permission of the instructor(s)
Activity: Lecture
1 Course Unit

**EPID 674 Measuring the Microbiome: Methods and Tools**
This is an advanced course addressing the methods and tools used to analyze microbiome data as well as their implications for clinical study design. The course will include: (1) lectures focused on how the microbiome is measured, approaches to the analysis of highly multivariate microbiome data, and the bioinformatic tools used to execute these analyses; (2) hands-on R and command-line coding to build familiarity with commonly used tools and analytic methods; and (3) short, practical assignments to reinforce the lectures and classwork. The course will acquaint students with classic literature in the field of microbiome research and prepare students to integrate microbiome data collection and analysis with epidemiologic research methodologies.

Taught by: Kelly, Bittinger
Prerequisites: EPID 510, EPID 526, EPID 527, EPID 549 and permission of instructors
Activity: Lecture
1 Course Unit

**EPID 675 Advanced Methods for Analysis of Complex Genetic Traits**
The advent of high-throughput genotyping has created unprecedented opportunities to characterize in detail information related to genome, epigenome and transcriptome. Such technological advancements have offered exciting opportunities for biological discovery as well as translation of biological data for targeted therapies. However, investigation of genetic polymorphisms, epigenetic signatures, gene transcription, biomarkers and their relationship with environmental factors and disease outcomes requires a thorough understanding of a wide range of experimental methods and statistical approaches.

Through critical review of the current literature, this course will provide understanding on various “OMICS” approaches for the study of complex disorders and traits. Students will also understand and present advanced statistical methods and how such concepts can be applied.

Taught by: Saleheen
Course not offered every year
Prerequisites: Introduction to Genetic Epidemiology or equivalent; training in study design and statistical analysis related to statistical genetics and molecular epidemiology, and permission of course directors.
Activity: Lecture
1 Course Unit

**EPID 699 Lab Rotation**
Activity: Laboratory
0.33 Course Units

**EPID 700 Doctoral Seminar in Epidemiology**
The course is intended to meet the needs of PhD students over the entire program from the coursework phase through the dissertation defense, and is intended to optimize cross-fertilization between the students at all phases of their program.

Taught by: Levy
Prerequisite: Permission of Instructor
Activity: Seminar
1 Course Unit
Notes: Restricted to Epidemiology Doctoral Students

**EPID 701 Introduction to Epidemiologic Research**
This course is intended to provide in-depth, exposure to the theory and methods of epidemiologic research. Topics to be covered include causal inference, measures of disease frequency and association, study design, bias and confounding, validity, and epidemiologic analysis.

Prerequisites: Quantitative proficiency. Knowledge and/or experience in working in biomedical research. Permission of instructor.
Activity: Lecture
1 Course Unit

**EPID 703 Spatial Epidemiology**
This course motivates the need for, and describes methods for, the analysis of spatially indexed epidemiological data. Major topics to be covered: clustering and cluster detection, disease mapping, spatial regression, methods for infectious disease data, small area estimation and an introduction to geographical information systems. Both point-references and spatially aggregated data will be considered. The use of R packages for analysis will be described.

Prerequisites: EPID 527 and 621 or equivalent preparation in biostatistics, R programming experience. Permission of instructor.
Activity: Lecture
1 Course Unit
EPID 714 Grant Writing/Review
This course will assist students in the design of an NIH grant (F-32, K, R21 or R01) for submission by enhancing their appreciation of the specifics of the grant writing process and in understanding the grant review process. This course is designed to provide background, training, and practice with the writing and submitting of NIH style grants. As a minimum all students who enroll will be expected to write and submit a reasonable draft of a full NIH style grant proposal by the end of the term. During the process, the portions of each proposal will be reviewed as a group by the other students in the course. In response to each review, students are expected to revise their grant sections.
Taught by: Farrar/Gerber
Course usually offered summer term only
Prerequisites: EPID510, EPID526, EPID560, and EPID570 or Permission of Instructor
Activity: Seminar
0.5 Course Units

EPID 899 Pre-dissertation Research
Activity: Laboratory
0.5 Course Units

EPID 995 Dissertation
Activity: Dissertation
0.5 Course Units
FINANCE (FNCE)

FNCE 100 Corporate Finance
This course provides an introduction to the theory, the methods, and the concerns of corporate finance. The concepts developed in FNCE 100 form the foundation for all elective finance courses. The main topics include: 1) the time value of money and capital budgeting techniques; 2) uncertainty and the trade-off between risk and return; 3) security market efficiency; 4) optimal capital structure, and 5) dividend policy decisions. During the Fall semester there are honors sections of FNCE 100 offered. The seats in the honors sections are awarded through an application process. Please go to: https://fnce.wharton.upenn.edu/programs/course-applications for additional information.
Prerequisites: ECON 010 or ECON 001 or ECON 002, MATH 104, or MATH 110, ACCT 101 and STAT 101. Act 101 and Stat 101 may be taken concurrently.
Activity: Lecture
1 Course Unit

FNCE 101 Monetary Economics and the Global Economy
FNCE 101 is an intermediate-level course in macroeconomics and the global economy, including topics in monetary and international economics. The goal is to provide a unified framework for understanding macroeconomic events and policy, which govern the global economic environment of business. The course analyzes the determinants and behavior of employment, production, demand and profits; inflation, interest rates, asset prices, and wages; exchange rates and international flows of goods and assets; including the interaction of the real economy with monetary policy and the financial system. The analysis is applied to current events, both in the US and abroad. HONORS FNCE 101 is only offered in the Fall semester. Registration for this class is through an application process. Please go to: https://fnce.wharton.upenn.edu/programs-course-applications
This course presents the analysis of macroeconomic theory with a current events perspective. The material in the class concentrates on lecture notes, which are the primary learning source, and readings from a course packet of articles drawn from journals, magazines, newspapers, and other economic publications.
Prerequisites: The prequisites for Undergraduates are FNCE 100, and STAT 101, 102 (STAT 102 may be taken concurrently with this course.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Professor Opp's sections may not be taken Pass Fail.

FNCE 203 Advanced Corporate Finance
The objective of this course is to study the major decision-making areas of managerial finance and some selected topics in financial theory. The course reviews the theory and empirical evidence related to the investment and financing policies of the firm and attempts to develop decision-making ability in these areas. This course serves as an extension of FNCE 100 (FNCE 611). Some are as of financial management not covered in FNCE 100 are covered in FNCE 203. These may include leasing, mergers and acquisitions, corporate reorganizations, financial planning and working capital management, and some other selected topics. Other areas that are covered in FNCE 100 are covered more in depth and more rigorously in FNCE 203. These include interest decision making under uncertainty, cost of capital, capital structure, pricing of selected financial instruments and corporate liabilities, and dividend policy. During the Spring semester, Professor Opp does not allow students to take this course pass fail.
One-term course offered either term
Prerequisites: FNCE 100, (FNCE 611), STAT 101, and STAT 102.
Activity: Lecture
1 Course Unit

FNCE 205 Investment Management
This course studies the concepts and evidence relevant to the management of investment portfolios. Topics include diversification, asset allocation, portfolio optimization, factor models, the relation between risk and return, trading, passive (e.g., index-fund) and active (e.g., hedge-fund, long-short) strategies, mutual funds, performance evaluation, long-horizon investing and simulation. The course deals very little with individual security valuation and discretionary investing (i.e., "equity research" or "stock picking").
One-term course offered either term
Prerequisites: The prequisites for Undergraduates are FNCE 100, and STAT 101, 102 (STAT 102 may be taken concurrently with this course.
Given that investment management requires one to analyze and deal effectively with uncertainty, a good grounding in statistics is essential, and familiarity with statistics should extend through multiple regression, covaraince, and correlation.
Activity: Lecture
1 Course Unit
FNCE 206 Financial Derivatives
This course covers one of the most exciting yet fundamental areas in finance: derivative securities. In the modern financial architecture, financial derivatives can be the most challenging and exotic securities traded by institutional specialists, while at the same time, they can also be the basic securities commonly traded by retail investors such as S&P Index Options. Beyond trading, the basic ideas of financial derivatives serve as building blocks to understand a much broader class of financial problems, such as complex asset portfolios, strategic corporate decisions, and stages in venture capital investing. The global derivatives market is one of the most fast-growing markets, with over $600 trillion notional value in total. It is important as ever to understand both the strategic opportunities offered by these derivative instruments and risks they imply. The main objective of this course is to help students gain the intuition and skills on (1) pricing and hedging of derivative securities, and (2) using them for investment and risk management. In terms of methodologies, we apply the non-arbitrage principle and the law of one price to dynamic models through three different approaches: the binomial tree model, the Black-Scholes-Merton option pricing model, and the simulation-based risk neutral pricing approach. We discuss a wide range of applications, including the use of derivatives in asset management, the valuation of corporate securities such as stocks and corporate bonds with embedded options, interest rate derivatives, credit derivatives, as well as crude oil derivatives. In addition to theoretical discussions, we also emphasize practical considerations of implementing strategies using derivatives as tools, especially when no-arbitrage conditions do not hold.
One-term course offered either term
Prerequisites: The following introductory Finance and Statistics courses are recommended but not required. FNCE 101 and STAT 102 are recommended and can be taken concurrently.
Activity: Lecture
1 Course Unit

 FNCE 207 Corporate Valuation
The focus of this course is on the valuation of companies. The course covers current conceptual and theoretical valuation frameworks and translates those frameworks into practical approaches for valuing companies. The relevant accounting topics and the appropriate finance theory are integrated to show how to implement the valuation frameworks discussed on a step-by-step basis. The course teaches how to develop the required information for valuing companies from financial statements and other information sources in a real-world setting. Topics covered in depth include discounted cash flow techniques and price multiples. In addition, the course covers other valuation techniques such as leveraged buyout analysis. During the spring semester students cannot take Professor Glode’s FNCE 207 course pass fail, this class must be taken for a grade.
Taught by: Professor Holthausen in the fall and Professor Glode in the spring. Professor Glode course may not be taken Pass/Fail, it must be taken for a grade.
One-term course offered either term
Prerequisites: FNCE 100, (FNCE 611) ACCT 101, AND STAT 101, 111 OR EQUIVALENT ACCT 201 RECOMMENDED
Activity: Lecture
1 Course Unit
Notes: Professor Glode’s sections may not be taken Pass/Fail.

FNCE 208 International Corporate Finance
Analyzes financial problems corporations face that result from operating in an international environment. Major topics include managing exchange risk through hedging and financing, measuring exchange rate exposure, calculating the cost of capital for foreign operations, assessment of sovereign risks, capital budgeting from a project and parent perspective, and international taxation.
Prerequisites: A thorough knowledge of FNCE 100 (FNCE 611) is assumed.
Activity: Lecture
1 Course Unit

FNCE 209 Real Estate Investment: Analysis and Financing
This course provides a broad introduction to real estate with a focus on investment and financing issues. Project evaluation, financing strategies, investment decision making and real estate capital markets are covered. No prior knowledge of the industry is required, but students are expected to rapidly acquire a working knowledge of real estate markets. Classes are conducted in a standard lecture format with discussion required. The course contains cases that help students evaluate the impact of more complex financing and capital market tools used in real estate. There are case studies and two midterms, depending on instructor.
Taught by: Ferreira, Handbury, Harari, Keys, Sinai, Wong
One-term course offered either term
Prerequisite: FNCE 100
Activity: Lecture
1 Course Unit

FNCE 219 International Financial Markets
FNCE 219 is a course on international financial markets. Major topics include foreign exchange rates, international money markets, currency interest rate derivatives (forwards, options, and swaps), international stock and bond portfolios, and cryptocurrencies. Students learn about the features of financial instruments and the motivations of market participants. The class focuses on risk management, investing, and arbitrage relations in these markets.
One-term course offered either term
Prerequisites: The following introductory courses are recommended but not required. FNCE 100, FNCE 101, STAT 101.
Activity: Lecture
1 Course Unit

FNCE 220 International Banking
This course focuses on international financial institutions, especially the activities of global, systemically important banks. We will examine how current and historical events are reshaping the industry and highlight the basic analytics of managing a bank’s exposure to liquidity, credit, market and reputational risk. Most classes will begin with discussion of a current event related to course topics. Three team projects will be assigned that will give you deeper exposure to analytic techniques related to the course. Throughout the semester, we will discuss public policy issues facing the international financial system.
Taught by: Professor Richard Herring
Course usually offered in spring term
Prerequisites: FNCE 100, FNCE 101, one of which may be taken concurrently.
Activity: Lecture
1 Course Unit
FNCE 230 Urban Fiscal Policy
The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent fiscal crises, local services and taxes as important determinants of real estate prices, the infrastructure crisis, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.
Taught by: Robert Inman
Course usually offered in fall term
Prerequisites: FNCE 101 and ECON 001
Activity: Lecture
1 Course Unit

FNCE 235 Fixed Income Securities
This course covers fixed income securities (including fixed income derivatives) and provides an introduction to the markets in which they are traded, as well as to the tools that are used to value these securities and to assess and manage their risk. Quantitative models play a key role in the valuation and risk management of these securities. As a result, although every effort will be made to introduce the various pricing models and techniques as intuitively as possible and the technical requirements are limited to basic calculus and statistics, the class is by its nature quantitative and will require a steady amount of work. In addition, some computer proficiency will be required for the assignments, although familiarity with a spreadsheet program (such as Microsoft Excel) will suffice.
One-term course offered either term
Prerequisites: FNCE 100 and STAT 101 or STAT 102 or STAT 111
Activity: Lecture
1 Course Unit

FNCE 238 Capital Markets
The objective of this course is to give you a broad understanding of the framework and evolution of U.S. capital markets, the instruments that are traded, the mechanisms that facilitate their trading and issuance, and the motivations of issuers and investors across different asset classes. The course will highlight the problems that capital market participants are seeking to solve, which you can use in your post-Wharton careers to evaluate future market innovations. We will consider design, issuance, and pricing of financial instruments, the arbitrage strategies which keep their prices in-line with one another, and the associated economic and financial stability issues. We will draw from events in the aftermath of the recent financial crisis, which illustrate financing innovations and associated risks, as well as policy responses that can change the nature of these markets.
One-term course offered either term
Prerequisites: FNCE 100,(FNCE 611)
Activity: Lecture
1 Course Unit

FNCE 239 Behavioral Finance
There is an abundance of evidence suggesting that the standard economic paradigm - rational agents in an efficient market - does not adequately describe behavior in financial markets. In this course, we will survey the evidence and use psychology to guide alternative theories of financial markets. Along the way, we will address the standard argument that smart, profit-seeing agents can correct any distortions caused by irrational investors. Further, we will examine more closely the preferences and trading decisions of individual investors. We will argue that their systematic biases can aggregate into observed market inefficiencies. The second half of the course extends the analysis to corporate decision making. We then explore the evidence for both views in the context of capital structure, investment, dividend, and merger decisions.
Course usually offered in spring term
Prerequisites: FNCE 100, FNCE 101. Recommended: FNCE 205 and FNCE 203
Activity: Lecture
1 Course Unit

FNCE 250 Venture Capital and the Finance of Innovation
This course covers the finance of technological innovation, with a focus on the valuation tools useful in the venture capital industry. These tools include the "venture capital method," comparables analysis, discounted cash flow analysis, contingent-claims analysis. The primary audience for this course is finance majors interested in careers in venture capital or in R&D-intensive companies in health care or information technology.
Course usually offered in fall term
Prerequisites: FNCE 100 (FNCE 611) and FNCE 101 (FNCE 613); (FNCE 101 and FNCE 613 may be taken concurrently)
Activity: Lecture
1 Course Unit

FNCE 251 The Finance of Buyouts and Acquisitions
The course focuses on financial tools, techniques, and best practices used in buyouts (financial buyers) and acquisitions (strategic buyers). While it will touch upon various strategic, organizational, and general management issues, the main lens for studying these transactions will be a financial one. It will explore how different buyers approach the process of finding, evaluating, and analyzing opportunities in the corporate-control market; how they structure deals and how deal structure affects both value creation and value division; how they add value after transaction completion; and how they realize their ultimate objectives (such as enhanced market position or a profitable exit). The course is divided into two broad modules. The first module covers mergers and acquisitions, and the second one studies buyouts by private equity partnerships. During the spring semester this course cannot be taken pass/fail.
Prerequisites: FNCE 100 (FNCE 611), FNCE 101 (FNCE 613), Co-Requisite FNCE 203 (FNCE 726) Advanced Corporate Finance or FNCE 207 (FNCE 728) Corporate Valuation.
Activity: Lecture
1 Course Unit
Notes: Lectures, cases, and guest speakers. Grading: Class participation, two students projects, two exams.
FNCE 254 Impact Investing
This course explores Impact Investing, a discipline that seeks to generate social benefits as well as financial returns. From tiny beginnings, the Impact Investment space has expanded and now commands significant attention from policymakers, wealthy and public-spirited individuals, academia and, not least, the world's largest asset managers and philanthropic foundations. Evangelists believe it may be the key to freeing the world from poverty. Skeptics think it will remain confined to the boutique. Regardless, Impact Investing is becoming a distinct career specialization for finance professionals despite the diverse skillset each must have and the uncertainty of the new field's growth.
Prerequisites: This course has no specific prerequisites, but given its wide-ranging subject matter, students will benefit from completion of any of the following Wharton courses: FNCE 101 Monetary Economics and the Global Economy; FNCE 205 Investment Management; FNCE 238 Capital Markets; and FNCE 395 Private Equity. Coursework or practical experience in microeconomics, development economics, international philanthropy, Non-Governmental Organizations, financial risk management and political risk analysis will also be useful.
Activity: Lecture
1 Course Unit

FNCE 256 Finance Energy
The objective of this course is to provide students with detailed knowledge of corporate structures, valuation methods, project finance, risk management practices, corporate governance issues, and geopolitical risks in the energy industry. In general, this course seeks to provide students with an overall context for understanding energy issues and risks, and how these might affect financing and investment decisions for both providers of energy and end-users of energy.
Taught by: Professor Erik Gilje
Course usually offered in spring term
Prerequisites: FNCE 203, Advanced Corporate Finance or FNCE 207, Corporate Valuation. Students that receive permission to enroll without the prerequisites are expected to review the relevant topics as necessary to meet the requirements of the class.
Activity: Lecture
1 Course Unit

FNCE 311 Infrastructure Investing
The world economy runs on the infrastructure which has been built over the past 10,000 years. Each year, this infrastructure requires updating and new additions, from roads and bridges (the original infrastructure), to railroads, airports (the more recent infrastructure), to telecommunications and solar and wind power installations (modern infrastructure). There is a vast amount of public (i.e., taxpayer money directed by government officials) and private (i.e., individuals' money typically managed on their behalf and directed by private equity or banks into infrastructure investments). In this course, we will cover Infrastructure Financing and investing from various angles. We will provide descriptions of types of infrastructure, examine the financing needs of infrastructure projects, consider the historic role of government and non-government funding, and assess the changing needs of consumers and role of technology and the increasing demands posed by a globalization economy. As private equity firms continue to build infrastructure funds, the need for, and role for, private money continues to evolve, so we will also examine infrastructure investing as a alternative asset class from the investors' perspective.
Taught by: Professor Kevin Kaiser
Prerequisites: FNCE 100 Corporate Finance; FNCE 207 Corporate Valuation is recommended but not required.
Activity: Lecture
0.5 Course Units

FNCE 383 Strategic Equity Finance
This course combines lectures and cases, and will go through actual situations where companies need to make strategic decisions on raising equity capital. We will address different phases of a company's life cycle. Through these cases, from the decision-makers perspective, we will explore the different paths that can be taken and consider issues such as investor activism, governance and regulatory and valuation impact.
FNCE 383 is a half semester course offered in Q3 during the spring semester.
Taught by: Professor David Musto and Professor David Erickson
Course usually offered in spring term
Prerequisite: FNCE 100 - Corporate Finance
Activity: Seminar
0.5 Course Units

FNCE 384 Advanced Topics in Private Equity
This course will address a variety of applied topics in private equity (PE), with a focus on growth and later-stage buyout transactions (venture capital is not explicitly addressed in this course), and a primarily U.S.-centric view that should be largely applicable in other markets. In addition, the course will focus on the transaction stage of PE investing i.e., the art of the deal and mostly leave aside deal sourcing, portfolio management and investor relations. The goal of this course is to educate students about the substance, process and mechanics of PE investing, through the lens of the investment professionals, counterparties and advisors that drive transactions to completion. Course topics will address the entire deal process, and will include the following: Commercial Diligence (incl. financial modeling); Debt Financing; Accounting Diligence; Sales & Purchase Agreements; Comps Analysis; and Other Advisory Work. Throughout the course, students will learn about each element of the deal process through in-class lectures, while concurrently apply those learnings to a real-time mock deal, and preparing dealmaterials that mirror a real private equity transaction. The in-class lectures will cover both conceptual frameworks and real-world examples.
Taught by: Bilge Yilmaz and Burcu Esmer
Prerequisites: Successful completion of core finance requirements, FNCE 100 and FNCE 101 as well as FNCE 203 or FNCE 251. Special permission can also be requested based on relevant professional experience.
Activity: Lecture
1 Course Unit

FNCE 385 ASP - Fin-Tech
The course exposes students to this fast-growing and exciting intersection between finance (Fin) and technology (Tech) while emphasizing the role data and analytics play. The course is structured around three main FinTech areas: (i) Lending/Banking services, (ii) Clearing (iii) Trading. It provides specific coverage and examples of developments from (1) peer-to-peer lending, (2) blockchain and distributed ledgers, (3) networks and their use in trading, and (4) algo trading and its use of non-standard inputs. In each of these areas, we start by analyzing the marketplace, and the incumbents, and the business case and strategies of the incoming technology-based players, while understanding the role data and analytics play in driving the technology-based services. The course is built around a large number of examples and cases, guest lectures, student presentations, and group projects. Student are thus expected to work in teams and demonstrate a high level of independent learning and initiative.
Prerequisites: A thorough knowledge of FNCE 100 is assumed.
Activity: Lecture
0.5 Course Units
FNCE 385 ASP - Hedge Funds
This course will cover critical aspects and characteristics of hedge funds and the hedge fund industry. It will look at the legal foundations and structures of hedge funds including the primary regulations in the U.S. and abroad that are most relevant for hedge funds. It will also present the major hedge fund strategies, describe operation, control, administration, due diligence and valuation issues. Performance evaluation and investing in hedge funds from the investor’s perspective will be discussed as will be issues of potential changes in regulation, risk management, and the use of leverage. The format of the course will mix lectures with presentations from industry participants, hedge fund managers, those who invest in hedge funds, those who advise them and provide services to them, and those who regulate them. Those who want to launch a hedge fund, join an existing one, invest in one, or provide services to one will want to register for this course.
Taught by: Professor Scott Richard
Course usually offered in fall term
Prerequisite: FNCE 100
Activity: Lecture
0.5 Course Units

FNCE 387 ASP - Shareholder Activism
The aim of the course is to provide an introduction to shareholder activism. The course makes use of lectures and case studies. The lectures expose the students to the institutional and empirical facts as well as approaches followed by leading shareholder activists. The case studies are designed to provide students an experience on identifying potential opportunity for value creation through active engagement. Assignments require students to develop/practice skills on fundamental analysis.
Taught by: Professor Bilge Yilmaz and Kevin Kaiser
Course usually offered in spring term
Activity: Lecture
1 Course Unit

FNCE 391 Corporate Restructuring
This course familiarizes students with financial, strategic and legal issues associated with the restructuring of financially distressed firms. The objective is to give students tools necessary to deal with the often-complex situation facing a failing firm. The participants will gain a basic understanding of the various options available for distressed firms, such as out-of-court workouts, exchange offers, prepackaged and pre-negotiated bankruptcies, distressed asset sales, 363 auctions, and Chapter 11 reorganization. We will explore the difference between economic and financial distress, and the implications for the restructuring process. Since bankruptcy provides a threat point for any distressed restructuring, the course reviews key issues of the legal framework governing bankruptcy and reorganization in the U.S. and internationally. Finally, we will consider distressed debt as an asset class and develop techniques for investing in distressed securities.
The course is case based, providing ample opportunity to practice valuation of distressed companies, and hosts several guest speakers from the restructuring industry. It should be of interest for a range of careers, including private equity, investment banking, and turnaround management.
Prerequisites: The prerequisites for this course are FNCE 203 or 726 Advanced Corporate Finance or FNCE 207 or 728 Corporate Valuation. The purpose of the prerequisites is to ensure that students have a basic understanding of capital structure, and valuation methods, so that we spend more time on the nuances of distressed situations and less time on reviewing background material.
Activity: Lecture
1 Course Unit

FNCE 392 Policy Decisions by Central Banks: The Fed, the ECB and the BOI
Understanding and predicting central banking decision making and behavior is crucial for all market participants from asset managers and traders to private consumers. This course aims to provide the methods and knowledge on how central banks and governments think and implement policies to reach the goals of price and financial stability as well as support of growth and employment. The core of the course connects between the legal and actual goals that central banks follow and the related economic analysis on which these goals and policies are set. We explain the economic rationale for the policy prescriptions to reach the goals and how these policies are actually implemented by the Federal Reserve Bank (Fed) in the US, the European Central Bank (ECB), Bank of Israel (BOI) and some remarks on other countries. We use data, current events of the 2007-2018 period as the basis for discussion and assignments. All of these are aimed understanding how and why the Fed, the ECB and the BOI set their policies. For each we shall simulate in class current decisions based on assignment related to past policies and the theory presented in class.
Taught by: Professor Zvi Eckstein; Dean of Arison School of Business and Tiomkin School of Economics. Herzliya, Israel
Prerequisites: FNCE100, FNCE 101 and STAT101 or STAT 102
Activity: Lecture
0.5 Course Units
Notes: Requirements; Final examinations (55%-passing grade is required); two out of three assignments (cases) done by teams of 3-4 students (20%); one group participation (10%); active participation in class discussion (15%)

FNCE 395 PRIVATE EQUITY
The course will be a survey of the private equity asset class. Its objective is to provide an understanding of the concepts, agents, and institutions involved in the late stage corporate private equity market in the U.S. and around the globe. It will examine the buyout market and the activities of buyout funds from the differing perspectives of private equity investors, private equity fund sponsors, and managers of the portfolio companies. The course will be taught almost entirely with cases. Distinguished Wharton alumni in the private equity industry will be our guest speakers for many of the cases based on transactions they concluded. PLEASE NOTE: While this course is primarily intended for graduate students, admission may be granted to a limited number of interested undergraduate students. Be aware that this course may be recorded for live or subsequent distribution, display, broadcast, or commercialization in any media, including video, audio, or electronic media. For additional information, see the course syllabus or contact the department. This is a Pass/Fail course and will not count towards your concentration.
Prerequisites: FNCE 203-Advanced Corporate Finance and FNCE 251-Finance of Buyouts and Acquisitions or permission from the professor
Activity: Lecture
0.5 Course Units
FNCE 397 Finance In The Middle East & North Africa
This is a Wharton Global Modular Course on finance in the Middle East and North Africa. Its objective is to bring students, academics and industry experts together to study financial markets, practice, and institutions in this region.
Taught by: Professor Bulent Gultekin, Finance Department and Professor Michael J.T. McMillen, Penn Law School
Activity: Lecture
0.5 Course Units
Notes: Course Format - This course will be taught through cases and lectures. Guest Lecturers - Distinguished practitioners will lecture and conduct case discussions. Our guest lecturers will bring their experience and insights to the classroom.

FNCE 399 Supervised Study in Finance
Integrates the work of the various courses and familiarizes the student with the tools and techniques of research.
Prerequisites: Senior standing, 3.4 grade point average. Must be supervised by a Standing Faculty member in the Finance Department.
Activity: Independent Study
1 Course Unit

FNCE 611 Corporate Finance
This course serves as an introduction to business finance (corporate financial management and investments) for both non-majors and majors preparing for upper-level course work. The primary objective is to provide the framework, concepts, and tools for analyzing financial decisions based on fundamental principles of modern financial theory. The approach is rigorous and analytical. Topics covered include discounted cash flow techniques; corporate capital budgeting and valuation; investment decisions under uncertainty; capital asset pricing; options; and market efficiency. The course will also analyze corporate financial policy, including capital structure, cost of capital, dividend policy, and related issues. Additional topics will differ according to individual instructors.
Prerequisites: ACCT 611, 612, 613; MGEC 612, 611; STAT 613, 621 prerequisite or concurrent.
Activity: Lecture
1 Course Unit

FNCE 612 Accelerated Corp Finance
This course is intended for students with prior knowledge of finance or with strong analytical backgrounds. Together with the pre-term preparation course (FNCE604) the foundation for subsequent courses in corporate finance, corporate valuation, investments, and financial derivatives. Its purpose is to develop a framework for analyzing a firm's investment and financial decisions. This course will start where FNCE604 ends. More precisely, it will provide an introduction to capital budgeting techniques under uncertainty, asset valuation, the operation and efficiency of capital markets, the optimal capital structure and dividend policy of the firm and options. In short, it will cover all the topics of a typical semester-long finance introductory class in six weeks. This course assumes that students are familiar with the material covered in FNCE 604. As a result, it is only available to those students who successfully passed the Finance Placement Exam at the end of the pre-term. This course is not suitable for students new to finance and with limited analytical backgrounds. This course is hard. The pace is fast and it requires a major investment of time and effort outside class.
Activity: Lecture
0.5 Course Units
Notes: Q-1 Half Semester course

FNCE 613 Macroeconomics and the Global Economic Environment
This course is required for all students except those who, having prior training in macroeconomics, money and banking, and stabilization policy at an intermediate or advanced level, can obtain a waiver by passing an examination. The purpose of FNCE 613 is to train the student to think systematically about the current state of the economy and macroeconomic policy, and to be able to evaluate the economic environment within which business and financial decisions are made. The course emphasizes the use of economic theory to understand the workings of financial markets and the operation and impact of government policies. Specifically, the course studies the determinants of the level of national income, employment, investment, interest rates, the supply of money, inflation, exchange rates, and the formulation and operation of stabilization policies.
Activity: Lecture
1 Course Unit

FNCE 614 Corporate Finance (Half CU)
This course serves as an introduction to corporate investments for non-majors. The primary objective is to provide a framework, concepts, and tools for analyzing financial decisions based on fundamental principles of modern financial theory. The approach is rigorous and analytical. Topics covered include discounted cash flow techniques, corporate capital budgeting and valuation, investment decisions under uncertainty, and capital asset pricing. This course will not cover the following topics included in FNCE 611, the full semester Corporate Finance course: market efficiency, corporate financial policy (including capital structure, cost of capital, dividend policy, and related issues), and options. Please Note: This course will not count towards the Finance Major. Format: Primarily lecture. Grading based on problem sets, one or two cases, and a final exam.
Prerequisites: ACCT 611, 612, 613; MGEC 612, 611; STAT 613, 621; prerequisite or concurrent.
Activity: Lecture
0.5 Course Units

FNCE 615 Macroeconomics and The Global Economic Environment (Half CU)
FNCE 615 Introduction To Macroeconomics and The Global Economic Environment (Half Cu) is intended for non-finance majors. It is a half-semester course in macroeconomics, with an emphasis on current events and policy applications. The goal of this course is to provide the foundation needed to recognize and understand broad economic and financial movements in the global economy. Key topics include national income accounting, production and economic growth, employment, business cycles, monetary and fiscal policy, and international finance. By the end of this course, students will be able to evaluate and discuss the global economic environment in which business and financial decisions are made. PLEASE NOTE: This course will not count towards a Finance Major.
Prerequisite: FNCE 611 or FNCE 612
Activity: Lecture
0.5 Course Units
**FNCE 717 Financial Derivatives**
This course covers one of the most exciting yet fundamental areas in finance: derivative securities. In the modern financial architecture, financial derivatives can be the most challenging and exotic securities traded by institutional specialists, while at the same time, they can also be the basic securities commonly traded by retail investors such as S&P Index Options. Beyond trading, the basic ideas of financial derivatives serve as building blocks to understand a much broader class of financial problems, such as complex asset portfolios, strategic corporate decisions, and stages in venture capital investing. The global derivatives market is one of the most fast-growing markets, with over $600 trillion notional value in total. It is important as ever to understand both the strategic opportunities offered by these derivative instruments and risks they imply. The main objective of this course is to help students gain the intuition and skills on (1) pricing and hedging of derivative securities, and (2) using them for investment and risk management. In terms of methodologies, we apply the no-arbitrage principle and the law of one price to dynamic models through three different approaches: the binomial tree model, the Black-Scholes-Merton option pricing model, and the simulation-based risk-neutral pricing approach. We discuss a wide range of applications, including the use of derivatives in asset management, the valuation of corporate securities such as stocks and corporate bonds with embedded options, interest rate derivatives, credit derivatives, as well as crude oil derivatives. In addition to theoretical discussions, we also emphasize practical considerations of implementing strategies using derivatives as tools, especially when no-arbitrage conditions do not hold.

One-term course offered either term
Prerequisites: The following introductory Finance and Statistics courses are recommended but not required. FNCE 611 or FNCE 612; STAT 613, FNCE 613 may be taken concurrently.
Activity: Lecture
1 Course Unit

**FNCE 719 International Financial Markets**
FNCE 719 is a course on international financial markets. Major topics include foreign exchange rates, international money markets, currency and interest rate derivatives (forwards, options, and swaps), international stock and bond portfolios, and cryptocurrencies. Students learn about the features of financial instruments and the motivations of market participants. The class focuses on risk management, investing, and arbitrage relations in these markets.

One-term course offered either term
Prerequisites: The following introductory courses are recommended but not required. FNCE 611 (or FNCE 612), FNCE 613.
Activity: Lecture
1 Course Unit

**FNCE 720 Investment Management**
This course studies the concepts and evidence relevant to the management of investment portfolios. Topics include diversification, asset allocation, portfolio optimization, factor models, the relation between risk and return, trading, passive (e.g., index-fund) and active (e.g., hedge-fund, long-short) strategies, mutual funds, performance evaluation, long-horizon investing and simulation. The course deals very little with individual security valuation and discretionary investing (i.e., "equity research" or "stock picking").

One-term course offered either term
Prerequisites: The prerequisites for MBA students are FNCE 611 or FNCE 612; and STAT 613 or STAT 621 Given that investment management requires one to analyze and deal effectively with uncertainty, a good grounding in statistics is essential, and familiarity with statistics should extend through multiple regression, covariance, and correlation.
Activity: Lecture
1 Course Unit

**FNCE 721 Real Estate Investment: Analysis and Financing**
This course provides an introduction to real estate with a focus on investment and financing issues. Project evaluation, financing strategies, investment decision making and real estate capital markets are covered. No prior knowledge of the industry is required, but students are expected to rapidly acquire a working knowledge of real estate markets. Classes are conducted in a standard lecture format with discussion required. The course contains cases that help students evaluate the impact of more complex financing and capital markets tools used in real estate. There are case studies and two mid-terms, (depending on instructor). Cross-listed with REAL 721.

Taught by: Ferreira, Handbury, Harari, Keys, Sinai, Wong
One-term course offered either term
Prerequisites: FNCE 611 or FNCE 612.
Activity: Lecture
1 Course Unit
Notes: Lecture with discussion required

**FNCE 725 Fixed Income Securities**
This course covers fixed income securities (including fixed income derivatives) and provides an introduction to the markets in which they are traded, as well as to the tools that are used to value these securities and to assess and manage their risk. Quantitative models play a key role in the valuation and risk management of these securities. As a result, although every effort will be made to introduce the various pricing models and techniques as intuitively as possible and the technical requirements are limited to basic calculus and statistics, the class is by its nature quantitative and will require a steady amount of work. In addition, some computer proficiency will be required for the assignments, although familiarity with a spreadsheet program (such as Microsoft Excel) will suffice.

Course usually offered in fall term
Prerequisites: FNCE 611 or FNCE 612 and STAT 613 or STAT 621
Activity: Lecture
1 Course Unit
FNCE 726 Advanced Corporate Finance
The objective of this course is to study the major decision-making areas of managerial finance and some selected topics in financial theory. The course reviews the theory and empirical evidence related to the investment and financing policies of the firm and attempts to develop decision-making ability in these areas. This course serves as an extension of FNCE 611. Some areas of financial management not covered in FNCE 611 are covered in FNCE 726. These may include leasing, mergers and acquisitions, corporate reorganizations, financial planning, and working capital management, and some other selected topics. Other areas that are covered in FNCE 611 are covered more in depth and more rigorously in FNCE 726. These include investment decision making under uncertainty, cost of capital, capital structure, pricing of selected financial instruments and corporate liabilities, and dividend policy.
One-term course offered either term
Prerequisites: FNCE 611 or FNCE 612; and FNCE 613.
Activity: Lecture
1 Course Unit
Notes: Professor Glode's sections cannot be taken Pass/Fail

FNCE 728 Corporate Valuation
The focus of this course is on the valuation of companies. The course covers current conceptual and theoretical valuation frameworks and translates those frameworks into practical approaches for valuing companies. The relevant accounting topics and the appropriate finance theory are integrated to show how to implement the valuation frameworks discussed on a step-by-step basis. The course teaches how to develop the required information for valuing companies from financial statements and other information sources in a real-world setting. Topics covered in depth include discounted cash flow techniques and price multiples. In addition, the course covers other valuation techniques such as leveraged buyout analysis.
Taught by: Professor Glode in the spring semester
One-term course offered either term
Prerequisites: Minimum of normal first-year courses in accounting, economics, statistics, and FNCE 611 or 612; FNCE 613 (further coursework in financial accounting such as ACCT 742 is very useful).
Activity: Lecture
1 Course Unit
Notes: Professor Glode's sections may not be taken Pass/Fail

FNCE 730 Urban Fiscal Policy
The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent fiscal crises, local services and taxes as important determinants of real estate prices, the infrastructure crisis, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.
Taught by: Dr. Robert Inman
Course usually offered in fall term
Prerequisites: MGEC 621, FNCE 611
Activity: Lecture
1 Course Unit
Notes: Lectures. There is a mid-term and final exam.

FNCE 731 International Corporate Finance
This course analyzes financial problems corporations face that result from operating in an international environment. Major topics covered are corporate strategy and the decision to invest abroad, international portfolio diversification, managing exchange risk, taxation issues, cost of capital and financial structure in the multinational firm, and sources of financing. Departmental Website: https://fnce.wharton.upenn.edu/
Registration: Registration for MBA electives is handled through the MBA Course Auction. For questions about core courses or MBA electives that don't appear in the course auction please contact the MBA Program Office. Non-MBAs interested in graduate classes must work through the academic department and the MBA Program Office.
Prerequisite: FNCE 611 or 612 - A thorough knowledge of Corporate Finance is assumed
Activity: Lecture
1 Course Unit

FNCE 732 International Banking
This course focuses on international financial institutions, especially the activities of global, systemically important banks. We will examine how current and historical events are reshaping the industry and highlight the basic analytics of managing a bank's exposure to liquidity, credit, market and reputational risk. Most classes will begin with discussion of a current event related to course topics. Three team projects will be assigned that will give you deeper exposure to analytic techniques related to the course. Throughout the semester, we will discuss public policy issues facing the international financial system.
Taught by: Professor Richard Herring
Course usually offered in spring term
Prerequisites: FNCE 611 or 612; FNCE 613. One, but not both, can be taken concurrently.
Activity: Lecture
1 Course Unit

FNCE 738 Capital Markets
The objective of this course is to give you a broad understanding of the instruments traded in modern financial markets, the mechanisms that facilitate their trading and issuance, as well as, the motivations of issuers and investors across different asset classes. The course will balance functional and institutional perspectives by highlighting the problems capital markets participants are seeking to solve, as well as, the existing assets and markets which have arisen to accomplish these goals. We will consider design, issuance, and pricing of financial instruments, the arbitrage strategies which keep their prices in-line with one another,and the associated economic and financial stability issues. The course is taught in lecture format, and illustrates key concepts by drawing on a collection of case studies and visits from industry experts.
One-term course offered either term
Prerequisites: FNCE 611 or 612; and FNCE 613
Activity: Lecture
1 Course Unit
FNCE 739 Behavioral Finance
There is an abundance of evidence suggesting that the standard economic paradigm - rational agents in an efficient market - does not adequately describe behavior in financial markets. In this course, we will survey the evidence and use psychology to guide alternative theories of financial markets. Along the way, we will address the standard argument that smart, profit-seeking agents can correct any distortions caused by irrational investors. Further, we will examine more closely the preferences and trading decisions of individual investors. We will argue that their systematic biases can aggregate into observed market inefficiencies. The second half of the course extends the analysis to corporate decision making. We then explore the evidence for both views in the context of capital structure, investment, dividend, and merger decisions.
Course usually offered in spring term
Prerequisites: FNCE 611 or 612; and FNCE 613. Recommended: FNCE 720 and FNCE 726.
Activity: Lecture
1 Course Unit

FNCE 750 Venture Capital and the Finance of Innovation
This course covers the finance of technological innovation, with a focus on the valuation tools useful in the venture capital industry. These tools include the "venture capital method," comparables analysis, discounted cash flow analysis, contingent-claims analysis. The primary audience for this course is finance majors interested in careers in venture capital or in R&D-intensive companies in health care or information technology.
Course usually offered in spring term
Prerequisites: FNCE 611 and FNCE 613 - FNCE 613 may be taken concurrently
Activity: Lecture
1 Course Unit

FNCE 751 The Finance of Buyouts and Acquisitions
The focus of this course is on buying (or acquiring controlling stakes in) firms. The main topics to be covered are mergers and friendly acquisitions, hostile takeovers and buyouts. Using case studies, the course surveys the drivers of success in the transactions. While issues regarding motive and strategy will be discussed, financial theory would be the main lens used to view these control acquiring transactions. This will allow students to (1) evaluate transactions through valuation approaches and (2) structure deals employing financial innovation as a response to legal framework and economic frictions. This course should be of interest to students interested in pursuing careers as private equity investors, advisors in investment banking and corporate managers that deal with these issues. This course assumes familiarity with valuation analysis. During the spring semester students are not permitted to take this course pass/fail.
Prerequisites: Pre-Requisites FNCE 611 and FNCE 613 (Or 612) - C0-Requisites FNCE 726 or FNCE 728 may be taken concurrently.
Activity: Lecture
1 Course Unit

FNCE 754 Impact Investing
This course explores Impact Investing, a discipline that seeks to generate social benefits as well as financial returns. From tiny beginnings, the Impact Investment space has expanded and now commands significant attention from policymakers, wealthy and public-spirited individuals, academia and, not least, the world's largest asset managers and philanthropic foundations. Evangelists believe it may be the key to freeing the world from poverty. Skeptics think it will remain confined to the boutique. Regardless, Impact Investing is becoming a distinct career specialization for finance professionals despite the diverse skillset each must have and the uncertainty of the field's growth.
Taught by: Christopher Geczy, Ph.D.
Prerequisites: Prerequisites This course has no specific prerequisites, but given its wide-ranging subject matter, students will benefit from completion of any of the following Wharton courses: FNCE 613 Macroeconomics and the Global Economic Environment; FNCE 720 Investment Management; FNCE 738 Capital Markets; and FNCE 895 Private Equity. Coursework or practical experience in microeconomics, development economics, international philanthropy, Non-Governmental Organizations, financial risk management and political risk analysis will also be useful.
Activity: Lecture
1 Course Unit

FNCE 756 Finance Energy
The objective of this course is to provide students with detailed knowledge of corporate structures, valuation methods, project finance, risk management practices, corporate governance issues, and geopolitical risks in the energy industry. In general, this course seeks to provide students with an overall context for understanding energy issues and risks, and how these might affect financing and investment decisions for both providers of energy and end-users of energy.
Taught by: Professor Erik Giljie
One-term course offered either term
Prerequisites: The prerequisites for the course are FNCE 726 Advanced Corporate Finance or FNCE 728 Corporate Valuation. Students who receive permission to enroll without the prerequisites are expected to review the relevant topics as necessary to meet the requirements of the class.
Activity: Lecture
1 Course Unit

FNCE 785 Business Strategy, Private Equity and Corporate Law
This course explores strategic, business and legal decision making in a fluid real world corporate context. Classes will cover a series of timely financial and legal subjects as well as case studies that deal with topical problems in corporate governance, investment strategy, executive compensation and potential corporate and criminal behavior. Press, public market reaction and governmental/political considerations will be integrated into the discussion. All students will be required to participate in one major team project. An equal number of graduate law and business students will participate. The instructor, a 26 year veteran and retired partner of the private equity firm KKR, is also an attorney and CPA.
Taught by: Perry Golkin
Prerequisite: No Pre-Requisites
Activity: Lecture
1 Course Unit
FNCE 810 Structural Estimation in Corporate Finance
The main goal of the course is to teach students the tools needed to write a structural estimation research paper. Additional goals include the following: 1. Strengthen students' ability to dissect, digest, and critique academic research. 2. Expose students to both classic and cutting-edge papers in the structural corporate finance literature. 3. Help students develop new research ideas in this area. We will take a practical, hands-on approach that focuses on tools. Topics will include simulation estimators, identification challenges, and a review of the literature. The class format will include lectures and discussions of recent papers. Assignments may include (but limited to) estimating a dynamic investment model, presenting and discussing papers, and writing a research proposal.
Taught by: Professor Luke Taylor
Prerequisites: I will assume that students know how to solve dynamic optimization problems, for example, by value function iteration. We will not review this topic in class, yet I will expect you to understand it. You probably learned this topic in an introductory macro PhD class, in John Zhu's finance PhD class, or in Joao Gomes's finance PhD class.
Activity: Lecture
0.5 Course Units

FNCE 811 Infrastructure Investing
The world economy runs on the infrastructure which has been built over the past 10,000 years. Each year, this infrastructure requires updating and new additions, from roads and bridges (the original infrastructure), to railroads, airports (the more recent infrastructure), to telecommunications and solar and wind power installations (modern infrastructure). There is a vast amount of public (i.e., taxpayer money directed by government officials) and private (i.e., individuals' money typically managed on their behalf and directed by private equity or banks into infrastructure investments). In this course, we will cover infrastructure financing and investing from various angles. We will provide descriptions of types of infrastructure, examine the financing needs of infrastructure projects, consider the historic role of government and non-government funding, and assess the changing needs of consumers and role of technology and the increasing demands posed by a globalizing economy. As private equity firms continue to build infrastructure funds, the need for, and role for, private money continues to evolve, so we will also examine infrastructure investing as an alternative asset class from the investors' perspective.
Taught by: Professor Kevin Kaiser
Prerequisites: FNCE 611 Corporate Finance; FNCE 728 is recommended but not required.
Activity: Lecture
0.5 Course Units

FNCE 883 Strategic Equity Finance
This course combines lectures and cases, and will go through actual situations where companies need to make strategic decisions on raising equity capital. We will address different phases of a company's life cycle. Through these cases, from the decision-makers perspective, we will explore the different paths that can be taken and consider issues such as investor activism, governance and regulatory and valuation impact. FNCE 883 is a half semester course offered in Q3 of the spring semester.
Taught by: Professor David Musto and Professor David Erickson
Course usually offered in spring term
Prerequisite: FNCE 611 Corporate Finance
Activity: Lecture
0.5 Course Units

FNCE 884 ASP - Advanced Topics in Private Equity
This course will address a variety of applied topics in private equity (PE), with a focus on growth and later-stage buyout transactions (venture capital is not explicitly addressed in this course), and a primarily U.S.-centric view that should be largely applicable in other markets. In addition, the course will focus on the transaction stage of PE investing i.e., the art of the deal and mostly leave aside deal sourcing, portfolio management and investor relations. The goal of this course is to educate students about the substance, process and mechanics of PE investing, through the lens of the investment professionals, counterparties and advisors that drive transactions to completion. Course topics will address the entire deal process, and will include the following: Commercial Diligence (incl. financial modeling); Debt Financing; Accounting Diligence; Sales & Purchase Agreements; Comps Analysis; and Other Advisory Work. Throughout the course, students will learn about each element of the deal process through in-class lectures, while concurrently apply those learnings to a real-time mock deal, and preparing dealmaterials that mirror a real private equity transaction. The in-class lectures will cover both conceptual frameworks and real-world examples. FNCE 884-001 will be taught by Professor Bilge Yilmaz. Section 001 will contain six hours of material on how to execute the value creation plan post acquisition through an operational partner's perspective. In balance, section 002 will be taught by Professor Bilge Yilmaz and David Bard, Senior Fellow and Lecture will spend more time on all other topics.
Taught by: Professor Bilge Yilmaz (yilmaz@wharton.upenn.edu) and Fellow David Bard
Prerequisites: Successful completion of core finance requirements, FNCE 611 and FNCE 613, as well as FNCE 726 or FNCE 751; special permission can also be requested based on relevant professional experience.
Activity: Lecture
1 Course Unit
FNCE 886 ASP - Hedge Funds
This course will cover critical aspects and characteristics of hedge funds and the hedge fund industry. It will look at the legal foundations and structures of hedge funds including the primary regulations in the U.S. and abroad that are most relevant for hedge funds. It will also present the major hedge fund strategies, describe operation, control, administration, due diligence and valuation issues. Performance evaluation and investing in hedge funds from the investor’s perspective will be discussed as will be issues of potential changes in regulation, risk management, and the use of leverage. The format of the course will mix lectures with presentations from industry participants, hedge fund managers, those who invest in hedge funds, those who advise them and provide services to them, and those who regulate them. Those who want to launch a hedge fund, join an existing one, invest in one, or provide services to one will want to register for this course.
Taught by: Professor Scott Richard
Prerequisite: FNCE 611 or FNCE 612
Activity: Lecture
0.5 Course Units

FNCE 887 ASP - Shareholder Activism
The aim of the course is to provide an introduction to shareholder activism. The course makes use of lectures and case studies. The lectures expose the students to the institutional and empirical facts as well as approaches followed by leading shareholder activists. The case studies are designed to provide students an experience on identifying potential opportunity for value creation through active engagement. Assignments require students to develop/practice skills on fundamental analysis.
Taught by: Professor Bilge Yilmaz and Kevin Kaiser
Activity: Lecture
1 Course Unit

FNCE 891 ASP - Corporate Restructuring
This course familiarizes students with financial, strategic and legal issues associated with the restructuring of financially distressed firms. The objective is to give students tools necessary to deal with the often-complex situation facing a failing firm. The participants will gain a basic understanding of the various options available for distressed firms, such as out-of-court workouts, exchange offers, prepackaged and pre-negotiated bankruptcies, distressed asset sales, 363 auctions, and Chapter 11 reorganization. We will explore the difference between economic and financial distress, and the implications for the restructuring process. Since bankruptcy provides a threat point for any distressed restructuring, the course reviews key issues of the legal framework governing bankruptcy and reorganization in the U.S. and internationally. Finally, we will consider distressed debt as an asset class and develop techniques for investing in distressed securities. The course is case based, providing ample opportunity to practice valuation of distressed companies, and hosts several guest speakers from the restructuring industry. It should be of interest for a range of careers, including private equity, investment banking, and turnaround management.
Prerequisites: FNCE 611 or 612; FNCE 613; FNCE 726 and FNCE 728 or permission of the professor.
Activity: Lecture
0.5 Course Units
Notes: The course’s content will be presented using a mixture of lectures, case studies, and guest speakers. The speakers will be Wharton alumni with leadership roles in the restructuring industry as managers, advisors, and investors.

FNCE 893 Policy Decisions by Central Banks: The Fed, the ECB and the BOI
This course aims to provide the future global manager and financial analyst with the knowledge on policies set by central banks, regulators and governments to reach the goals of price and financial stability as well as support of growth and employment. The core of the course connects between the formal and actual goals that central banks follow and the related economic analysis on which the goals and the policies are set. We will explain the economic rationale for the policy prescriptions to reach the goals and how these are implemented using institutional framework in the US, the European Central Bank (ECB), Israel and remarks on other countries. We use data, current events and events of the 2007-2013 financial crisis as a basis for discussion and assignments. All these are aimed at understanding how and why the Federal Reserve of the US (the Fed), The bank of Israel (BOI) and the European Central Bank (ECB) set their policies and how that is related to academic research on these issues.
Taught by: Professor Zvi Eckstein; Dean and Professor, Th Arison School of Business And the Tiomkin School of Economics. Herzliya, Israel
Prerequisites: FNCE 611 or 612; FNCE 613; STAT 613.
Activity: Lecture
0.5 Course Units
Notes: Requirements; Final examinations (55%-passing grade is required); two out of three assignments (cases) done by teams of 3-4 students (20%); one group participation (10%); active participation in class discussion (15%)

FNCE 895 Advanced Seminar in Private Equity
This course will be a survey of the private equity asset class. Its objective is to provide an understanding of the concepts, agents, and institutions involved in the late stage corporate private equity market in the U.S. and around the globe. It will examine the buyout market and the activities of buyout funds from the differing perspectives of private equity investors, private equity fund sponsors, and managers of the portfolio companies. The course will be taught almost entirely with cases. Distinguished Wharton alumni in the private equity industry will be our guest speakers for many of the cases based on transactions they concluded. While this course is primarily intended for graduate students, admission may be granted to a limited number of interested undergraduate students. PLEASE NOTE: this course may be recorded for live or subsequent distribution, display, broadcast, or commercialization in any media, including video, audio, or electronic media. For additional information, see the course syllabus or contact the department. This is a Pass/Fail course and will not count towards your concentration.
Prerequisites: FNCE 726 and FNCE 751 or permission from the instructor.
Activity: Lecture
0.5 Course Units

FNCE 896 Finance in Europe
Activity: Lecture
0.5 Course Units
FNCE 897 Finance In The Middle East & North Africa
This is a Wharton Global Modular Course on finance in the Middle East and North Africa. Its objective is to bring students, academics and industry experts together to study financial markets, practice, and institutions in this region.
Taught by: Professor Bulent Gultekin, Finance Department and Professor Michael J.T. McMillen, Penn Law School
Activity: Lecture
0.5 Course Units
Notes: Course Format - This course will be taught through cases and lectures. Guest Lecturers - Distinguished practitioners will lecture and conduct case discussions. Our guest lecturers will bring their experience and insights to the classroom.

FNCE 899 Independent Study Project in Finance
Independent Study Projects require extensive independent work and a considerable amount of writing. ISP in Finance are intended to give students the opportunity to study a particular topic in Finance in greater depth than is covered in the curriculum. The application for FNCE 899 ISP’s will not be accepted after the THIRD WEEK OF THE SEMESTER. You must submit your Finance ISP request using the Finance Department’s ISP form located at https://fnce.wharton.upenn.edu under the Course ISP section.
Prerequisites: FNCE 899, ISP’s must be supervised by a Standing Faculty member of the Finance Department.
Activity: Independent Study
1 Course Unit

FNCE 911 Financial Economics
The objective of this course is to undertake a rigorous study of the theoretical foundations of modern financial economics. The course will cover the central themes of modern finance including individual investment decisions under uncertainty, stochastic dominance, mean variance theory, capital market equilibrium and asset valuation, arbitrage pricing theory, option pricing, and incomplete markets, and the potential application of these themes. Upon completion of this course, students should acquire a clear understanding of the major theoretical results concerning individuals' consumption and portfolio decisions under uncertainty and their implications for the valuation of securities.
Course usually offered in fall term
Prerequisites: ECON 681 or ECON 701, Matrix Algebra, and Calculus
Activity: Lecture
1 Course Unit

FNCE 912 Corporate Finance and Financial Institutions
This course provides students with an overview of the basic contributions in the modern theory of corporate finance and financial institutions. The course is methodology oriented in that students are required to master necessary technical tools for each topic. The topics covered may include capital structure, distribution policy, financial intermediation, incomplete financial contracting, initial and seasoned public offerings, market for corporate control, product market corporate finance interactions, corporate reorganization and bankruptcy, financing in imperfect markets, security design under adverse selection and moral hazard, and some selected topics.
Course usually offered in spring term
Prerequisite: ECON 681 or ECON 701
Activity: Lecture
1 Course Unit

FNCE 921 Introduction to Empirical Methods in Finance
This course is an introduction to empirical methods commonly employed in finance. It provides the background for FNCE 934, Empirical Research in Finance. The course is organized around empirical papers with an emphasis on econometric methods. A heavy reliance will be placed on analysis of financial data.
Course usually offered in spring term
Prerequisites: FNCE 911 (can be taken concurrently), STAT 510 and 511 or equivalent.
Activity: Lecture
1 Course Unit

FNCE 922 Continuous-Time Financial Economics
This course covers some advanced material on the theory of financial markets developed over the last two decades. The emphasis is on dynamic asset pricing and consumption choices in a continuous time setting. The articles discussed include many classical papers in the field as well as some of the most recent developments. The lectures will emphasize the concepts and technical tools needed to understand the articles.
Course usually offered in fall term
Prerequisites: FNCE 911, ECON 701, ECON 703. (Graduate level knowledge of analysis and statistics is highly recommended but not required)
Activity: Lecture
1 Course Unit

FNCE 923 Financial Economics Under Imperfect Information
This course covers General equilibrium and rational expectations, foundations of the theory of information; learning from prices in rational expectations equilibrium models, moral hazard, adverse selection, and signalling Bidding theories.
Course not offered every year
Prerequisite: FNCE 922
Activity: Lecture
1 Course Unit
FNCE 924 Intertemporal Macroeconomics and Finance
This is a doctoral level course on macroeconomics, with special emphasis on intertemporal choice under uncertainty and topics related to finance. Topics include: optimal consumption and saving, the stochastic growth model, q-theory of investment, (incomplete) risk sharing and asset pricing. The course will cover and apply techniques, including dynamic programming, to solve dynamic optimization problems under uncertainty. Numerical solution methods are also discussed.
Course usually offered in spring term
Prerequisite: FNCE 911
Activity: Lecture
1 Course Unit

FNCE 925 Topics In Asset Pricing
This course exposes student to recent development in the asset pricing literature. The starting point for the course is the standard neo-classical rational expectations framework. We will then investigate where this framework has succeeded and where it has not. Recently documented deviations from the framework in the literature are discussed and placed in context. The course will also focus on hypothesis development, recent research methods, and research writing. The ultimate objective is for students to develop their own hypotheses and research ideas, resulting in a paper.
Course not offered every year
Prerequisites: ECON 681 or ECON 701 and Calculus. FNCE 911 is recommended.
Activity: Lecture
1 Course Unit

FNCE 926 Empirical Methods in Corporate Finance
The course will cover a variety of microeconomic models and methods including panel data models, program evaluation methods, difference in differences, matching techniques, regression discontinuity design, instrumental variables, duration models, structural estimation, simulated methods of moments. The structure of the course consists of lectures, student presentations, and empirical exercises. I will utilize published studies in a variety of fields such as corporate finance, labor economics, and industrial organization to illustrate the various techniques. The goal of the course is to provide students with a working knowledge of various econometric techniques that they can apply in their own research. As such, the emphasis of the course is on applications, not theory.
Course usually offered in fall term
Prerequisites: STAT 521 - Students are required to have taken a graduate sequence in Econometrics, you should be comfortable with econometrics at the level of William Green's "Econometric Analysis of Cross-Section and Panel Data".
Activity: Lecture
1 Course Unit

FNCE 928 Methods In Finance Theory
This doctoral level course introduces students to game theory and continuous-time methods. Both techniques represent fundamental approaches to organizing, modeling and understanding complex financial phenomena. The game theory half will cover equilibrium concepts, moral hazard, signaling and screening. Highlights include rigorous formulations and analyses of the perfect Bayesian equilibrium concept and the principal-agent relationship. Both ideas are central to theories of corporate finance and financial markets - subjects that the students will be exposed to in the spring. The continuous-time methods half will cover basic stochastic calculus and applications to capital structure, Merton's consumption-portfolio, and problem and optimal contracts.
Taught by: PROFESSOR YIRAN JOHN ZHU
Course usually offered in spring term
Prerequisites: Some mathematical sophistication. A familiarity with the basic principles of microeconomics is useful but not required.
Activity: Lecture
1 Course Unit

FNCE 932 Topics In Corporate Finance
This course covers Advanced theory and empirical investigations; financial decisions of the firm, dividends, capital structure, mergers, and takeovers.
Course not offered every year
Prerequisites: FNCE 911, FNCE 921, or permission of instructor.
Activity: Lecture
1 Course Unit

FNCE 934 Empirical Methods In Asset Pricing
This course has three main objectives: The first object is to introduce students to the fundamental works and the frontier of research in dynamic asset pricing. We will cover recent models that have been proposed to shed light on intriguing and important empirical patterns in the cross section and in the time series. Topics include non-separable utilities, market incompleteness, learning, uncertainty, differences of opinion, ex-ante and ex-post asymmetric information, ambiguity and Knightian uncertainty. The second objective is to teach students how to think of asset pricing research under a bigger or richer framework. We shall focus on the interactions between asset pricing and other fields such as macroeconomics, corporate finance, financial institutions, and international finance. The goal of investigating the joint dynamics is not only to better understand how asset prices are determined, but also (maybe more importantly) how would asset pricing dynamics affect other important economic variables such as investment, corporate payout and financing, unemployment, risk sharing, and international capital flows. Students will learn production-based asset pricing models, particularly the asset pricing models with investment-specific technology shocks, risk shocks, financial friction, searching frictions and information frictions. Of course, the advanced solution methods will focus too. The third objective is to introduce advanced empirical methods to analyze the data and the quantitative dynamic models. It includes how to estimate structural dynamic models, how evaluate structural models beyond goodness-of-fit tests, how confront the models predictions with empirical data by simulation and re-sampling techniques, and how to efficiently test models and explore new patterns using asset pricing and macro data.
Course usually offered in fall term
Prerequisites: FNCE 911 and FNCE 921
Activity: Lecture
1 Course Unit
FNCE 937 Topics in Macro Finance
This is an advanced course in quantitative theory applied to macro and finance models. It is intended for doctoral students in finance, economics, and related fields. The course focuses on four broad theoretical literatures: (i) firm investment and growth; (ii) corporate, household, and sovereign debt; (iii) asset pricing in general equilibrium; and (iv) equilibrium macro models with a financial sector. My approach is to develop and discuss in detail a unified framework that is suited to address most topics, usually covering a few central topics and the core papers. We then discuss the more recent literature, highlighting how authors combine and expand upon the core ideas. This part of the course usually relies on regular student presentations.
Course usually offered in fall term
Prerequisite: FNCE 911
Activity: Lecture
1 Course Unit
FNAR 061 Video I
In this studio based course, students are introduced to video production and postproduction as well as to selected historical and theoretical texts addressing the medium of video. Students will be taught basic camera operation, sound recording and lighting, as well as basic video and sound editing and exporting using various screening and installation formats. In addition to a range of short assignment-based exercises, students will be expected to complete three short projects over the course of the semester. Critiques of these projects are crucial to the course as students are expected to speak at length about the formal, technical, critical and historical dimensions of their works. Weekly readings in philosophy, critical theory, artist statements and literature are assigned. The course will also include weekly screenings of films and videos, introducing students to the history of video art as well as to other contemporary practices. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
For BA Students: Humanities and Social Science S
One-term course offered either term
Activity: Seminar
1 Course Unit

FNAR 062 Video II
Video II offers opportunities to further explore the role of cinematic narrative technique, non-narrative forms, digital video cinematography, editing, and screen aesthetics. Through a series of several video projects and a variety of technical exercises, students will refine their ability to articulate technically and conceptually complex creative projects in digital cinema. In addition, one presentation on a contemporary issue related to the application of cinematic storytelling and/or the cultural context of digital video is required.
One-term course offered either term
Prerequisite: FNAR 061
Activity: Seminar
1 Course Unit

FNAR 063 Documentary Video
Documentary Video is an intensive production course involving the exploration of concepts, techniques, concerns, and aesthetics of the short form documentary. Building on camera, sound, and editing skills acquired in Video I, students will produce a portfolio of short videos and one longer project over the course of the semester using advanced level camera and sound equipment. One short presentation on a genre, technique, maker, or contemporary concern selected by the student is required.
Course usually offered in fall term
Prerequisite: FNAR 061
Activity: Seminar
1 Course Unit

FNAR 065 Cinema Production
This course focuses on the practices and theory of producing narrative based cinema. Members of the course will become the film crew and produce a short digital film. Workshops on producing, directing, lighting, camera, sound and editing will build skills necessary for the hands-on production shoots. Visiting lecturers will critically discuss the individual roles of production in the context of the history of film.
Course usually offered in fall term
Prerequisite: FNAR 061
Activity: Seminar
1 Course Unit

FNAR 067 Advanced Video Projects
This course is structured to create a focused environment and support for individual inquiries and projects. Students will present and discuss their work in one to one meetings with the instructor and in group critiques. Readings, screenings, and technical demonstrations will vary depending on students' past history as well as technical, theoretical, and aesthetic interests.
Course not offered every year
Prerequisite: FNAR 062
Activity: Seminar
1 Course Unit

FNAR 070 Film Sound: History, Aesthetics and Subversion
Sound and image as experienced in the cinema, are not divisible. One perception influences the other, and transforms it. While a preexisting harmony between these two senses may exist, its conventions are subject to manipulation and the whims of subversion. Film Sound tracks the technological and aesthetic history of sound for film including psychoacoustics, dialogue, music, sound fx and audio's gradual and triumphant march towards fidelity, stereo and surround sound. This lecture course, through an historical and pedagogical romp loaded with examples throughout film history and visits by lauded audio professionals from the film world, seeks to instruct students to engage in the process of sound perception, gaining an appreciation for the art of sound as it relates to the varied phenomenological dimensions of that unique audio-visual encounter we call movies.
Taught by: Novack
One-term course offered either term
Activity: Seminar
1 Course Unit

FNAR 073 Machine for Seeing: Architecture and the Moving Image
Architecture's relationship with cinema was established with the very first motion picture. In Sortie de l'usine Lumiere de Lyon by Auguste and Louis Lumiere we see a didactic presentation of film titles as works from the Lumiere brother's factory stream forth from its interior at days end. In many ways the context of the film is its subject as well. The title of the class plays on Le Corbusier's maxim that architecture is machine for living and perhaps cinema is simply a machine for helping us understand the vast construct of our built environment. A device, which allows us to imagine even greater follies or more importantly to think critically about architecture's relationship with and impact on society. Readings, screenings, discussions and critiques make up the curriculum along with studio time. Students will produce their own film and we will look at films produced by a range of practitioners: From architects speculating on the nature of and use of public space and urban development to documentarians researching the pathologies of neo-liberalism and its effect on the privatization of space. We will also look at the work of artists who engage with the poetics of space and who unpack the conflicted legacies of the built environment.
Taught by: Hartt
Course usually offered in spring term
Prerequisite: FNAR 061
Activity: Studio
1 Course Unit
FNAR 074 A Virus in the Culture: Social Critique in Media Arts
In order to change the world, we must first learn how to infect it. A Virus in the Culture is a studio class that examines and generates various forms of media resistance to dominant hegemonic systems of power and control. Using filmmaking, publication design and interactive media we’ll think through and develop responses to some of the most pressing issues facing us today. We’ll look at historical models from the agitprop design work of Gee Vaucher for Anarcho-punk band Crass to Chris Marker’s film Le Fond de L’Air Est Rouge, a radical analysis of global social and political turmoil in the late 60s and early 70s. We’ll also look at experimental contemporary design firms like Metahaven who question the role of designers and filmmakers today - Bypassing the power dynamics of clients and briefs they took it upon themselves to create a graphic identity for WikiLeaks. Each example broadens the definition and possibilities of practice to create a more porous engagement with audiences and users while informing the practice of social critique today. Considering a diverse range of topics from education policy, to the rights of environmental refugees, we’ll use the class to workshop a singular comprehensive project that targets researches and responds to a specific contested position. The outcome of which will be a class produced short film, publication and website that unpacks the social, cultural, and economic complexities of our subject. This class is co-taught by David Hartt, an artist and filmmaker along with graphic designer, Mark Owens. Reading, screenings, discussions and critiques make up the curriculum along with studio time. While the focus of this course is not technical, prior knowledge of design programs, camera functions, and post-production techniques is expected.

Taught by: David Hartt and Marks Owens
Course usually offered in fall term
Prerequisite: FNAR 061 or permission from instructor
Activity: Studio
1 Course Unit

FNAR 083 Performance/Camera: Performance and-with-through-for Cameras
This intermediate course will explore the wide and expansive territories of art-making that exist between live performance and mediated image making—both still and moving. For much of the 21st century, the mediums of performance, video and photography have been weaving in and out of contact. Performance is known and understood largely through its documentation: sometimes voluminous and sometimes little more than a single photograph. On the other side, video, film and photography each developed through widespread explorations that were deeply entwined with the “capturing” of bodies on film. Using photography, video and performance in equal parts, the course is a hands-on exploration of this capacious terrain. The course will be structured by a series of bi-weekly assignments that allow for individual and collective production. The course will also include a regular schedule of short readings and presentations/screenings of existing works.

Taught by: Hayes, Sharon
Course usually offered in fall term
Prerequisites: FNAR 061, FNAR 340 or Permission of Instructor
Activity: Studio
1 Course Unit

FNAR 085 Performance Studio
This course supports the individual and collaborative production of performance works. As the medium of performance consists of diverse forms, actions, activities, practices and methodologies, the course allows for an open exploration in terms of material and form. Students are invited to utilize technologies, materials and methodologies from other mediums and/or disciplines such as video, photography, writing and sound. In addition to the production component, the course will examine multiple histories of performance through readings, screenings and directed research.

Taught by: Hayes
Course usually offered in spring term
Prerequisites: One previous studio course (such as FNAR 123, FNAR 145, FNAR 150, or FNAR 061) or permission from instructor.
Activity: Studio
1 Course Unit
FNAR 100 Knowing the Contemporary Art World
This course introduces the student to the world of contemporary art, as it is comprised by a global community of leading artists, curators, writers, art historians and collectors within a network of galleries, museums and other institutional contexts. Contemporary art has become an increasingly important marker of a city (and nation's) economic development. According to economist and social scientist Richard Florida, contemporary art activity is an expression of a city’s creative class, the generators of cultural and economic innovation. But what exactly is this world of contemporary art? The course begins by distinguishing between modern and contemporary art. There will be a teasing out of the issues from modern art that remain unresolved for contemporary art. Students will study the key pre-occupations that are spurring much contemporary art production, including issues relating to identity in the age of globalization. A question that will be studied in this course relates to the ways in which artists have responded to dominant narratives of globalization. Additionally, another important question would look into how the artist’s role has changed in the new globalized context of art production and circulation (including the rise of the art biennale.) By taking this course, students gain understanding into the constitution and of the contemporary art world and the key issues at play within it. There will be several trips to exhibitions to be announced.

One-term course offered either term
Activity: Seminar
1 Course Unit

FNAR 123 Drawing I
This course is designed to develop visual awareness and perceptual acuity through the process of drawing. Students learn to sharpen perceptual skills through observational drawing, and to explore the expressive potential of drawing. A variety of problems and media will be presented in order to familiarize students with various methods of working and ways of communicating ideas visually. Subject matter will include object study, still life, interior and exterior space, self-portrait and the figure. Different techniques and materials (charcoal, graphite, ink, collage) are explored in order to understand the relationship between means, material and concept. Critical thinking skills are developed through frequent class critiques and through the presentation of and research into historical and contemporary precedent in drawing. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu

One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 124 Drawing Investigations
Drawing is a fundamental means of visualization and a hub for thinking, constructing, and engaging in a wide variety of creative activities and problem solving. This studio class explores drawing in both its traditional and contemporary forms. The projects are designed to help students in all disciplines find ways express and clarify their ideas through the process of drawing. The semester begins with the refinement of perceptual skills acquired in Drawing I, while encouraging experimentation through the introduction of color, abstract agendas, conceptual problem solving, and collaborative exercises, as well as new materials, techniques and large format drawings. Particular attention is given to ways to conduct visual research in the development of personal imagery. Assignments are thematic or conceptually based with ample opportunity for individual approaches to media, subject, scale and process. The goal is to strengthen facility, develop clarity in intent and expand expression. Attention is paid to the development of perceptual sensitivity, methods of imagemaking construction, and the processes of synthesis and transformation in order to communicate ideas through visual means. Recommended for students in all areas.

One-term course offered either term
Prerequisite: FNAR 123
Activity: Studio
1 Course Unit

FNAR 126 Sequential Drawing
Sequential drawing instructs in the visualization of story telling through the exploration of visual narrative components (visual iconography, panel-to-panel transition types, picture/word relations) and their application to a narrative through the use of formal drawing techniques (composition, color, perspective, line, form). The class begins with various exercises in paneling, pacing and style development, and concludes with the student applying the concepts and techniques they've acquired to the creation of a graphic novel.

Course usually offered in spring term
Prerequisite: FNAR 123
Activity: Studio
1 Course Unit

FNAR 130 Writing on the City: Letterforms, Technology and Philadelphia Culture
This seminar explores the rich history of writing and typography from colonial to contemporary Philadelphia through primary source research at the city's many libraries and collections and through direct engagement with professional designers, crafts workers, and manufacturers. The course will be divided into two parts. The first phase will be devoted to information gathering: lectures, readings, and visits, including presentations, demonstrations, and hands-on research. Students will keep a journal of their inquiries and regularly share their insights during class sessions, developing a plan for final documentation. In the second phase students will synthesize and distill their research, developing theories, defining individual and group projects, and collectively writing, designing, and publishing a public framework (web/print/exhibition, etc.) to chronicle their scholarship.

Taught by: Comberg
Course usually offered in fall term
Activity: Seminar
1 Course Unit
FNAR 142 3-D Design
Students will make work that draws from and interacts with the three-dimensional world we live in. Formal strategies will explore principles of organization. Planar construction, modeling and assemblage methods will be used for investigations spanning from bas-relief to environmental art. This is a "learn by doing" process with no prerequisites.
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 145 Sculpture Practices
As an introduction to traditional and contemporary three-dimensional practice, this course is concerned with the concepts and methodologies surrounding three-dimensional art making in our time. Students experiment with a variety of modes of production, and develop some of the fundamental techniques used in sculpture. In addition to these investigations, assignments relative to the history and social impact of these practices are reinforced through readings and group discussion. Processes covered include use of the Fab Lab, wood construction, clay, paper, mixed media, and more. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 147 Advanced Sculpture: Installation & Interventions
In this course students will create sculptural installations and spatial interventions that explore site specificity and architectural environments. A range of traditional sculptural materials and techniques will be investigated along with more ephemeral interventions in space such as sound, light, and projection. Through lectures, readings, and critiques, students will explore the history of installation and interactive sculptural work and develop self-directed projects that interrogate historical, social, and psychological conditions of the built environment.
Prerequisite: FNAR 145 Sculpture Practices
Activity: Studio
1 Course Unit

FNAR 148 Clay Practices
This course introduces clay as a sculptural medium through fundamental clay-building techniques, mold making, model making, and casting. Through experimentation with these methods, this course promotes an understanding of materials, processes, visual concepts and techniques for creating three-dimensional forms in space. In addition to using different water-based clays and plaster, other materials such as wax, plastilene, paper pulp, and cardboard will be explored. Students will explore the full range of clay's capabilities and its role in contemporary art through lectures, readings, demonstrations, and assignments that incorporate conceptual and technical issues.
Activity: Studio
1 Course Unit

FNAR 150 Photography Practices
This course is an introduction to the basic principles, strategies and processes of photographic practice. It is designed to broaden the student’s aesthetic explorations and to help the student develop a visual language based on cross-disciplinary artistic practice. Through a series of projects and exercises students will be exposed to a range of camera formats, techniques and encouraged to experiment with the multiple modes and roles of photography - both analogue and digital. Attention will also be given to developing an understanding of critical aesthetic and historical issues in photography. Students will examine a range of historical and contemporary photowork as an essential part of understanding the possibilities of image making. This course is primarily for freshman and sophomores. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 177 On Thoughts Occasioned By
The Essay Film is an important tradition within the various genres that constitute the field of Film and Video Art. Through the element of time it differentiates itself from its literary and photographic antecedents. It borrows selectively from both narrative fiction and documentary - highly subjective and occasionally poetic but without perhaps the burden of truth. The Essay Film is an attempt to dimensionalize our experience of the world and our place in it. It represents an argument, a meditation, a critical engagement with a place, a time or a subject. This is a combination seminar/studio course. Through readings, screenings and discussion students will gain an historical perspective on the genre. The core assignment is for each student to complete a short film (20 minutes max.) in the tradition of the Essay Film.
Taught by: Hartt/Corrigan
Activity: Seminar
1 Course Unit

FNAR 220 Producing Ephemera: Letterpress, Risograph, Inkjet, Xerox
This studio course introduces students to the world of printmaking and circulation through techniques in letterpress and Risograph (a high-speed digital printing system developed in Japan in the 1980s), in addition to Xerox, laser, inkjet, and off-set printing, focusing particularly on the format of prints, artists' ephemera, and the role of ephemera in understanding culture. Students will create their own broadsides, flyers, announcement cards, and independent publications throughout the course, exploring ways in which artists, designers, musicians, and activists make or have made use of the print to disseminate information; initiate happenings; advertise events; or format change. Students will learn about some of the most significant producers working within this realm - from Conceptualists to punk bands - and develop skills in page layout, typography, and design; mechanized and hand-pulled press operations; and digital to analog pre-press and post-print production methods. This course is designed for highly motivated students and requires out-of-class time commitment. However, no prior coursework is required. Students from all levels and backgrounds are encouraged to register. The course employs combined collaborative / self-directed approaches to learning to enhance students’ understandings of ways in which print media and multiples serve as vital conduits for disseminating ideas involving visual art, popular culture, literature, politics, performance and many other topics students will wish to explore.
Taught by: Romberger
Course usually offered in fall term
Activity: Studio
1 Course Unit
FNAR 221 Histories of Print: Reimagining the Archive
What can history tell us about the present? How do archives teach us about the future? Printing has long been at the center of political, social, and economic shifts, as well as a form used by artists, writers, designers, and cultural producers. Utilizing readings, films, field trips, independent research, and discussions, students will learn about the history of letterpress printing and its historically complex relationship with power and technological innovation. This studio/seminar examines the act of printing as a way to expand the boundaries of language and imagemaking, questioning both historic and contemporaneous languages. Class readings spanning multiple perspectives on the history of print, access to rare archives, and the use of historic printing equipment will inform studio-based projects and writing assignments throughout the semester. This course will meet in the Common Press located in the Fisher Fine Arts Library. The Common Press is an interdisciplinary initiative between the Kelly Writers House, the Kislak Center for Special Collections, Rare Books and Manuscripts, and the Fine Arts program within PennDesign; it encourages collaboration with an emphasis on letterpress, and cross-disciplinary approaches to writing and imagemaking.
Taught by: Neff
Course usually offered in spring term
Activity: Studio
1 Course Unit

FNAR 222 The Big Picture: Mural Arts in Philadelphia
The history and practice of the contemporary mural movement couples step by step analysis of the process of designing with painting a mural. In addition students will learn to see mural art as a tool for social change. This course combines theory with practice. Students will design and paint a large outdoor mural in West Philadelphia in collaboration with Philadelphia high school students and community groups. The class is co-taught by Jane Golden, director of the Mural Arts Program in Philadelphia, and Shira Walinsky, a mural arts painter and founder of Southeast by Southeast project, a community center for Burmese refugees in South Philadelphia.
One-term course offered either term
Activity: Seminar
1 Course Unit

FNAR 227 Writing with Pictures: Children's Picture Books
A children’s picture book is a unique book form in that it is written with pictures. Words, if used at all, serve to illustrate what the picture cannot say. In this course students will learn the complexities of designing what looks to be, a simple picture book for children. Visualizing the story begins with both writing and drawing prompts, image collecting, and exposure to a range of children’s literature. Students will learn to sequence a main character and an environment into a storyboard through stages of changes towards a resolution. By the end of the semester students will have a good understanding of how a picture book works, with a personal “dummy” book well on its way. This course will include two guest artists.
Taught by: Edgerton
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 231 Painting Practices
Painting practices is an introduction to the methods and materials of oil painting. This course begins with an investigation of color and color relationships. The beginning of the semester will cover technical issues and develop the student’s ability to create a convincing sense of form in space using mass, color, light and composition. The majority of work is from direct observation including object study, still life, landscape, interior and exterior space and the self portrait. Class problems advance sequentially with attention paid to perceptual clarity, the selection and development of imagery, the process of synthesis and translation, color, structure and composition, content and personal expression. Students will become familiar with contemporary and art historical precedent in order to familiarize them with the history of visual ideas and find appropriate solutions to their painting problems.
One-term course offered either term
Prerequisite: FNAR 123
Activity: Studio
1 Course Unit

FNAR 232 Painting Studio
Painting Studio presents an ongoing exploration of the techniques, problems and poetics of painting, the nuances of the painting language, and the development of a personal direction. A wide variety of problems will address such issues as color, composition, and the development of imagery, process, and content. Students are expected to improve in technical handling of paints and move towards developing personal modes of seeing, interpreting, and thinking for themselves. This course introduces different topics, strategies and individual challenges each semester, so it may be repeated with advanced course numbers.
One-term course offered either term
Prerequisite: FNAR 231
Activity: Studio
1 Course Unit
Notes: This course can be continued by registering for FNAR 333 Painting Studio (III), and FNAR 334 Painting Studio (IV).

FNAR 233 Digital Illustration
Digital Illustration is a course designed to expose students to the diverse techniques and approaches used in creating digital illustration for print publication. Course assignments will include two-dimensional animation storyboard rendering, figure illustration, technical diagram illustration, photographic retouching and enhancing. Digital applications will include morphing with layers, surface cloning, three-dimensional modeling and spatial transformation of scenes and objects. Students completing this course will possess the capability to design and plan creatively and skillfully execute finished artwork.
One-term course offered either term
Prerequisites: FNAR 264 and FNAR 123
Activity: Studio
1 Course Unit
FNAR 234 Art of the Web: Interactive Concepts for Art & Design
Art of the Web: Interactive concepts for art and design is a first step in learning how to create, analyze and discuss interactive content, as a visual creator. It is an exploration of the culture of the internet, the ideas behind its quirks, the dreams and freedoms it encapsulates, and the creative power it gives to us. Students will be assigned projects that will challenge their current understanding of the web, and the ways it shapes human connectivity and interaction. Upon completion of this course, students will possess a working knowledge how to organize and design websites and learn to critique web-content including navigation, UX design and information architecture. The course will require analytical and conceptual skills and foster creative thinking.
One-term course offered either term
Prerequisite: FNAR 264
Activity: Studio
1 Course Unit

FNAR 235 3-D Computer Modeling
Students will develop a comprehensive knowledge of how virtual worlds are constructed using contemporary computer graphics technique with a fine arts perspective. The course will offer the opportunity to explore the construction, texturing, and rendering of forms, environments, and mechanisms while conforming to modeling specifications required for animation, real-time simulations or gaming environments, and rapid prototyping.
One-term course offered either term
Prerequisites: FNAR 123 and FNAR 264
Activity: Studio
1 Course Unit

FNAR 236 Digital Figure Modeling
This course introduces methods of modeling, texturing, and rendering human and animal figures. Students will study anatomical bone and muscle structures, and then employ this knowledge as they develop polygonal models for real-time 3D simulations or gaming environments, high-resolution renderings, and rapid prototyping.
Course usually offered in spring term
Prerequisite: FNAR 235
Activity: Studio
1 Course Unit

FNAR 238 Open Book
"Open Book" will focus on visual communication of information. It will address two methods of inquiry and the corresponding means of visual representation: the objective, well structured research of facts and images, and the creative process of their subjective evaluation and restatement. Students will propose a topic based on their area of interest and engage in a focused, semester-long exploration, which they will present in the form of a designed and printed book.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 239 Photographic Thinking
This course will explore the vitality and range of photography as a discursive practice by analyzing the way images are structured and deployed in contemporary art and wider media culture. Students will be introduced to the key issues surrounding photography now-led through these questions by lectures, readings, group discussion and project-based work. A series of photo-assignments challenge the students to integrate critical thought with practice, exploring a range of formal strategies and thematic frameworks that affect the meaning of their images. Students should have a strong interest in philosophy and art histories (especially the history of photography) They should be motivated to work independently & experiment creatively. There are no prerequisites for this course. It is intended for all different levels of technical experience, but the minimum requirements are a digital camera, a basic familiarity with Photoshop and access to a computer with imaging software.
Activity: Seminar
1 Course Unit

FNAR 240 Mystics & Visionaries: Arts and Other Ways of Knowing
As a pioneer of abstraction in the early 1900's, Hilma Af Klint channeled a complex and highly original body of abstract symbolic work in secrecy. Using the upcoming Hilma Af Klint exhibition at the Guggenheim as a focus and departure point, this course will explore the ways in which artists have accessed alternative ways of seeing, knowing, and embodying non-visible realities as a source for their work. Accessing spiritual realms has been the subject of early European Modernisms investigations into Theosophy and Anthroposophy, as well as the primary intention of Tibetan Thangkas and Indian Tantra paintings. Postmodernism's crisis of belief and skepticism generated a cultural situation wherein the subject of spirituality was marginalized, ridiculed as anti-intellectual, and in disgrace. The Hilma Af Klint exhibition and surge of interest in her work signifies a new moment, where questions about consciousness and the nature of reality are being addressed with renewed vigor. How do we create space in a technology driven world for experiences that attempt to align the viewer/maker with the contemplative realm, heightened states of consciousness, or transcendence? We will examine a wide field of artists in an attempt to understand the possibilities of the "spiritual" in art and contemporary culture. This seminar will engage in readings, lectures, discussions, projects, and field trips. This course is appropriate for both grad and undergrad, art majors and non-majors alike.
Taught by: Jackie Tileston
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 241 Hand-Drawn Computer Animation
Using software tools designed for hand-drawn animation, students will develop animation skills applicable to all forms of animation. In this course students will learn to draw with a sense of urgency and purpose as they represent motion and drama in a series of frames. Through careful study of natural movements, precedents in the history of animation, and through the completion of a series of animation projects students will develop strategies for representing naturalistic movement, inventing meaningful transformations of form, and storytelling.
Course not offered every year
Prerequisite: FNAR 264
Activity: Studio
1 Course Unit
FNAR 243 Figure Sculpture I
An introduction of modeling the human figure in clay. Students will work from the live model, acquainting themselves with issues of basic anatomy, form and function, and clay modeling. No previous experience is required; drawing experience a plus.
Course usually offered in spring term
Activity: Studio
1 Course Unit

FNAR 245 Book and Publication Design
Book and Publication Design will focus on the theory and professional practice of designing multi-page publications. Students will analyze formal structures of different types of books—literature and poetry, fiction and non-fiction compilations, illustrated volumes such as art catalogues, monographs and textbooks, and serial editions—discussing both traditional and experimental approaches. The format of the course will be split between theoretical and historical evaluations of book formats by drawing on the Van Pelt Rare Book Collection and studio time where students will design books with attention to the format's conceptual relationship to the material at hand with a focus on typography and page layout, as well as on understanding production methods of printing and binding. In addition to the conventions of page layout students will examine paratextual elements (title page, practices of pagination and other internal structuring, content lists and indexes, colophons, notes and marginalia, end-leaves, binding, etc.).
Taught by: Hyland
Course usually offered in fall term
Prerequisites: FNAR 264 or permission from the instructor.
Activity: Studio
1 Course Unit

FNAR 247 Environmental Animation
This studio-based course examines the disciplinary spaces of landscape, art, and architecture through the medium of 3D animation and storytelling. We immerse ourselves in environments that may be as small as a cell or as large as a planet. From the refiguring of images, models, graphic design, or video to visualization or coding the genesis of whole environments, this course will allow for a variety of entry point for students of different disciplines and skill levels. Projects will range in scope from animated GIFs to animated shorts. This course embraces a spirit of invention, collaborative learning, and interdisciplinary cross-pollination. Experience in landscape architecture, architecture, animation, programming, film, GIS, and/or graphic design is encouraged. We will examine and discuss some standard typologies such as the walk-through, data-visualization, as well as filmic and avant garde strategies as starting points for creative reinterpretation of space. We will primarily be using 3D Studio Max and After Effects with support from Next Engine 3D Scanner, Rhino, and Grasshopper. Scripting will be included in most assignments to enhance artistic control of the software.
Taught by: Landau
Course usually offered in spring term
Prerequisites: Experience in landscape architecture, architecture, animation, programming, film, Photoshop, or graphic design is strongly encouraged but not required.
Activity: Studio
1 Course Unit

FNAR 248 3D Animation I
This course will provide the fundamentals of animation through a combination of 3D modeling, rendering, and animation software. Students will learn the basic principles of animation, including timing, movement, and composition, and apply them to creating animated sequences. They will also explore the use of 3D modeling software to create complex models and environments. The course will introduce students to the tools and techniques used in the field of 3D animation and prepare them for more advanced coursework in the discipline.
Course usually offered in spring term
Activity: Studio
1 Course Unit

FNAR 250 Introduction to Printmaking
The course offers an introduction to several forms of printmaking including: intaglio, screen printing, relief, and mono-printing. Through in-class demonstrations students are introduced to various approaches to making and printing in each medium. The course enhances a student's capacity for developing images through two-dimensional design and conceptual processes. Technical and conceptual skills are developed through discussions and critiques. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
Course usually offered in spring term
Activity: Studio
1 Course Unit

FNAR 251 Printmaking: Etching
The class will challenge the possibilities of experimental drawing and ways of creating incisions and textures using copper plates as the matrix, which then will be printed on paper and other materials. The class offers full technical and historical description of each individual process: Dry Point, Etching, Hard ground, Soft Ground, Aquatint, Shine Cole', Spit-Biting, Sugar Lift, Color Printing and Viscosity printing.
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 252 Printmaking: Screen Printing
This course is an introduction to technical skills and investigative processes in screen printing and relief and examines methods for combining digital technology with traditional print media. The course introduces students to several contemporary applications of silkscreen and relief printmaking including techniques in multi-color printing, photo-based silkscreening, digital printing, woodcut, linocut, and letterpress. Demonstrations include photo and image manipulation, color separating and output techniques, hand carving and printing, as well as drawing and collage. Both traditional and experimental approaches are explored and encouraged and technical and conceptual skills are developed through discussions and critiques.
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 253 Advanced Projects in Printmaking
This course will concentrate on expanding imagery in print media. The course requires the proposal of a directed final project to be developed during the semester. Three initial exploratory projects will culminate in the final. Projects are open to all print media, but there will be an emphasis on screen printing. Techniques will be addressed as they serve the needs of ideas rather than a set technical procedure. Through individual consultation, scheduled class critiques, and field trips, attention will be given to studio work in and out of printmaking so that the technical and conceptual strengths of print media can serve as a worthwhile adjunct to an overall studio practice.
Course usually offered in spring term
Prerequisites: FNAR 252 or FNAR 257 and FNAR 251
Activity: Studio
1 Course Unit
FNAR 254 Printmaking & Publications: Intro to Independent Publishing and Artists' Publications
This course introduces students to independent publishing and artists’ publications through print methods in letterpress, Risograph, and Xerox. The class will focus on the self-published artists’ zine/book as an affordable, accessible, and easily reproducible format for exploring ideas, disseminating artists’ work, and collaborating across disciplines. Students will learn a range of skills, including techniques in both mechanized and hand-pulled forms of printed media (Risograph, copy machine, Vandercook letterpress); short-run editions and binding; design and layout; pre-press and print production; and the web as it relates to and supports independent and democratic modes of distribution. Students will learn about and become acquainted with some of the most significant independent publishers working today and throughout history. Students will leave class having completed three individual projects: a 16-page booklet/zine; a carefully considered online publication, and a final collaborative book designed, developed and published as a class. The course commences with a field trip to New York City’s Printed Matter, one of the oldest and most important nonprofit facilities dedicated to the promotion of artists’ books, where students will be encouraged to submit a publication by semester’s end.
Taught by: Romberger
Course usually offered in spring term
Activity: Studio
1 Course Unit

FNAR 258 Introduction to Clay: The Potter’s Wheel and Beyond
In this introductory clay class, students will learn all the fundamental skills needed to create three-dimensional forms in clay using a variety of methods: wheel throwing, handbuilding (such as coil building and slab construction), and press molding. Whether creating utilitarian forms or creating sculpture, projects are designed to strengthen both craftsmanship and individual creativity. In addition to developing a working knowledge of the ceramic process, including surface treatments and glazing, students will also be introduced to design issues as well as contemporary art/ceramics topics that influence our aesthetic sensibilities. No prerequisites.
Taught by: FNAR Faculty
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 259 Beginning Clay: Handbuilding and Casting Techniques
Modeling and casting are fundamental methods of object-making. Students will learn basic handbuilding techniques such as coil building, slab construction, and mold making through assignments that incorporate conceptual and technical issues. Through experimentation with these methods, this course promotes an understanding of materials, processes, visual concepts, and techniques for creating three-dimensional forms in space. In addition to using different water-based clays and plaster, other materials such as wax, plastiline, paper pulp, cardboard, and tar paper will be explored. No prerequisites.
Taught by: FNAR Faculty
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 263 Advanced Wheel Studio
This course teaches students more advanced wheel throwing techniques while helping to develop their critical skills in other areas of ceramic work. Students will learn to throw, employing larger masses of clay, and to increase the complexity of their work by combining and altering thrown parts. There will be an emphasis on experimentation in surface treatment and design, the goal of which is to expand a student’s ability to create more complicated and personalized clay works. In addition to learning the technical knowledge, there will be critical discussions of contemporary ceramics issues through image presentations, reading materials and field trips.
One-term course offered either term
Prerequisite: FNAR 261
Activity: Studio
1 Course Unit

FNAR 264 Art, Design and Digital Culture
This course is an introduction to the fundamental perception, representation, aesthetics, and design that shape today’s visual culture. It addresses the way artists and designers create images; design with analog and digital tools; communicate, exchange, and express meaning over broad range of media; and find their voices within the fabric of contemporary art, design, and visual culture. Emphasis is placed on building an extended form of visual literacy by studying and making images using a variety of representation techniques; learning to organize and structure two-dimensional and three-dimensional space, and designing with time-based and procedural media. Students learn to develop an individual style of idea-generation, experimentation, iteration, and critique as part of their creative and critical responses to visual culture. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
For BA Students: Humanities and Social Science S
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 266 Graphic Design with Creative Technologies
The aim of this course is to introduce students creative ways to use color, typography, and layout across new materials and media, ranging from print to physical objects. Students will explore visual design through a set of assignments and projects that are geared towards exploring the role of design in visual arts, interaction design, media design and architecture. The course introduces a number of design concepts such as content organization, navigation, interaction and data-driven design and show ways to develop new design metaphors, presentation techniques, and imagery using old and new technologies. course is structured as a combination of lectures and hands on workshops where students will have the chance to work both individually and collaboratively to realize their projects.
One-term course offered either term
Prerequisite: FNAR 264/636
Activity: Studio
1 Course Unit
FNAR 267 Computer Animation
Through a series of studio projects this course introduces techniques of 2D and 3D computer animation. Emphasis is placed on time-based design and storytelling through animation performance and montage. Students will develop new sensitivities to movement, composition, cinematography, editing, sound, color and lighting.
One-term course offered either term
Prerequisite: FNAR 264
Activity: Studio
1 Course Unit

FNAR 268 Integrative Design Studio: Biological Design
This course is a research-based design studio that introduces new materials, fabrication, and prototyping techniques to develop a series of design proposals in response to the theme: Biological Design. The studio introduces life sciences and biotechnologies to designers, artists, and non-specialists to develop creative and critical propositions that address the social, cultural, and environmental needs of the 21st century. The course will be a pilot study of the first biodesign challenge organized by CUT/PASTE/GROW. The final projects will be submitted to a competition and the winning entry will be featured at Biofabricate in Summer 2019.
One-term course offered either term
Also Offered As: IPD 568
Prerequisite: FNAR 264
Activity: Studio
1 Course Unit

FNAR 269 Typography
The study and practice of typography spans the history of individual letterforms through the typesetting of full texts. It is a complete immersion into type as an integral part of visual communication. Typesetting conventions and variables including legibility, readability, texture, color and hierarchy will be stressed, as well as a form for organizing information and expressing visual ideas. Studio work will include collecting and analyzing type, designing an original typeface, researching type history and experimenting with typographic forms.
One-term course offered either term
Prerequisite: FNAR 264
Activity: Studio
1 Course Unit

FNAR 270 Graphic Design Practicum
Practicum provides a real world experience for students interested in solving design problems for non-profit and community organizations. The studio works with two clients each semester, and previous projects have included print design, web design, interpretive signage and exhibit interactives. All projects are real and will result in a portfolio-ready finished product. Students will participate in a full design experience including design, client interaction, presentations, production, and project management. In addition, students will take field trips, meet professionals and go on studio visits.
One-term course offered either term
Prerequisite: FNAR 266 or FNAR 269
Activity: Studio
1 Course Unit

FNAR 271 Introduction to Photography
This course is an introduction to the basic processes and techniques of black & white photography. Students will learn how to expose and process 35mm film, SLR camera operation, darkroom procedures & printing, basic lighting and controlled applications. It begins with an emphasis on understanding and mastering technical procedures and evolves into an investigation of the creative and expressive possibilities of making images. This is a project-based course, where students will begin to develop their personal vision, their understanding of aesthetic issues and photographic history. Assignments, ideas and important examples of contemporary art will be presented via a series of slide lectures, critiques and discussion. No previous experience necessary. 35mm SLR cameras will be available throughout the semester for reservation and checkout from the photography equipment room. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Prerequisite: None
Activity: Studio
1 Course Unit

FNAR 272 Advanced Photography: Integrated Techniques and Strategies
This studio course seeks to broaden each student's skills by experimenting with a wide range of photographic media. Advanced analog, digital and experimental lens-based techniques will be covered, as well as larger camera formats to expand their vocabulary as image-makers. Emphasis will be on an integrated experience of the photographic medium and the development of a body of work that is both theoretically and historically informed. The course will be a means to view and discuss various strategies of important contemporary photographers. Focused assignments, readings, slide lectures and gallery visits will supplement each student's artistic practice and research.
One-term course offered either term
Prerequisite: FNAR 271 or Permission From Instructor
Activity: Seminar
1 Course Unit

FNAR 274 Reconfiguring Portraiture
As methods of representation are constantly shifting, one thing is clear - the photographic portrait is not what is used to be. Exploring both traditional and contemporary methods of portraiture, this class will uncover and discuss the ways in which we perceive each other in imagery, both as individuals and as groups. Throughout the semester, we will consider how portraits deal with truth, physical absence, the gaze, cultural embodiment, voyeurism and the digital persona. This course will build on the combination of perception, technology, and practice. Throughout the semester, students will advance by learning lighting techniques and strategies of presentation - as these core skills will become tools in the execution of project concepts. In tandem with each project, students will encounter and discuss a wide array of photography and writings from the past to the present, in an effort to understand the meanings and psychological effects of freezing the human image in time. Course usually offered in spring term
Prerequisite: FNAR 271 or FNAR 340 or Permission of Instructor
Activity: Seminar
1 Course Unit
FNAR 278 Documentary Strategies
This course offers a context for photographers to develop a documentary project - either within a traditional photojournalistic framework or one that challenges these traditions. The aim is to understand documentary as an evolving practice and to develop an artistic response when depicting our social reality - from everyday experience to the events that shape the world. An important aspect of the class will be examining the diversity of ways that journalists and artists have used the camera to extend and question the power of photography as document. The class will address key questions of media and mediation, the nature and status of documentary in the context of globalization and how traditional documentary work has been affected by video, performance, conceptual art and activism.
One-term course offered either term
Prerequisite: FNAR 271 or FNAR 340 or Permission from Instructor
Activity: Seminar
1 Course Unit

FNAR 279 Studio Lighting
The necessity of light and how light is rendered in relationship to what is seen and understood, is often a key ingredient in the portrayal of a subject. The origin of the still life can be found in images as far back as antiquity and has dealt with notions of death, science, class, social customs and even sex. Photography picked up on the tradition in 1827 and has not only made use of the form, but has expanded the topic into very unique territories. Contemporary artists have re-invented and re-invigorated the still life, formalism & abstract photography. As a framework for exploring 'hands-on' lighting techniques, students will creatively grapple with the photography of objects in the studio. Working with the physical, symbolic, and conceptual ramifications of depicting specific forms in an image, teamed with the discussion of key texts, critiques, and studio lighting seminars, each student will create a considered and unique portfolio of images.
Taught by: Wahl
Course usually offered in spring term
Prerequisite: FNAR 271 or Permission of Instructor
Activity: Studio
1 Course Unit

FNAR 280 Figure Drawing I
Students work directly from the nude model and focus on its articulation through an understanding of anatomical structure and function. Students will investigate a broad variety of drawing techniques and materials. The model will be used as the sole element in a composition and as a contextualized element.
One-term course offered either term
Prerequisite: FNAR 123
Activity: Studio
1 Course Unit

FNAR 281 Figure Drawing II
Figure Drawing II is an advanced class designed to further develop the student's skill and facility in capturing the human form. Content and conceptual issues will be explored through individualized projects concentrating on the figure. Students will also expand on their knowledge of drawing media and application.
One-term course offered either term
Prerequisite: FNAR 280
Activity: Studio
1 Course Unit

FNAR 284 Photography and Fashion
Since the invention of photography, the fashion industry has been one of the cornerstones of creative expression, innovation and visionary provocation. Contemporary fashion photography has continued to attract a leading group of image-makers that continue the tradition of creating artwork that not only is being published in cutting edge magazines such as V, Another Magazine and Citizen K, but also are exhibiting their work in various galleries and museums around the world. This course is designed for students who are interested in creating contemporary fashion images through specific assignments that define the process: lighting in studio or location, working with fashion designers, stylists, models, hair/ make up artists, and the application of a variety of post production techniques, via Photoshop. The class will explore modern constructs that define the importance of branding, marketing, advertising and the relationship of fashion photography in contemporary art and culture today.
Prerequisite: FNAR 271 or FNAR 340 or Permission from Instructor
Activity: Studio
1 Course Unit

FNAR 285 Photography and Fiction
In spite of photography's traditional relationship with fact, the medium has been a vehicle for fiction since the very beginning. Fiction and photography encompass a broad range of meanings, from elaborately staging and performing for the camera, to manipulations using digital technology such as Photoshop to construct the work. This class will examine and trace the history of manipulated photography while paying special attention to the complex negotiations between the decisive moment, the constructed tableau, and the digitally manipulated image. There will be a combination of class lectures, studio projects, assigned readings, visiting artists, film screenings, field trips, and class critiques.
Taught by: Diamond
Course usually offered in spring term
Prerequisite: FNAR 271 or FNAR 340 or Permission from the Instructor
Activity: Studio
1 Course Unit

FNAR 286 Visual Narrative
Visual Narrative is an introduction to the practice of storytelling with images. From news and information to art, law, and science, visual storytelling is a critical aspect of creating and navigating contemporary culture. This course is situated at the intersection of design, art, and visual culture, focusing on relevant forms and topics including the photo essay, information design and visual explanation, the photographic sequence in contemporary art, scenario design and concept visualization. Visual Narrative focuses on traditional as well as emerging modes of production and distribution for documentary, visual storytelling, and photojournalism, exploring new aesthetics and the social impact of visual narratives.
Taught by: Comberg and Diamond
Course usually offered in fall term
Activity: Studio
1 Course Unit
FNAR 289 Mixed Media Animation
Mixed Media Animation is a contemporary survey of stop-motion animation concepts and techniques. Students use digital SLR cameras, scanners and digital compositing software to produce works in hand-drawn animation, puppet and clay animation, sand animation, and multiplane collage animation. Screenings and discussions in the course introduce key historical examples of animation demonstrating how these techniques have been used in meaningful ways. Students then learn how to composite two or more of these methods with matte painting, computer animation or video.
One-term course offered either term
Prerequisites: FNAR 123 and FNAR 264
Activity: Studio
1 Course Unit

FNAR 305 Monument Lab: Public Art & Civic Research Praxis
What is an appropriate monument for the current city of Philadelphia? This question is the central prompt for Fall 2017 citywide public art and history project, as well as a specifically designed community-based and engaged research course in Fine Arts. Students in Monument Lab: Public Art & Civic Research Praxis will participate as members of specialized research teams, in partnership with local high school research fellows, embedded in iconic public squares, West Philadelphia sites, and neighborhood parks around the city; serve as trained art guides to facilitate learning around over twenty temporary monument installations by internationally and locally-based artists; collect research proposals as a form of creative datasets managed by Penn’s PriceLab and Library; and engage civic partners and public audiences around key issues of the project, including issues of race, gender, sexuality, class, social justice, and civic belonging. The class is structured as a socially-engaged art praxis experience: students will meet weekly for group facilitations, civic dialogues, and special guest lectures by participating artists. In lieu of midterms and a final exam, students will work at research "labs" throughout the city for a set amount of hours per week, write reflection papers, and produce final site specific research portfolio. The course is ideal for students invested in issues of socially-engaged public art, history, and civic engagement.
Taught by: Neff & Farber
Activity: Studio
1 Course Unit

FNAR 306 Design 21: Design After the Digital
Last century, the digital revolution transformed every aspect of our lives. It shaped every design discipline and defined the ways we imagine and fabricate anything from images to everyday products to clothing, cars, buildings and megacities. Today, design is going through other technical and conceptual revolutions. We design with biotechnologies, fall in love in Virtual Reality with AI bots, rent our cognitive labor through cryptocurrencies. Our creative capabilities, on the other hand, are bounded by a polluted, over-crowded, and resource-constrained planet that is suffering major income and educational inequality. Design After the Digital interrogates the role of design for this century. The seminar surveys the conceptual and technical developments in the past decade to develop an interdisciplinary understanding of design, science and technology. We will study how new design and fabrication methods shape what we eat, what we wear, how we form opinions and express ourselves. The goal will be to develop new literacies of design that will help us acclimate better to the realities of the century as creative and critical citizens who can shape its products and values.
Taught by: Telhan
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 307 Converging Landscapes: Art, Ecology and History
Studies of landscape are at the core of multiple fields of fine art making, historical inquiry, and environmental research. Christopher Tilley defines "landscape" as "a holistic term" that frames relationships between living beings and locales, "forming both the medium for, and outcome of, movement and memory." For interdisciplinary arts practitioners in Philadelphia, the landscape may conjure such relationships at points of convergence: when the physical and symbolic layers of the city lay bare social dynamics and truths. Such a range of landmarks - including rivers, neighborhoods, the viewedsheld, the skyline - are impacted by the deep histories of the region itself, as well as the human-activity that traffics upon it. To produce work about and from Philadelphia is to inherit long-standing questions of civic belonging, make sense of shifting demographics and ecological conditions, and to balance aims for innovation and coexistence. Converging Landscapes - Art, Ecology, and History is a civic studio and structured as a socially-engaged art praxis experience: students will meet weekly for group facilitations, civic dialogues, and special guest lectures. In lieu of midterms and a final exam, students in the course will participate as members of specialized research teams, working a set number of hours per week, write reflection papers, and produce a final site-specific research portfolio. Together, they will explore and produce work at and about sites of convergence. Students will pursue group projects and cross-disciplinary independent work, around selected arts and municipal contribute toward a class wide exhibition, as well as collaborations with artists, archives, and organizations. The course is ideal for students invested in issues of socially-engaged public art, environmental humanities, history, and civic engagement.
Taught by: Paul Farber
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 310 Critical Issues in Art
Perspectives on Critical Issues aims to engage students in an ongoing and informed study of both historical and contemporary issues in a spirit of curiosity and critique. We will investigate how these concepts can clarify and complicate our creative practice and our understanding of the contemporary art world. This seminar will explore the shifts in artistic production, theory and criticism and topics will range from traditional investigations of aesthetics, Modernism, Post-Modernism and contemporary themes. Through discussions of assigned readings, class presentations, films, lectures, and field trips, this seminar will help establish a critical and theoretical foundation where your own beliefs and doubts about art and culture will be called into question and will provoke an ongoing inquiry into how you understand art, you own creative process, and the relationship of art and artists to society and creative culture.
Taught by: Diamond
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Activity: Seminar
Taught by: Lum

**FNAR 313 The Chinese Body and Spatial Consumption in Chinatown**

This is a primarily an art and planning course that centers on the representation of the oriental, specifically the Chinese, in both its historical and present contexts. The localization of the Chinese throughout the Americas within Chinatown precincts were also subject to representational imaginings that were negotiated through the lens of civic planning. This course will study the often fraught negotiation between representation and planning. The hyper-urbanization of China over the past several decades has radically altered traditional conceptions of public space in China. Mass migration from rural to urban areas has meant very high population densities in Chinese cities. Traditional courtyards surrounded by housing and other modestly scaled buildings are rapidly disappearing, incongruent with the demands of heated property development. Moreover, Chinese cities have comparatively little public green space per resident compared to equivalents in the West. Zoning in Chinese cities is also much more varied for any given area than what one would find in cities such as New York, Paris, and London. Intensifying density of urban areas precludes the construction of large public squares. Furthermore, large public squares tend to be either intensively congested and overcrowded or underused due to their oversight by government that render such spaces somewhat opprobrious in terms of use. Historically, the urban courtyards of temples, native place associations, and provincial guilds served as public spaces of gathering. They were also sites of festivals and the conducting of neighbourhood and civic business. These spaces have become increasingly privatized or commodified with entrance fees. The air-conditioned concourses of enclosed shopping malls or busy outdoor market streets have become de facto public spaces in China where collective window shopping or promenading is the primary activity rather than bodily repose as one might find in a public space in a large Western city. The seminar/studio will investigate the meaning of the term public in the constitution of Chinese space, audience and critical voice through firstly the enclave of Chinatown and secondly through examples from China. The course will look into the changing conceptualization of public space in Chinatown as it has declined in its traditional form and become reinvented in the form of high-end shopping centered districts. This flux has its roots in post 1979 China as well as the post 1997 reversion of Hong Kong to China.

Taught by: Lum
Activity: Seminar
1 Course Unit

**FNAR 314 Tiananmen Square: A Case Study for Fine Arts and Landscape Architecture**

This course takes as its subject the systems of representation and design that have historically and presently operate in Tiananmen Square in Beijing. There have been several incarnations of Tiananmen Square since its original form in 1651. During Imperial times and through the period of foreign legations, the square was once surrounded by walls and gates, creating a city within a city. With the advent of the Republic of China established on January 1, 1912, much of the enclosures were removed, opening up for public use previously restricted imperial areas. After the Communist Revolution in 1949, planning was afoot to enlarge the square. With its enlargement completed in 1958, the square expanded its footprint by four-fold, making it one of the largest public squares in the world. The enlarged and remodeled square coincided with the completion of the massive Monument to the People's Heroes. In 1976, a large mausoleum containing the preserved body of Mao Zedong was built near the site of the former Gate of China, further increasing the size of the square. In the 1990s, the building of the National Grand Theatre and expansion of the National Museum on grounds contiguous to the square necessitated further alterations to both the Eastern and Western skirts of the square. In recent years, there have been a widening debate regarding the transformation of the concrete heavy and by and large featureless square into a green space. Today, Tiananmen Square holds sacrosanct status to the Communist revolution of 1949, designed more for military parades and massive public rallies than public space repose. In a city that has few green spaces, such a verdant transformation in the heart of the Chinese capital would signal a radical symbolic deviation to China's development-first guiding principles. The square fronts Tiananmen Gate and the Forbidden City and is situated at the intersection of the historical east-west and north-south axes. Chang'An Avenue, important for military processions, separates the square from Tiananmen Gate and is considered the most important thoroughfare in the Capital and the path of the east west number one subway line. The entirety of the Tiananmen Square area is marked by ideology and political prominence, often confusingly. Tiananmen Tower, functions as a conflation of monumental facade with political embodiment. This course will focus on imagined interventions through public art and landscape design within Tiananmen Square and its contiguous areas. It is a studio practice course with a significant seminar component that will include lectures and readings relating to issues.

Taught by: Ken Lum
Course usually offered in spring term
Activity: Seminar
1 Course Unit
FNAR 315 Across Forms: Art and Writing
What if a poem spoke from inside a photograph? What if a sculpture unfurled a political manifesto? What if a story wasn’t just like a dance, but was a dance-or a key component of a video, drawing, performance, or painting? In this course, artists and writers will develop new works that integrate the forms, materials, and concerns of both art and writing. Many artists employ writing in their practices, but may not look at the texts they create as writing. And many writers have practices that go beyond the page and deserve attention as art. This course will employ critique and workshop, pedagogic methodologies from art and writing respectively, to support and interrogate cross-pollination between writing and art practices. Additionally, the course will will examine a field of artists and writers who are working with intersections between art and writing to create dynamic new ways of seeing, reading, and experiencing.
Taught by: Hayes and Zolf
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 316 Art and Social Work: Art and the Ecology of Justice
How can the arts help us build a more just society? How can the arts transform social structures and systems? Public health crises involving clean water (Flint), police violence (Baltimore), and a lack of economic and educational opportunity following reentry (Philadelphia) make legible the need for a new visual language that critiques these conditions and challenges entrenched structural inequalities. We will engage the work of creative practitioners who are mapping new relationships between art and social justice and directly impacting individual and communal well-being. In so doing, the course seeks to challenge traditional constructions of public health, which often isolate individual histories from their social life and their relation to families, communities, and geographies. Readings will build upon disciplinary perspectives in the arts, humanities, and social policy. Requirements include weekly readings, class participation, and a collaborative final project. The course will meet in the Health Ecologies Lab at Slought Foundation, an arts organization on campus.
Taught by: Neff, Levy and Ghose
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 318 Paris Modern: Spiral City
Paris has been shaped by a mixture of organic development, which is still today perceptible in the “snail” pattern of its arrondissements whose numbers, from 1 to 20, coil around a central island several times so as to exemplify a “spiral city,” and of the violent cuts, interruptions and sudden transformations that again and again forced it to catch up with modern times, the most visible of which was Baron Haussmann’s destruction of medieval sections of the city to make room for huge boulevards. Thus Parisian modernism has always consisted in a negotiation between the old and the new, and a specific meaning of modernity allegorized for Louis Aragon, the Surrealists and Walter Benjamin consisted in old-fashioned arcades built in the middle of the 19th century and obsolete by the time they turned into icons of Paris. The aim of the class will be to provide conceptual and pragmatic (visual, experiential) links between a number of texts, theories and films deploying various concepts of the modern in Paris, with a guided tour of the main places discussed. The course that Professors Jean Michel Rabate (English) and Ken Lum (Fine Arts) will lead studies Paris as a work of science-fiction where its many futures are embedded in its many pasts, where discontinuity is a continuous process and where the curving line of the snail’s shell is a line of ceaseless curling resulting in a perennial oscillation where an outside converts into an inside and an inside then converts to an outside. The course will travel to Paris over spring break to get an in-depth look at the topics discussed in class.
Taught by: Ken Lum and Jean-Michel Rabate
One-term course offered either term
Activity: Seminar
1 Course Unit

FNAR 320 Topics in Animation
This course will look at animation as an art form, a technology and an industry. We will explore the way in which artistic, technical, historical, and cultural conditions shape the development of animation and in turn, how animation impacts viewers. Topics will include trends in animation and their relation to contemporary popular culture, issues of art versus commerce in the creation of cartoons, the intersection of animation and politics, and shifts in style and technique throughout the years. We will look at the figures who have shaped the art forms and continue to influence it, the rise in animation’s popularity, and current day applications of animate imagery.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
FNAR 330 Making Space and Public Art
The French social philosopher Michel de Certeau upset the common understanding of the relationship between space and place by elevating space as practice place. By this, he meant that place is but a set of geo-physical particularities that has no dynamic meaning unless activated through social engagement so that space is produced. Spatial practice is a key concept in the modern understanding of the city as a society of abstract space, one in which the problem of human alienation is riven with the logic of spatial spectacularization. Public Art is often employed to address or mollify such urban problems through concepts of historical reconstruction or institutional critique, including possibly testing the limits of public expression. Historical markers play a somewhat different role by calling attention to lost or negative histories, albeit most often vetted through the language of tourism factoids. This course will examine the discursive issues at play in respect to art and markers, particularly for Philadelphia. Additionally, important public art works from around the world will be examined. The course will also include the occasional visit of several key works downtown in which the question of what can and cannot said will be pondered.
Taught by: Lum
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 331 Interdisciplinary Studio: Sites of Convergence and Hybridity
This course takes an experimental multimedia approach to investigating some of the boundaries in contemporary art making practices. Painting, photography, video and sculpture intersect, overlap, and converge in complicated ways. Projects will be designed to explore hybrid forms, collage, space/ installation, and color through a variety of strategic and conceptual proposals as students work towards unique ways of expanding their own work. Weekly readings, critiques, and presentations will be integrated with studio projects. This studio/seminar is appropriate for students at all levels and from all areas of Fine Arts and Design.
Taught by: Tileston
Course usually offered in spring term
Prerequisites: One previous studio course (such as FNAR 123, FNAR145, FNAR150, FNAR 231 or FNAR 264) or permission from the instructor.
Activity: Studio
1 Course Unit

FNAR 334 Painting Studio
Painting Studio IV focuses on continuing the student’s exploration of techniques, problems, and poetics of painting, the nuances of the painting language, and the development of a personal direction. While students may choose to work on assigned projects (either in consultation with the instructor or following the projects that the Painting II/III students may be involved in), the emphasis is on the investigation of the student’s own sensibility. Students will be expected to engage in ongoing critical analysis of their own practices and assumptions.
One-term course offered either term
Prerequisites: FNAR 123 and FNAR 333
Activity: Studio
1 Course Unit

FNAR 337 Information Design and Visualization
Information Design and Visualization is an introductory course that explores the structures of information (text, numbers, images, sounds, video, etc.) and presents strategies for designing effective visual communication appropriate for various users and audiences. The course seeks to articulate a vocabulary of information visualization and find new design forms for an increasingly complex culture.
One-term course offered either term
Prerequisite: FNAR 264
Activity: Studio
1 Course Unit

FNAR 340 Digital Photography
This class offers an in-depth technical and conceptual foundation in digital imagery and the opportunity to explore the creative, expressive possibilities of photography. Students will become proficient with the basic use of the camera, techniques of digital capture, color management and color correction. They will also develop competency in scanning, retouching, printing and a variety of manipulation techniques in Photoshop. Through weekly lectures and critiques, students will become familiar with some of the most critical issues of representation, consider examples from photo history, analyze the impact of new technologies and social media. With an emphasis on structured shooting assignments, students are encouraged to experiment, expand their visual vocabulary while refining their technical skills. No previous experience is necessary. Although it is beneficial for students to have their own Digital SLR camera, registered students may reserve and checkout Digital SLR cameras and other high-end equipment from the department. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 342 Digital Photography II
In this course students will continue to develop conceptual, technical, aesthetic and formal strategies in digital photography, expanding their artistic process while refining their critical approach to researched subject matter. The class will be driven initially by a series of assignments formulated to further expose students to broad possibilities related to the medium and then they will be guided towards the evolution of a personalized body of work that is culturally, theoretically and historically informed. We will be examining key issues surrounding the digital image in contemporary society, led through a combination of class lectures, readings, group discussions, film screenings, gallery visits and class critiques. Students will further their knowledge of image control and manipulation, retouching and collage, advanced color management; become familiar with high-end camera and lighting equipment and develop professional printing skills. In addition to learning these advanced imaging practices, this course will also emphasize an investigation of critical thought surrounding contemporary visual culture and the role of digital media in the creation of art.
Taught by: Jamie Diamond
Course usually offered in fall term
Prerequisite: FNAR 340 Digital Photography I
Activity: Studio
1 Course Unit
FNAR 343 Language of Design
The course will explore the changing relationship during the modern era between design(structure, model, plan of a work of art) and language (metaphor for a system of communication; speech, writing, literature). Our readings and visual presentations will focus on topics in the decorative arts, painting, architecture, typography and visual communication. We will focus on primary sources in order to situate our inquiry in a larger historical context. The discussion will center on claims about the inherent meaning of form, discuss different roles for design -as an ideological statement, as an agent of social change, and as an idiosyncratic expression. Topics will also include the search for a universal visual language, attempts at bridging the perceived gap between spoken and written language, and the impact of visual form on the meaning of literary texts (particularly when the author has been involved in the publication process). Students can suggest additional topics related to their field of study.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 347 Expanded Documentary
The sites and situations of documentary in our culture have exploded exponentially - from standardized formulas (like reality tv), to social media and cross-platform journalism. In contemporary art, documentary practice has also significantly expanded and diversified. Since the early 2000's, with several influential exhibitions following Documenta XI, a new generation of artists have taken up the ambition of depicting our social reality, and have done so by re-engaging and re-inventing the documentary mode. This intermediate course will examine this vital contemporary field and will also offer students a comprehensive introduction to the history of documentary practice. We will investigate a series of key questions regarding the relation between politics and aesthetics, mediums and mobility, how documents function to both approximate and deny a sense of 'reality' and perhaps most importantly-what kinds of social, political or personal realities you want to propose in your artwork. The class will be driven by a series of studio assignments and practical experimentation. Although there will be an emphasis on photography and video, students will also explore a multiplicity of strategies and forms (including archival display, essayistic installation, image-text relationships, and the documentation of performance.)
Taught by: Davenport
Course usually offered in spring term
Prerequisite: FNAR-061 or FNAR-271 or FNAR-340 or permission from instructor
Activity: Studio
1 Course Unit

FNAR 348 Counter the Land: Photography and the Landscape
Starting with the representation of landscape in painting in the early 1800s, the course will then move through Pictorialism and the Modernist movement in photography. Revisiting the later half of the 20th century, we will begin to consider the shifting practices of landscape and the ways it has been photographically depicted up to the present. Collaborating with the Brandywine River Museum of Art in Chadds Ford, students will begin their photographic exploration with the work of Andrea Wyeth and the landscape of the Brandywine Valley. As we consider Wyeth, the images of James Welling will also be introduced. Credited for pioneering new forms of representation in photography in the 1970s, Welling also revisited the work of Wyeth from 2010-2015, and committed to a fresh (and challenging) look at tradition. Working with imagery and text, this class will also touch on conceptual art, the New Topographics, and postmodernism. Through these various concentrations, students will consider and counter the traditions that they are already familiar with, while creating work based on issues of the landscape today. Questions about meaning, politics, social critique, land rights, technology and methods of presentation will be encouraged and explored throughout the course.
Taught by: Wahl
Course usually offered in fall term
Prerequisites: FNAR 271 or FNAR 340 or with permission from the instructor
Activity: Studio
1 Course Unit

FNAR 349 Advanced Digital Photography
In this studio course, students will become proficient in advanced techniques of image production while expanding their artistic process and refining their photographic work. With an emphasis on self-directed projects and research, students will further their knowledge of image control and manipulation, retouching and collage, advanced color management; become familiar with high-end equipment and develop professional printing skills. Class discussion, lectures and assigned readings will address the critical issues in contemporary art, media and photographic culture. Emphasis will be on integrating practice and critical dialogue.
One-term course offered either term
Prerequisite: FNAR 340
Activity: Studio
1 Course Unit

FNAR 350 Shared Culture: New Strategies for Artists in the Digital Age
Our digital world has forced us to entirely rethink what it means to be an artist in the digital age, socially, economically, and politically. Ideas that have long been stable - including originality, creativity, and genius - are ripe for reexamination and redefinition in the twenty-first century. When the entire internet is copy- and-pasteable - and distribution moves swiftly - is anything off limits for the artist? Can we imagine our artistic production mimicking the meme, rippling through the networks for a day, then disappearing forever? Are we doomed to make works that are supposed to live for eternity or, in the face of environmental meltdown and collapsing financial markets, can we instead move our production toward the ephemeral? What would this look like? Can our output be steered toward the political? Can we frame these ideas as acts of resistance? Or compliance? Is there an inside? Is there an outside?
Taught by: Goldsmith
Course usually offered in spring term
Activity: Studio
1 Course Unit
Notes: Fine Arts Majors or MFA students ONLY or permission of instructor.
FNAR 352 Dispersive Lends
This studio course will explore the nexus between photography, sculpture, installation, drawing, painting, and the moving image. The course is informed by the printed image, as students will explore how photography can encourage thinking in other mediums, in addition to how other mediums can influence the making of photography. When does an abstract painting appear more like a photograph? How can a photograph suggest ways to make a video? Can a sculpture exist as a photograph? A variety of assignments will expose students to interdisciplinary approaches addressing these questions and more. Class projects will be supported by regular slide lectures, group critiques, and readings examining modern and contemporary artists and practices.
Taught by: Oliver
Course usually offered in spring term
Prerequisite: FNAR 271 or FNAR 340 or FNAR 061 or permission of instructor
Activity: Studio
1 Course Unit

FNAR 353 Advanced Projects in Animation
Students will explore facial animation at great depth. Investigating both skeletal and muscular anatomy, students will implement their knowledge in the creation of facial rigs and realistic animation of 3D computer characters. Strong emphasis will be placed on drawing and acting skills to achieve a successful working knowledge of both form and function. As an advanced seminar course, students are expected and encouraged to work and explore topics outside of the classroom.
Course usually offered in spring term
Prerequisites: FNAR 235 and FNAR 267, or Instructor Permission
Activity: Studio
1 Course Unit

FNAR 356 Advanced 3-D Modeling
Advanced 3-D Modeling will give students the opportunity to refine skills in modeling, texturing, lighting and rendering with an emphasis on the evolution of ideas through constant revision based on class critique. Students will use a variety of industry standard software packages, including, but not limited to Maya and Mudbox to compose complex environments. Projects are designed to give students the opportunity to work with original content within a simulated production environment.
One-term course offered either term
Prerequisite: FNAR 235/365 or FNAR 236/536
Activity: Studio
1 Course Unit

FNAR 370 Advanced Graphic Design and Typography
This course will explore advanced commercial, public and personal forms of visual communication. Emphasis will be placed on creative problem solving with consideration for audience. Discussion of design history, current ideology and future design applications will inform individual student projects. Work generated in this studio can be used to build a portfolio.
Course usually offered in fall term
Prerequisites: FNAR 266 and FNAR 269 or Permission of Instructor.
Activity: Studio
1 Course Unit

FNAR 378 Interfacing Cultures: Designing for Mobile, Web and Public Media
This course introduces advanced topics related to contemporary media technologies, ranging from social media to mobile phones applications and urban interfaces. Students learn how to use new methods from interaction design, service design, and social media and work towards prototyping their ideas using new platforms and media. The class will cover a range of topics such as such as online-gaming, viral communication, interface culture, networked environments, internet of things and discuss their artistic, social, and cultural implications to the public domain.
Course usually offered in spring term
Prerequisite: FNAR 234
Activity: Studio
1 Course Unit

FNAR 399 Independent Study
One-term course offered either term
Prerequisite: See Department for section number
Activity: Independent Study
1 Course Unit
Notes: A minimum three-page proposal must be submitted and approved by both the Instructor and the Undergraduate Director.

FNAR 488 Senior Seminar Project (Fall Semester)
This rigorous pair of courses, one offered in the Fall and one offered in the Spring semester, are designed as the capstone of the Fine Arts major and are required for all graduating fine arts seniors. They can only be taken in the senior year. Students work in individual studio spaces provided by the department and then meet with faculty for seminar, critique, and professional practice exercises. Through individual and group critiques, students begin to conceptualize their final thesis exhibition or project. The senior seminar allows students to create lasting professional relationships with the fine arts faculty and visiting lecturers. The fall semester culminates in a group exhibition of senior student work paired with final semester critiques.
Course usually offered in fall term
Prerequisites: Fine Arts Majors in Senior Year only.
Activity: Seminar
1 Course Unit

FNAR 489 Senior Seminar Project
The Spring semester seminar culminates in a senior thesis exhibition for each graduating student. These exhibitions have traditionally been held as a small group exhibition featuring a few students in one group, or as a larger end of semester exhibition with each student installing a series of works. The format of the exhibition will be determined during the fall semester by the senior faculty. The process of preparing, installing, and promoting the thesis exhibition is covered in detail throughout the semester. Students will work in their on-campus studio spaces to produce dynamic, thoughtful and well-crafted work that will serve as their final portfolio. They will present their portfolio of work during a final critique before graduation.
Course usually offered in spring term
Prerequisites: FNAR 488; Fine Arts Majors in Senior Year only.
Activity: Seminar
1 Course Unit
FNAR 501 Graduate Studio I
First year studio for MFA students’ core pursuit of self-directed interdisciplinary problems that contribute to one or more of the visual art disciplines.
Taught by: Lum/Freedman/Mosley/Telhan/Tileston/Hartt/Lopez/Hayes/Davenport
Course usually offered in fall term
Activity: Studio
2 Course Units

FNAR 502 Graduate Studio II
Second year studio for MFA students’ core pursuit of self-directed interdisciplinary problems that contribute to one or more of the visual art disciplines.
Taught by: Adkins/Davenport/Freedman/Mosley/Telhan/Tileston
Course usually offered in spring term
Activity: Studio
2 Course Units

FNAR 503 Sachs Research: Imaginary Modernisms
Over the course of the 2017-2018 school year, but officially as Spring 2018, credited course, I am inviting a group of 6-8 MFA students to participate as a group in a project focused on research, dialogue and the essential "possibilities" available to any artist to participate in the constant rewriting and redefining of art history. Students will participate in a body of research and readings leading to my upcoming participation in Rice University's Campbell Lecture Series in March 2018 and an associated publication with the University of Chicago Press. The lectures are divided into three distinct parts over three nights, all of which focus on alternate approaches to modernism. Part I investigates the "Literary" theory of architecture by Bruno Taut and Paul Scheerbart. Part II is concerned with the painting practices of Hilma af Klint and Blinky Palermo. And Part III discusses the music of Sun Ra and Pauline Oliveros.
Students participating in Imaginary Modernisms will meet and work with me in a series of scheduled and structured activities, beginning with a visit to Philadelphia in November for personal studio visits with each of the 6-8 students, not as a critique but to get to know you and your work a bit. Participation includes three trips to New York each for two days. These 2-day trips will each involve one day at my studio in Brooklyn, to discuss the readings and research, as well as to observe the development of ongoing sculptural artworks being created in my studio, and a second day of self-guided visits to exhibitions and performances that I will suggest, with an optional meeting together for lunch or dinner. Readings for these meetings will be sent to you in advance of trip. Participating students should be prepared to read various texts along with me for the 5 month project duration. This is an essential part of the project and this should be a pleasurable process, so those do not have time to add a medium amount of reading to their schedules, followed by group discussion, should probably not apply. The only other requirement will be preparing for an exchange with undergraduate students at Rice University in March. For our trip to Houston in March, there will be three nights of lectures, one participatory performance, one exhibition opening reception, plus visits and interaction with curators at the Menil Collection, the Museum of Fine Arts Houston, the Contemporary Arts Museum Houston and the Core Program (an important option for MFA students post graduation.)
Taught by: Josiah McElheny
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 506 Design 21: Design After the Digital
Last century, the digital revolution transformed every aspect of our lives. It shaped every design discipline and defined the ways we imagine and fabricate anything from images to everyday products to clothing, cars, buildings and megacities. Today, design is going through other technical and conceptual revolutions. We design with biotechnologies, fall in love in Virtual Reality with AI bots, rent our cognitive labor through cryptocurrencies. Our creative capabilities, on the other hand, are bounded by a polluted, over-crowded, and resource-constrained planet that is suffering major income and educational inequality. Design After the Digital interrogates the role of design for this century. The seminar surveys the conceptual and technical developments in the past decade to develop an interdisciplinary understanding of design, science and technology. We will study how new design and fabrication methods shape what eat, what we wear, how we form opinions and express ourselves. The goal will be to develop new literacies of design that will help us acclimate better to the realities of the century as creative and critical citizens who can shape its products and values.
Taught by: Telhan
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 507 Converging Landscapes: Art, Ecology and History
Studies of landscape are at the core of multiple fields of fine art making, historical inquiry, and environmental research. Christopher Tilley defines "landscape" as "a holistic term" that frames relationships between living beings and locales, "forming both the medium for, and outcome of, movement and memory." For interdisciplinary arts practitioners in Philadelphia, the landscape may conjure such relationships at points of convergence: when the physical and symbolic layers of the city lay bare social dynamics and truths. Such a range of landmarks - including rivers, neighborhoods, the viewedshed, the skyline - are impacted by the deep histories of the region itself, as well as the human-activity that traffics upon it. To produce work about and from Philadelphia is to inherit long-standing questions of civic belonging, make sense of shifting demographics and ecological conditions, and to balance aims for innovation and coexistence. Converging Landscapes - Art, Ecology, and History is a civic studio and structured as a socially-engaged art praxis experience: students will meet weekly for group facilitations, civic dialogues, and special guest lectures. In lieu of midterm and a final exam, students in the course will participate as members of specialized research teams, working a set number of hours per week, write reflection papers, and produce a final site-specific research portfolio. Together, they will explore and produce work at and about sites of convergence.
Students will pursue group projects and cross-disciplinary independent work, around selected arts and municipal contribute toward a class wide exhibition, as well as collaborations with artists, archives, and organizations. The course is ideal for students invested in issues of socially-engaged public art, environmental humanities, history, and civic engagement.
Taught by: Paul Farber
Course usually offered in fall term
Activity: Seminar
1 Course Unit
FNAR 508 Clay Practices
This course introduces clay as a sculptural medium through fundamental clay-building techniques, mold making, model making, and casting. Through experimentation with these methods, this course promotes an understanding of materials, processes, visual concepts and techniques for creating three-dimensional forms in space. In addition to using different water-based clays and plaster, other materials such as wax, plastiline, paper pulp, and cardboard will be explored. Students will explore the full range of clay's capabilities and its role in contemporary art through lectures, readings, demonstrations, and assignments that incorporate conceptual and technical issues.
Activity: Studio
1 Course Unit

FNAR 515 Photography Studio Abroad
This Traveling Studio is offered every other spring term to upper level photography & related media students. It is a cross-cultural visual investigation, exploring the contradictions and significance of the chosen city. This course incorporates multi-disciplinary research in preparation for the trip; exploring various fields of knowledge production such as art, history, social sciences, markets and governance. Class discussion, readings and individual research will be focused towards the development of each student's photo/media project, which will be realized while abroad. After returning to Philadelphia, students will develop and refine their work; the remaining classes will emphasize critique, editing, printing and presentation options. The final projects will be included in a group exhibition at the end of the semester. Admission to the course is on a competitive basis.
Course offered spring; odd-numbered years
Prerequisite: Permission of Instructor Required - Competitive Application Process Only
Activity: Studio
1 Course Unit

FNAR 518 Paris Modern: Spiral City
Paris has been shaped by a mixture of organic development, which is still today perceptible in the "snail" pattern of its arrondissements whose numbers, from 1 to 20, coil around a central island several times so as to exemplify a "spiral city" and of the violent cuts, interruptions and sudden transformations that again and again forced it to catch up with modern times, the most visible of which was Baron Haussmann's destruction of medieval sections of the city to make room for huge boulevards. Thus Parisian modernism has always consisted in a negotiation between the old and the new, and a specific meaning of modernity allegorized for Louis Aragon, the Surrealists and Walter Benjamin consisted in old-fashioned arcades built in the middle of the 19th century and obsolete for Louis Aragon, the Surrealists and Walter Benjamin consisted in old-fashioned arcades built in the middle of the 19th century and obsolete by the time they turned into icons of Paris. The aim of the class will be to provide conceptual and pragmatic (visual, experiential) links between a number of texts, theories and films deploying various concepts of the modern in Paris, with a guided tour of the main places discussed. The course that Professors Jean Michel Rabate (English) and Ken Lum (Fine Arts) will lead studies Paris as a work of science-fiction where its many futures are embedded in its many pasts, where discontinuity is a continuous process and where the curving line of the snail's shell is a line of ceaseless curling resulting in a perennial oscillation where an outside converts into an inside and an inside then converts to an outside. The course will travel to Paris over spring break to get an in-depth look at the topics discussed in class.
Taught by: Neff
Course usually offered in spring term
Activity: Studio
1 Course Unit

FNAR 521 Histories of Print: Reimagining the Archive
What can history tell us about the present? How do archives teach us about the future? Printing has long been at the center of political, social, and economic shifts, as well as a form used by artists, writers, designers, and cultural producers. Utilizing readings, films, field trips, independent research, and discussions, students will learn about the history of letterpress printing and its historically complex relationship with power and technological innovation. This studio/seminar examines the act of printing as a way to expand the boundaries of language and image-making, questioning both historic and contemporaneous approaches. Class readings spanning multiple perspectives on the history of print, access to rare archives, and the use of historic printing equipment will inform studio-based projects and writing assignments throughout the semester. This course will meet in the Common Press located in the Fisher Fine Arts Library. The Common Press is an interdisciplinary initiative between the Kelly Writers House, the Kislak Center for Special Collections, Rare Books and Manuscripts, and the Fine Arts program within PennDesign; it encourages collaboration with an emphasis on letterpress, and cross-disciplinary approaches to writing and image-making.
Taught by: Neff
Course offered spring to fall; even-numbered years
Prerequisite: Permission of Instructor Required - Competitive Application Process Only
Activity: Studio
1 Course Unit

FNAR 523 Drawing I
This course is designed to develop visual awareness and perceptual acuity through the process of drawing. Students learn to sharpen perceptual skills through observational drawing, and to explore the expressive potential of drawing. A variety of problems and media will be presented in order to familiarize students with various methods of working and ways of communicating ideas visually. Subject matter will include object study, still life, interior and exterior space, self-portrait and the figure. Different techniques and materials (charcoal, graphite, ink, collage) are explored in order to understand the relationship between means, material and concept. Critical thinking skills are developed through frequent class critiques and through the presentation of and research into historical and contemporary precedent in drawing. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit
FNAR 524 Drawing Investigations
Drawing is a fundamental means of visualization and a hub for thinking, constructing, and engaging in a wide variety of creative activities and problem solving. This studio class explores drawing in both its traditional and contemporary forms. The projects are designed to help students in all disciplines find ways express and clarify their ideas through the process of drawing. The semester begins with the refinement of perceptual skills acquired in Drawing I, while encouraging experimentation through the introduction of color, abstract agendas, conceptual problem solving, and collaborative exercises, as well as new materials, techniques and large format drawings. Particular attention is given to ways to conduct visual research in the development of personal imagery. Assignments are thematic or conceptually based with ample opportunity for individual approaches to media, subject, scale and process. The goal is to strengthen facility, develop clarity in intent and expand expression. Attention is paid to the development of perceptual sensitivity, methods of image construction, and the processes of synthesis and transformation in order to communicate ideas through visual means. Recommended for students in all areas.
One-term course offered either term
Prerequisite: FNAR 523
Activity: Studio
1 Course Unit

FNAR 525 Figure Painting: Then and Now
Beyond the introduction to technique and materials this course will emphasize the figure in historical & contemporary painting. This course will be based in perception, working from the model and move through modernism and toward varying approaches to the figure. Further investigation about the language of color through color theory will be covered. Drawing 1 pre-requisite, Painting 1 pre-requisite recommended but not mandatory.
Taught by: MURPHY
Course usually offered summer term only
Prerequisite: FNAR 523
Activity: Studio
1 Course Unit

FNAR 526 Sequential Drawing
Sequential drawing instructs in the visualization of story telling through the exploration of visual narrative components (visual iconography, panel to panel transition types, picture/word relations) and their application to a narrative through the use of formal drawing techniques (composition, color, perspective, line, form). The class begins with various exercises in paneling, pacing and style development, and concludes with the student applying the concepts and techniques they've acquired to the creation of a graphic novel.
Course usually offered in spring term
Prerequisite: FNAR 523
Activity: Studio
1 Course Unit

FNAR 530 Making Space and Public Art
The French social philosopher Michel de Certeau upset the common understanding of the relationship between space and place by elevating space as practice place. By this, he meant that place is but a set of geophysical particularities that has no dynamic meaning unless activated through social engagement so that space is produced. Spatial practice is a key concept in the modern understanding of the city as a society of abstract space, one in which the problem of human alienation is riven with the logic of spatial spectacularization. Public Art is often employed to address or mollify such urban problems through concepts of historical reconstruction or institutional critique, including possibly testing the limits of public expression. Historical markers play a somewhat different role by calling attention to lost or negative histories, albeit most often vetted through the language of tourism factoids. This course will examine the discursive issues at play in respect to art and markers, particularly for Philadelphia. Additionally, important public art works from around the world will be examined. The course will also include the occasional visit of several key works downtown in which the question of what can and cannot said will be pondered.
Taught by: Lum
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 531 Painting Practices
Painting practices is an introduction to the methods and materials of oil painting. This course begins with an investigation of color and color relationships. The beginning of the semester will cover technical issues and develop the student’s ability to create a convincing sense of form in space using mass, color, light and composition. The majority of work is from direct observation including object study, still life, landscape, interior and exterior space and the self portrait. Class problems advance sequentially with attention paid to perceptual clarity, the selection and development of imagery, the process of synthesis and translation, color, structure and composition, content and personal expression. Students will become familiar with contemporary and art historical precedent in order to familiarize them with the history of visual ideas and find appropriate solutions to their painting problems.
One-term course offered either term
Prerequisite: FNAR 523
Activity: Studio
1 Course Unit

FNAR 532 Painting Studio
Painting Studio presents an ongoing exploration of the techniques, problems and poetics of painting, the nuances of the painting language, and the development of a personal direction. A wide variety of problems will address such issues as color, composition, and the development of imagery, process, and content. Students are expected to improve in technical handling of paints and move towards developing personal modes of seeing, interpreting, and thinking for themselves. This course introduces different topics, strategies and individual challenges each semester, so it may be repeated with advanced course numbers.
One-term course offered either term
Prerequisite: FNAR 531
Activity: Studio
1 Course Unit
Notes: This course can be continued by registering for FNAR 533 Painting Studio (III), and FNAR 534 Painting Studio (IV).
FNAR 534 Painting Studio
Painting Studio IV focuses on continuing the student’s exploration of techniques, problems, and poetics of painting, the nuances of the painting language, and the development of a personal direction. While students may choose to work on assigned projects (either in consultation with the instructor or following the projects that the Painting II/III students may be involved in), the emphasis is on the investigation of the student’s own sensibility. Students will be expected to engage in ongoing critical analysis of their own practices and assumptions.
One-term course offered either term
Prerequisites: FNAR 523 and FNAR 533
Activity: Studio
1 Course Unit

FNAR 536 Digital Figure Modeling
This course introduces methods of modeling, texturing, and rendering human and animal figures. Students will study anatomical bone and muscle structures, and then employ this knowledge as they develop polygonal models for real-time 3D simulations or gaming environments, high-resolution renderings, and rapid prototyping.
Course usually offered in spring term
Prerequisite: FNAR 635; Recommended FNAR 543 or FNAR 580
Activity: Studio
1 Course Unit

FNAR 538 Open Book
"Open Book" will focus on visual communication of information. It will address two methods of inquiry and the corresponding means of visual representation: the objective, well structured research of facts and images, and the creative process of their subjective evaluation and restatement. Students will propose a topic based on their area of interest and engage in a focused, semester-long exploration, which they will present in the form of a designed and printed book.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 540 Mystics & Visionaries: Arts and Other Ways of Knowing
As a pioneer of abstraction in the early 1900’s, Hilma Af Klint channeled a complex and highly original body of abstract symbolic work in secrecy. Using the upcoming Hilma Af Klint exhibition at the Guggenheim as a focus and departure point, this course will explore the ways in which artists have accessed alternative ways of seeing, knowing, and embodying non-visible realities as a source for their work. Accessing spiritual realms has been the subject of early European Modernisms investigations into Theosophy and Anthroposophy, as well as the primary intention of Tibetan Thangkas and Indian Tantra paintings. Postmodernism's crisis of belief and skepticism generated a cultural situation wherein the subject of spirituality was marginalized, ridiculed as anti-intellectual, and in disgrace. The Hilma Af Klint exhibition and surge of interest in her work signifies a new moment, where questions about consciousness and the nature of reality are being addressed with renewed vigor. How do we create space in a technology driven world for experiences that attempt to align the viewer/maker with the contemplative realm, heightened states of consciousness, or transcendence? We will examine a wide field of artists in an attempt to understand the possibilities of the "spiritual" in art and contemporary culture. This seminar will engage in readings, lectures, discussions, projects, and field trips. This course is appropriate for both grad and undergrad, art majors and non-majors alike.
Taught by: Jackie Tileston
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 541 Hand-Drawn Computer Animation
Using software tools designed for hand-drawn animation, students will develop animation skills applicable to all forms of animation. In this course students will learn to draw with a sense of urgency and purpose as they represent motion and drama in a series of frames. Through careful study of natural movements, precedents in the history of animation, and through the completion of a series of animation projects students will develop strategies for representing naturalistic movement, inventing meaningful transformations of form, and storytelling.
Course not offered every year
Prerequisite: FNAR 636
Activity: Studio
1 Course Unit

FNAR 542 3-D Design
Students will make work that draws from and interacts with the three-dimensional world we live in. Formal strategies will explore principles of organization. Planar construction. modeling and assemblage methods will be used for investigations spanning from bas-relief to environmental art. This is a "learn by doing" process with no prerequisites.
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 543 Figure Sculpture I
An introduction of modeling the human figure in clay. Students will work from the live model, acquainting themselves with issues of basic anatomy, form and function, and clay modeling. No previous experience is required; drawing experience a plus.
One-term course offered either term
Activity: Studio
1 Course Unit
FNAR 545 Sculpture Practices
As an introduction to traditional and contemporary three-dimensional practice, this course is concerned with the concepts and methodologies surrounding three-dimensional art making in our time. Students experiment with a variety of modes of production, and develop some of the fundamental techniques used in sculpture. In addition to these investigations, assignments relative to the history and social impact of these practices are reinforced through readings and group discussion. Processes covered include use of the Fab Lab, wood construction, clay, paper, mixed media, and more. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 547 Environmental Animation
This studio-based course examines the disciplinary spaces of landscape, art, and architecture through the medium of 3D animation and storytelling. We immerse ourselves in environments that may be as small as a cell or as large as a planet. From the rendering of images, models, graphic design, or video to visualization or coding the genesis of whole environments, this course will allow for a variety of entry points for students of different disciplines and skill levels. Projects will range in scope from animated GIFs to animated shorts. This course embraces a spirit of invention, collaborative learning, and interdisciplinary cross-pollination. Experience in landscape architecture, architecture, animation, programming, film, GIS, and/or graphic design is encouraged. We will examine and discuss some standard typologies such as the walkthrough, data-visualization, as well as fimmic and avant garde strategies as starting points for creative reinterpretation of space. We will primarily be using 3D Studio Max and After Effects with support from Next Engine 3D Scanner, Rhino, and Grasshopper. Scripting will be included in most assignments to enhance artistic control of the software.
Taught by: Landau
Course usually offered in spring term
Prerequisites: Experience in landscape architecture, architecture, animation, programming, film, Photoshop, or graphic design is strongly encouraged but not required.
Activity: Studio
1 Course Unit

FNAR 550 Introduction to Printmaking
The course offers an introduction to several forms of printmaking including: intaglio, screen printing, relief, and monoprinting. Through in-class demonstrations students are introduced to various approaches to making and printing in each medium. The course enhances a student's capacity for developing images through two-dimensional design and conceptual processes. Technical and conceptual skills are developed through discussions and critiques. Technical and conceptual strengths of print media can serve as a springboard, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 552 Printmaking: Screen Printing
This course is an introduction to technical skills and investigative processes in screen printing and relief and examines methods for combining digital technology with traditional print media. The course introduces students to several contemporary applications of silkscreen and relief printmaking including techniques in multi-color printing, photo-based silkscreening, digital printing, woodcut, linocut, and letterpress. Demonstrations include photo and image manipulation, color separating and output techniques, hand carving and printing, as well as drawing and collage. Both traditional and experimental approaches are explored and encouraged and technical and conceptual skills are developed through discussions and critiques.
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 553 Advanced Projects in Printmaking
This course will concentrate on expanding imagery in print media. The course requires the proposal of a directed final project to be developed during the semester. Three initial exploratory projects will culminate in the final. Projects are open to all print media, but there will be an emphasis on screen printing. Techniques will be addressed as they serve the needs of ideas rather than a set technical procedure. Through individual consultation, scheduled class critiques, and field trips, attention will be given to studio work in and out of printmaking so that the technical and conceptual strengths of print media can serve as a worthwhile adjunct to an overall studio practice.
Course usually offered in spring term
Prerequisites: FNAR 551 and FNAR 552 or FNAR 557
Activity: Studio
1 Course Unit

FNAR 555 Beginning Clay: Handbuilding and Casting Techniques
This studio-based course examines the disciplinary spaces of landscape, art, and architecture through the medium of 3D animation and storytelling. We immerse ourselves in environments that may be as small as a cell or as large as a planet. From the rendering of images, models, graphic design, or video to visualization or coding the genesis of whole environments, this course will allow for a variety of entry points for students of different disciplines and skill levels. Projects will range in scope from animated GIFs to animated shorts. This course embraces a spirit of invention, collaborative learning, and interdisciplinary cross-pollination. Experience in landscape architecture, architecture, animation, programming, film, GIS, and/or graphic design is encouraged. We will examine and discuss some standard typologies such as the walkthrough, data-visualization, as well as fimmic and avant garde strategies as starting points for creative reinterpretation of space. We will primarily be using 3D Studio Max and After Effects with support from Next Engine 3D Scanner, Rhino, and Grasshopper. Scripting will be included in most assignments to enhance artistic control of the software.
Taught by: Landau
Course usually offered in spring term
Prerequisites: Experience in landscape architecture, architecture, animation, programming, film, Photoshop, or graphic design is strongly encouraged but not required.
Activity: Studio
1 Course Unit

FNAR 558 Introduction to Clay: the Potter's Wheel and Beyond
In this introductory clay class, students will learn all the fundamental skills needed to create three-dimensional forms in clay using a variety of methods: wheel throwing, handbuilding (such as coil building and slab construction), and press molding. Whether creating utilitarian forms or creating sculpture, projects are designed to strengthen both craftsmanship and individual creativity. In addition to developing a working knowledge of the ceramic process, including surface treatments and glazing, students will also be introduced to art issues as well as contemporary art/ceramics topics that influence our aesthetic sensibilities. No prerequisites.
Taught by: FNAR Faculty
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 559 Beginning Clay: Handbuilding and Casting Techniques
Modeling and casting are fundamental methods of object-making. Students will learn basic handbuilding techniques such as coil building, slab construction, and mold making through assignments that incorporate conceptual and technical issues. Through experimentation with these methods, this course promotes an understanding of materials, processes, visual concepts, and techniques for creating threedimensional forms in space. In addition to using different water-based clays and plaster, other materials such as wax, plastilene, paper pulp, cardboard, and tar paper will be explored. No prerequisites.
Taught by: FNAR Faculty
One-term course offered either term
Activity: Studio
1 Course Unit
FNAR 563 Advanced Wheel Studio
This course teaches students more advanced wheel throwing techniques while helping to develop their critical skills in other areas of ceramic work. Students will learn to throw, employing larger masses of clay, and to increase the complexity of their work by combining and altering thrown parts. There will be an emphasis on experimentation in surface treatment and design, the goal of which is to expand a student's ability to create more complicated and personalized clay works. In addition to learning the technical knowledge, there will be critical discussions of contemporary ceramics issues through image presentations, readings, materials and field trips.
One-term course offered either term
Prerequisite: FNAR 561
Activity: Studio
1 Course Unit

FNAR 566 Graphic Design with Creative Technologies
The aim of this course is to introduce students creative ways to use color, typography, and layout across new materials and media, ranging from print to physical objects. Students will explore visual design through a set of assignments and projects that are geared towards exploring the role of design in visual arts, interaction design, media design and architecture. The course introduces a number of design concepts such as content organization, navigation, interaction and data-driven design and show ways to develop new design metaphors, presentation techniques, and imagery using old and new technologies. course is structured as a combination of lectures and hands on workshops where students will have the chance to work both individually and collaboratively to realize their projects.
One-term course offered either term
Prerequisite: FNAR 636
Activity: Studio
1 Course Unit

FNAR 567 Computer Animation
Through a series of studio projects this course introduces techniques of 2D and 3D computer animation. Emphasis is placed on time-based design and storytelling through animation performance and montage. Students will develop new sensitivities to movement, composition, cinematography, editing, sound, color and lighting.
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 568 Interactive Design Studio: Biological Design
This course is a research-based design studio that introduces new materials, fabrication, and prototyping techniques to develop a series of design proposals in response to the theme: Biological Design. The studio introduces life sciences and biotechnologies to designers, artists, and non-specialists to develop creative and critical propositions that address the social, cultural, and environmental needs of the 21st century. The course will be a pilot study of the first biodesign challenge organized by CUT/PASTE/GROW. The final projects will be submitted to a competition and the winning entry will be featured at Biofabricate in Summer 2019.
One-term course offered either term
Also Offered As: IPD 568
Activity: Studio
1 Course Unit

FNAR 569 Typography
The study and practice of typography spans the history of individual letterforms through the typesetting of full texts. It is a complete immersion into type as an integral part of visual communication. Typesetting conventions and variables including legibility, readability, texture, color and hierarchy will be stressed, as well as a form for organizing information and expressing visual ideas. Studio work will include collecting and analyzing type, designing an original typeface, researching type history and experimenting with typographic forms.
Course usually offered in spring term
Prerequisite: FNAR 636
Activity: Studio
1 Course Unit

FNAR 570 Graphic Design Practicum
Practicum provides a real world experience for students interested in solving design problems for non-profit and community organizations. The studio works with two clients each semester, and previous projects have included print design, web design, interpretive signage and exhibit interactives. All projects are real and will result in a portfolio-ready finished product. Students will participate in a full design experience including design, client interaction, presentations, production, and project management. In addition, students will take field trips, meet professionals and go on studio visits.
One-term course offered either term
Prerequisite: FNAR 566 or FNAR 569
Activity: Studio
1 Course Unit

FNAR 571 Introduction to Photography
This course is an introduction to the basic processes and techniques of black & white photography. Students will learn how to expose and process 35mm film, SLR camera operation, darkroom procedures & printing, basic lighting and controlled applications. It begins with an emphasis on understanding and mastering technical procedures and evolves into an investigation of the creative and expressive possibilities of making images. This is a project-based course, where students will begin to develop their personal vision, their understanding of aesthetic issues and photographic history. Assignments, ideas and important examples of contemporary art will be presented via a series of slide lectures, critiques and discussion. No previous experience necessary. 35mm SLR cameras will be available throughout the semester for reservation and checkout from the photography equipment room. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit
FNAR 572 Advanced Photography: Integrated Techniques and Strategies
This studio course seeks to broaden each student's skills by experimenting with a wide range of photographic media. Advanced analog, digital and experimental lens-based techniques will be covered, as well as larger camera formats to expand their vocabulary as image-makers. Emphasis will be on an integrated experience of the photographic medium and the development of a body of work that is both theoretically and historically informed. The course will be a means to view and discuss various strategies of important contemporary photographers. Focused assignments, readings, slide lectures and gallery visits will supplement each student's artistic practice and research.
One-term course offered either term
Prerequisite: FNAR 571 or Permission of Instructor
Activity: Seminar
1 Course Unit

FNAR 574 Reconfiguring Portraiture
As methods of representation are constantly shifting, one thing is clear - the photographic portrait is not what is used to be. Exploring both traditional and contemporary methods of portraiture, this class will uncover and discuss the ways in which we perceive each other in imagery, both as individuals and as groups. Throughout the semester, we will consider how portraits deal with truth, physical absence, the gaze, cultural embodiment, voyeurism and the digital persona. This course will build on the combination of perception, technology, and practice. Throughout the semester, students will advance by learning lighting techniques and strategies of presentation - as these core skills will become tools in the execution of project concepts. In tandem with each project, students will encounter and discuss a wide array of photography and writings from the past to the present, in an effort to understand the meanings and psychological effects of freezing the human image in time.
Course usually offered in spring term
Prerequisite: FNAR 571 or FNAR 640 or Instructor Permission
Activity: Seminar
1 Course Unit

FNAR 575 Graduate Drawing Seminar
This seminar examines the essential nature drawing has in an artist's process. Direct visual perception, self-referential mark making, the viability of space and understanding it, and drawing from one's own work are some of the drawing experiences encountered in the course. There are regular critiques and discussions based on the work and readings.
Taught by: Tileston/Freedman
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 576 Critical Issues Seminar
This seminar investigates issues concerning visual artists. Part one begins with Plato and Kant and progresses through a history of ideas in art, exploring the questions which concern artists today, including Modernism, post-modernism, abstraction and representation, appropriation, context, art and politics, identity, and the artist's relationship to these subjects. Part two of the course will focus on current texts in contemporary art, the current dialogue(s), and issues specific to our time and place as artists. The seminar engages contemporary issues in a spirit of curiosity and critique, and relates them to our studio practice.
Taught by: Tileston
One-term course offered either term
Activity: Seminar
1 Course Unit

FNAR 578 Documentary Strategies
This course offers a context for photographers to develop a documentary project - either within a traditional photojournalistic framework or one that challenges these traditions. The aim is to understand documentary as an evolving practice and to develop an artistic response when depicting our social reality- from everyday experience to the events that shape the world. An important aspect of the class will be examining the diversity of ways that journalists and artists have used the camera to extend and question the power of photography as document. The class will address key questions of media and mediation, the nature and status of documentary in the context of globalizing media and how traditional documentary work has been affected by video, performance, conceptual art and activism.
One-term course offered either term
Prerequisite: FNAR 571 or FNAR 640 or Permission from Instructor
Activity: Seminar
1 Course Unit

FNAR 580 Figure Drawing I
Students work directly from the nude model and focus on its articulation through an understanding of anatomical structure and function. Students will investigate a broad variety of drawing techniques and materials. The model will be used as the sole element in a composition and as a contextualized element.
One-term course offered either term
Prerequisite: FNAR 571 or FNAR 640 or Instructor Permission
Activity: Studio
1 Course Unit

FNAR 581 Figure Drawing II
Figure Drawing II is an advanced class designed to further develop the student's skill and facility in capturing the human form. Content and conceptual issues will be explored through individualized projects concentrating on the figure. Students will also expand on their knowledge of drawing media and application.
One-term course offered either term
Prerequisite: FNAR 580
Activity: Studio
1 Course Unit

FNAR 583 Performance/Camera: Performance and-with-through-for Cameras
This intermediate course will explore the wide and expansive territories of art-making that exist between live performance and mediated image making-both still and moving. For much of the 21st century, the mediums of performance, video and photography have been weaving in and out of contact. Performance is known and understood largely through its documentation: sometimes voluminous and sometimes little more than a single photograph. On the other side, video, film and photography each developed through widespread explorations that were deeply entwined with the "capturing" of bodies on film. Using photography, video and performance in equal parts, the course is a hands-on exploration of this capacious terrain. The course will be structured by a series of bi-weekly assignments that allow for individual and collective production. The course will also include a regular schedule of short readings and presentations/screenings of existing works.
Taught by: Hayes, Sharon
Course usually offered in fall term
Prerequisites: FNAR 661, FNAR 640 or Permission of Instructor
Activity: Studio
1 Course Unit
FNAR 585 Performance Studio
This course supports the individual and collaborative production of performance works. As the medium of performance consists of diverse forms, actions, activities, practices and methodologies, the course allows for an open exploration in terms of material and form. Students are invited to utilize technologies, materials and methodologies from other mediums and/or disciplines such as video, photography, writing and sound. In addition to the production component, the course will examine multiple histories of performance through readings, screenings and directed research.
Taught by: Hayes
Course usually offered in spring term
Prerequisites: One previous studio course (such as FNAR523, FNAR545, FNAR640, OR FNAR661) or permission from the instructor.
Activity: Studio
1 Course Unit

FNAR 599 Mixed Media Animation
Mixed Media Animation is a contemporary survey of stop-motion animation concepts and techniques. Students use digital SLR cameras, scanners and digital compositing software to produce works in hand-drawn animation, puppet and clay animation, sand animation, and multiplane collage animation. Screenings and discussions in the course introduce key historical examples of animation demonstrating how these techniques have been used in meaningful ways. Students then learn how to composite two or more of these methods with matte painting, computer animation or video.
Course usually offered in spring term
Prerequisites: FNAR 523 and FNAR 636
Activity: Studio
1 Course Unit

FNAR 591 The Body and Photography
The last few decades have introduced dramatic changes in the way we interact with each other, the way we communicate, the way we date, watch porn, etc. Ethical concerns have arisen with scientific advances such as stem cell research, fertility drugs, Botox, cloning and erectile dysfunction. This studio course will investigate the myriad ways in which the corporeal is addressed and manipulated in contemporary art, science, religion, pop culture and media. Students will develop photographic projects related to updated questions concerning gender, sexuality and social issues. Lectures, readings and class discussion will focus and inform their individual work.
Course usually offered in spring term
Prerequisites: FNAR 271 or FNAR 340 and Instructor Permission Required
Activity: Seminar
1 Course Unit

FNAR 594 Graduate Photography Seminar
This seminar will examine contemporary issues in photography from the point of view of the practicing artist. Students will meet with visiting critics during the semester, the course will also include student presentations, weekly discussions and group critiques, visits to artists' studios and gallery and museum exhibitions. Texts for the seminar will be drawn from contemporary critical theory in art, philosophy, history and popular culture. Required for all graduate photographers.
Taught by: Davenport
Activity: Seminar
1 Course Unit

FNAR 598 Grad Sculpture Seminar
Sculpture instructor (to be announced) will lead this studio course based on improvisational approaches to developing individually made sculptural works, as well as works that are made in collaboration with others. As in Music or Theater, these works involve the collaboration of others, yet they are equally initiated by small thoughts, and carry those thoughts into a more public and interactive format of installation.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 601 Graduate Studio III
First year studio for MFA students' core pursuit of self-directed interdisciplinary problems that contribute to one or more of the visual art disciplines.
Taught by: Lum/Freedman/Mosley/Telhan/Tileston/Hartt/Hayes/Lopez
Course usually offered in fall term
Activity: Studio
2 Course Units

FNAR 602 Graduate Studio IV
Second year studio for MFA students core pursuit of self-directed interdisciplinary problems that contribute to one or more of the visual art disciplines.
Taught by: Adkins/Davenport/Freedman/Mosley/Telhan/Tileston
Course usually offered in spring term
Activity: Studio
2 Course Units

FNAR 604 Graduate Sculpture Studio
Second-year studio for MFA students exploring advanced discipline in sculpture.
Taught by: Adkins
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 605 Topics in Contemporary Art: Art & Resistance
An experimental class for artists and scholars. Organized around a series of case studies of artists, collectives, infrastructures, and curatorial projects, the course includes: in-class discussion and viewing; workshops with class visitors; site visits; participation in small reading groups. In the first half of the class, students will complete some short assignments. In addition, students will complete a final project that is intentionally open in terms of form. The project, which can be collective or individual in nature, will enable an in-depth material investigation of one of the threads of the class.
Taught by: Hayes and Redrobe
Activity: Seminar
1 Course Unit

FNAR 607 Advanced Sculpture: Installation & Intervention
In this course students will create sculptural installations and spatial interventions that explore site specificity and architectural environments. A range of traditional sculptural materials and techniques will be investigated along with more ephemeral interventions in space such as sound, light, and projection. Through lectures, readings, and critiques, students will explore the history of installation and interactive sculptural work and develop self-directed projects that interrogate historical, social, and psychological conditions of the built environment.
Activity: Studio
1 Course Unit
FNAR 613 The Chinese Body and Spatial Consumption in Chinatown
This is a primarily an art and planning course that centers on the representation of the oriental, specifically the Chinese, in both its historical and present contexts. The localization of the Chinese throughout the Americas within Chinatown precincts were also subject to representational imaginings that were negotiated through the lens of civic planning. This course will study the often fraught negotiation between representation and planning. The hyper-urbanization of China over the past several decades has radically altered traditional conceptions of public space in China. Mass migration from rural to urban areas has meant very high population densities in Chinese cities. Traditional courtyards surrounded by housing and other modestly scaled buildings are rapidly disappearing, incongruent with the demands of heated property development. Moreover, Chinese cities have comparatively little public green space per resident compared to equivalents in the West. Zoning in Chinese cities is also much more varied for any given area than what one would find in cities such as New York, Paris, and London. Intensifying density of urban areas precludes the construction of large public squares. Furthermore, large public squares tend to be either intensively congested and overcrowded or underused due to their oversight by government that render such spaces somewhat opprobrious in terms of use. Historically, the urban courtyards of temples, native place associations, and provincial guilds served as public spaces of gathering. They were also sites of festivals and the conducting of neighbourhood and civic business. These spaces have become increasingly privatized or commodified with entrance fees. The air-conditioned concourses of enclosed shopping malls or busy outdoor market streets have become de facto public spaces in China where collective window shopping or promenading is the primary activity rather than bodily repose as one might find in a public space in a large Western city. The seminar/studio will investigate the meaning of the term public in the constitution of Chinese space, audience and critical voice through firstly the enclave of Chinatown and secondly through examples from China. The course will look into the changing conceptualization of public space in Chinatown as it has declined in its traditional form and become reinvented in the form of high-end shopping centered districts. This flux has its roots in post 1979 China as well as the post 1997 reversion of Hong Kong to China. 
Activity: Seminar 
1 Course Unit

FNAR 614 Tiananmen Square: A Case Study for Fine Arts and Landscape Architecture
This course takes as its subject the systems of representation and design that have historically and presently operate in Tiananmen Square in Beijing. There have been several incarnations of Tiananmen Square since its original form in 1651. During Imperial times and through the period of foreign legations, the square was once surrounded by walls and gates, creating a city within a city. With the advent of the Republic of China established on January 1, 1912, much of the enclosures were removed, opening up for public use previously restricted imperial areas. After the Communist Revolution in 1949, planning was afoot to enlarge the square. With its enlargement completed in 1958, the square expanded its footprint by four-fold, making it one of the largest public squares in the world. The enlarged and remodeled square coincided with the completion of the massive Monument to the People's Heroes. In 1976, a large mausoleum containing the preserved body of Mao Zedong was built near the site of the former Gate of China, further increasing the size of the square. In the 1990s, the building of the National Grand Theatre and expansion of the National Museum on grounds contiguous to the square necessitated further alterations to both the Eastern and Western skirts of the square. In recent years, there have been a widening debate regarding the transformation of the concrete heavy and by and large featureless square into a green space. Today, Tiananmen Square holds sacrosanct status to the Communist revolution of 1949, designed more for military parades and massive public rallies than public space repose. In a city that has few green spaces, such a verdant transformation in the heart of the Chinese capital would signal a radical symbolic deviation to China's development-first guiding principles. The square fronts Tiananmen Gate and the Forbidden City and is situated at the intersection of the historical east-west and north-south axes. Chang'An Avenue, important for military processions, separates the square from Tiananmen Gate and is considered the most important thoroughfare in the Capital and the path of the east west number one subway line. The entirety of the Tiananmen Square area is marked by ideology and political prominence, often confusingly. Tiananmen Tower, functions as a conflation of monumental facade with political embodiment. This course will focus on imagined interventions through public art and landscape design within Tiananmen Square and its contiguous areas. It is a studio practice course with a significant seminar component that will include lectures and readings relating to issues 
Taught by: Ken Lum 
Course usually offered in spring term 
Activity: Seminar 
1 Course Unit
FNAR 615 Across Forms: Art and Writing
What if a poem spoke from inside a photograph? What if a sculpture unfurled a political manifesto? What if a story wasn't just like a dance, but was a dance-or a key component of a video, drawing, performance, or painting? In this course, artists and writers will develop new works that integrate the forms, materials, and concerns of both art and writing. Many artists employ writing in their practices, but may not look at the texts they create as writing. And many writers have practices that go beyond the page and deserve attention as art. This course will employ critique and workshop, pedagogic methodologies from art and writing respectively, to support and interrogate cross-pollination between writing and art practices. Additionally, the course will will examine a field of artists and writers who are working with intersections between art and writing to create dynamic new ways of seeing, reading, and experiencing.
Taught by: Hayes and Zolf
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 616 Art and Social Work: Art and the Ecology of Justice
How can the arts help us build a more just society? How can the arts transform social structures and systems? Public health crises involving clean water (Flint), police violence (Baltimore), and a lack of economic and educational opportunity following reentry (Philadelphia) make legible the need for a new visual language that critiques these conditions and challenges entrenched structural inequalities. We will engage the work of creative practitioners who are mapping new relationships between art and social justice and directly impacting individual and communal well-being. In so doing, the course seeks to challenge traditional constructions of public health, which often isolate individual histories from their social life and their relation to families, communities, and geographies. Readings will build upon disciplinary perspectives in the arts, humanities, and social policy. Requirements include weekly readings, class participation, and a collaborative final project. The course will meet in the Health Ecologies Lab at Slought Foundation, an arts organization on campus.
Taught by: Neff, Levy and Ghose
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 620 Producing Ephemera: Letterpress, Risopgraph, Inkjet, Xerox
This studio course introduces students to the world of printmaking and circulation through techniques in letterpress and Risograph (a high-speed digital printing system developed in Japan in the 1980s), in addition to Xerox, laser, inkjet, and off-set printing, focusing particularly on the format of prints, artists’ ephemera, and the role of ephemera in understanding culture. Students will create their own broadsides, flyers, announcement cards, and independent publications throughout the course, exploring ways in which artists, designers, musicians, and activists make or have made use of the print to disseminate information; initiate happenings; advertise events; or format change. Students will learn about some of the most significant producers working within this realm - from Conceptualists to punk bands - and develop skills in page layout, typography, and design; mechanized and hand-pulled press operations; and digital to analog pre-press and post-print production methods. This course is designed for highly motivated students and requires out-of-class time commitment. However, no prior coursework is required. Students from all levels and backgrounds are encouraged to register. The course employs combined collaborative / self-directed approaches to learning to enhance students’ understandings of ways in which print media and multiples serve as vital conduits for disseminating ideas involving visual art, popular culture, literature, politics, performance and many other topics students will wish to explore.
Taught by: Romberger
Course usually offered in fall term
Activity: Studio
1 Course Unit

FNAR 622 The Big Picture: Mural Arts in Philadelphia
The history and practice of the contemporary mural movement couples step by step analysis of the process of designing with painting a mural. In addition students will learn to see mural art as a tool for social change. This course combines theory with practice. Students will design and paint a large outdoor mural in West Philadelphia in collaboration with Philadelphia high school students and community groups. The class is co-taught by Jane Golden, director of the Mural Arts Program in Philadelphia, and Shira Walinsky, a mural arts painter and founder of Southeast by Southeast project, a community center for Burmese refugees in South Philadelphia.
One-term course offered either term
Activity: Seminar
1 Course Unit

FNAR 631 Interdisciplinary Studio: Sites of Convergence and Hybridity
This course takes an experimental multimedia approach to investigating some of the boundaries in contemporary art making practices. Painting, photography, video, design and sculpture intersect, overlap, and converge in complicated ways. Projects will be designed to explore hybrid forms, collage, space/ installation, and color through a variety of strategic and conceptual proposals as students work towards unique ways of expanding their own work. Weekly readings, critiques, and presentations will be integrated with studio projects. This studio/seminar is appropriate for students at all levels and from all areas of Fine Arts and Design.
Taught by: Tileston
Course usually offered in spring term
Prerequisites: One previous studio course (such as FNAR 523, FNAR545, FNAR640, FNAR 531 or FNAR 636 or Penn Design course) or permission from the instructor.
Activity: Studio
1 Course Unit
FNAR 633 Digital Illustration
Digital illustration is a course designed to expose students to the diverse techniques and approaches used in creating digital illustration for print publication. Course assignments will include two-dimensional animation storyboard rendering, figure illustration, technical diagram illustration, photographic retouching and enhancing. Digital applications will include morphing with layers, surface cloning, three-dimensional modeling and spatial transformation of scenes and objects. Students completing this course will possess the capability to design and plan creatively and skillfully execute finished artwork.
One-term course offered either term
Prerequisite: FNAR 636 and FNAR 523
Activity: Studio
1 Course Unit

FNAR 634 Art of the Web: Interactive Concepts for Art & Design
Art of the Web: Interactive concepts for art and design is a first step in learning how to create, analyze and discuss interactive content, as a visual creator. It is an exploration of the culture of the internet, the ideas behind its quirks, the dreams and freedoms it encapsulates, and the creative power it gives to us. Students will be assigned projects that will challenge their current understanding of the web, and the ways it shapes human connectivity and interaction. Upon completion of this course, students will possess a working knowledge how to organize and design websites and learn to critique web-content including navigation, UX design and information architecture. The course will require analytical and conceptual skills and foster creative thinking.
One-term course offered either term
Prerequisite: FNAR 636
Activity: Studio
1 Course Unit

FNAR 635 3-D Computer Modeling
Students will develop a comprehensive knowledge of how virtual worlds are constructed using contemporary computer graphics technique with a fine arts perspective. The course will offer the opportunity to explore the construction, texturing, and rendering of forms, environments, and mechanisms while conforming to modeling specifications required for animation, real-time simulations or gaming environments, and rapid prototyping.
One-term course offered either term
Prerequisite: FNAR 523 and FNAR 636
Activity: Studio
1 Course Unit

FNAR 636 Art, Design and Digital Culture
This course is an introduction to the fundamental perception, representation, aesthetics, and design that shape today’s visual culture. It addresses the way artists and designers create images; design with analog and digital tools; communicate, exchange, and express meaning over broad range of media; and find their voices within the fabric of contemporary art, design, and visual culture. Emphasis is placed on building an extended form of visual literacy by studying and making images using a variety of representation techniques; learning to organize and structure two-dimensional and three-dimensional space, and designing with time-based and procedural media. Students learn to develop an individual style of idea-generation, experimentation, iteration, and critique as part of their creative and critical responses to visual culture. If you need assistance registering for a closed section, please email the department at fnaru@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit

FNAR 637 Information Design and Visualization
Information design and visualization is an introductory course that explores the structure of information (text, numbers, images, sounds, video, etc.) and presents strategies for designing effective visual communication appropriate for various users and audiences. The course seeks to articulate a vocabulary of information visualization and find new design forms for an increasingly complex culture.
One-term course offered either term
Prerequisite: FNAR 636
Activity: Studio
1 Course Unit

FNAR 638 Creative Research
This seminar explores what it means to do research in creative and critical practices. Students learn about different research methods from design, engineering, humanities and sciences; utilize them for developing and evaluating their individual creative work as cultural producers. This is an interdisciplinary course that encourages students to observe, measure, analyze, test, study, experiment, diagram, prototype, speculate, generate and criticize; apply multiple modes of inquiry; be conceptual, analytical, propositional and critical at the same time to develop their work from different perspectives.
Taught by: Telhan
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FNAR 640 Digital Photography
This class offers an in-depth technical and conceptual foundation in digital imagery and the opportunity to explore the creative, expressive possibilities of photography. Students will become proficient with the basic use of the camera, techniques of digital capture, color management and color correction. They will also develop competency in scanning, retouching, printing and a variety of manipulation techniques in Photoshop. Through weekly lectures and critiques, students will become familiar with some of the most critical issues of representation, consider examples from photo history, analyze the impact of new technologies and social media. With an emphasis on structured shooting assignments, students are encouraged to experiment, expand their visual vocabulary while refining their technical skills. No previous experience is necessary. Although it is beneficial for students to have their own Digital SLR camera, registered students may reserve and checkout Digital SLR cameras and other high-end equipment from the department. If you need assistance registering for a closed section, please email the department at fnaru@design.upenn.edu
One-term course offered either term
Activity: Studio
1 Course Unit
FNAR 642 Digital Photography II
In this course students will continue to develop conceptual, technical, aesthetic and formal strategies in digital photography, expanding their artistic process while refining their critical approach to researched subject matter. The class will be driven initially by a series of assignments formulated to further expose students to broad possibilities related to the medium and then they will be guided towards the evolution of a personalized body of work that is culturally, theoretically and historically informed. We will be examining key issues surrounding the digital image in contemporary society, led through a combination of class lectures, readings, group discussions, film screenings, gallery visits and class critiques. Students will further their knowledge of image control and manipulation, retouching and collage, advanced color management; become familiar with high-end camera and lighting equipment and develop professional printing skills. In addition to learning these advanced imaging practices, this course will also emphasize an investigation of critical thought surrounding contemporary visual culture and the role of digital media in the creation of art.
Taught by: Jamie Diamond
Course usually offered in fall term
Prerequisite: FNAR 640 Digital Photography I
Activity: Studio
1 Course Unit

FNAR 643 Language of Design
The course will explore the changing relationship during the modern era between design (structure, model, plan of a work of art) and language (metaphor for a system of communication; speech, writing, literature). Our readings and visual presentations will focus on topics in the decorative arts, painting, architecture, typography and visual communication. We will focus on primary sources in order to situate our inquiry in a larger historical context. The discussion will center on claims about the inherent meaning of form, discuss different roles for design - as an ideological statement, as an agent of social change, and as an idiosyncratic expression. Topics will also include the search for a universal visual language, attempts at bridging the perceived gap between spoken and written language, and the impact of visual form on the meaning of literary texts (particularly when the author has been involved in the publication process). Students can suggest additional topics related to their field of study.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 645 Book and Publication Design
Book and Publication Design will focus on the theory and professional practice of designing multi-page publications. Students will analyze formal structures of different types of books—literature and poetry, fiction and non-fiction compilations, illustrated volumes such as art catalogues, monographs and textbooks, and serial editions—discussing both traditional and experimental approaches. The format of the course will be split between theoretical and historical evaluations of book formats by drawing on the Van Pelt Rare Book Collection and studio time where students will design books with attention to the format's conceptual relationship to the material at hand with a focus on typography and page layout, as well as on understanding production methods of printing and binding. In addition to the conventions of page layout students will examine paratextual elements (title page, practices of pagination and other internal structuring, content lists and indexes, colophons, notes and marginalia, end-leaves, binding, etc.).
Taught by: Hyland
Course usually offered in fall term
Prerequisites: FNAR 636 is strongly suggested but not required.
Activity: Studio
1 Course Unit

FNAR 646 ADVANCED 3D MODELING
Advanced 3D Modeling will give students the opportunity to refine skills in modeling, texturizing, lighting, and rendering with an emphasis on the evolution of ideas through constant revision based on class critique. Students will use a variety of industry standard software packages, including, but not limited to Maya and Mudbox to compose complex environments. Projects are designed to give students the opportunity to work with original content within a simulated production environment.
One-term course offered either term
Prerequisite: FNAR 235/635 or FNAR 236/536
Activity: Studio
1 Course Unit

FNAR 647 Expanded Documentary
The sites and situations of documentary in our culture have exploded exponentially - from standardized formulas (like reality tv), to social media and cross-platform journalism. In contemporary art, documentary practice has also significantly expanded and diversified. Since the early 2000's, with several influential exhibitions following Documenta XI, a new generation of artists have taken up the ambition of depicting our social reality, and have done so by re-engaging and re-inventing the documentary mode. This intermediate course will examine this vital contemporary field and will also offer students a comprehensive introduction to the history of documentary practice. We will investigate a series of key questions regarding the relation between politics and aesthetics, mediums and mobility, how documents function to both approximate and deny a sense of 'reality' and perhaps most importantly - what kinds of social, political or personal realities you want to propose in your artwork. The class will be driven by a series of studio assignments and practical experimentation. Although there will be an emphasis on photography and video, students will also explore a multiplicity of strategies and forms (including archival display, essayistic installation, image-text relationships, and the documentation of performance.)
Taught by: Davenport
Course usually offered in spring term
Prerequisite: FNAR-571 or FNAR-640 or FNAR-661 or permission from instructor
Activity: Studio
1 Course Unit
FNAR 648 Counter the Land: Photography and the Landscape
Starting with the representation of landscape in painting in the early 1800s, the course will then move through Pictorialism and the Modernist movement in photography. Revisiting the later half of the 20th century, we will begin to consider the shifting practices of landscape and the ways it has been photographically depicted up to the present. Collaborating with the Brandywine River Museum of Art in Chadds Ford, students will begin their photographic exploration with the work of Andrea Wyeth and the landscape of the Brandywine Valley. As we consider Wyeth, the images of James Welling will also be introduced. Credited for pioneering new forms of representation in photography in the 1970s, Welling also revisited the work of Wyeth from 2010-2015, and committed to a fresh (and challenging) look at tradition. Working with imagery and text, this class will also touch on conceptual art, the New Topographics, and postmodernism. Through these various concentrations, students will consider and counter the traditions that they are already familiar with, while creating work based on issues of the landscape today. Questions about meaning, politics, social critique, land rights, and methods of presentation will be encouraged and explored throughout the course.
Taught by: Wahl
Course usually offered in fall term
Prerequisites: FNAR 571 or FNAR 640 or with permission of the instructor.
Activity: Studio
1 Course Unit

FNAR 649 Advanced Digital Photography
In this studio course, students will become proficient in advanced techniques of image production while expanding their artistic process and refining their photographic work. With an emphasis on self-directed projects and research, students will further their knowledge of image control and manipulation, retouching and collage, advanced color management; become familiar with high-end equipment and develop professional printing skills. Class discussion, lectures and assigned readings will address the critical issues in contemporary art, media and photographic culture. Emphasis will be on integrating practice and critical dialogue.
One-term course offered either term
Prerequisite: FNAR 640
Activity: Studio
1 Course Unit

FNAR 650 Shared Culture: New Strategies for Artists in the Digital Age
Our digital world has forced us to entirely rethink what it means to be an artist in the digital age, socially, economically, and politically. Ideas that have long been stable - including originality, creativity, and genius - are ripe for reexamination and redefinition in the twenty-first century. When the entire internet is copy-and-pasteable - and distribution moves swiftly - is anything off limits for the artist? Can we imagine our artistic production mimicking the meme, rippling through the networks for a day, then disappearing forever? Are we doomed to make works that are supposed to live for eternity or, in the face of environmental meltdown and collapsing financial markets, can we instead move our production toward the ephemeral? What would this look like? Can our output be steered toward the political? Can we frame these ideas as acts of resistance? Or compliance? Is there an inside? Is there an outside?
Taught by: Goldsmith
Course usually offered in spring term
Activity: Studio
1 Course Unit
Notes: Fine Arts Majors or MFA students ONLY or permission of instructor.

FNAR 652 Dispersive Lens
This studio course will explore the nexus between photography, sculpture, installation, drawing, painting, and the moving image. The course is informed by the printed image, as students will explore how photography can encourage thinking in other mediums, in addition to how other mediums can influence the making of photography. When does an abstract painting appear more like a photograph? How can a photograph suggest ways to make a video? Can a sculpture exist as a photograph?
A variety of assignments will expose students to interdisciplinary approaches addressing these questions and more. Class projects will be supported by regular slide lectures, group critiques, and readings examining modern and contemporary artists and practices.
Taught by: Oliver
Course usually offered in spring term
Prerequisite: FNAR 571 or FNAR 640 or FNAR 661 or permission of instructor
Activity: Studio
1 Course Unit

FNAR 654 Printmaking & Publications: Intro to Independent Publishing and Artists' Publications
This course introduces students to independent publishing and artists' publications through print methods in letterpress, Risograph, and Xerox. The class will focus on the self-published artists' zine/book as an affordable, accessible, and easily reproducible format for exploring ideas, disseminating artists' work, and collaborating across disciplines. Students will learn a range of skills, including techniques in both mechanized and hand-pulled forms of printed media (Risograph, copy machine, Vandercook letterpress); short-run editions and binding; design and layout; pre-press and print production; and the web as it relates to and supports independent and democratic modes of distribution. Students will learn about and become acquainted with some of the most significant independent publishers working today and throughout history. Students will leave class having completed three individual projects: a 16-page booklet/zine; a carefully considered online publication, and a final collaborative book designed, developed and published as a class.
The course commences with a field trip to New York City's Printed Matter, one of the oldest and most important nonprofit facilities dedicated to the promotion of artists' books, where students will be encouraged to submit a publication by semester's end.
Taught by: Romberger
Course usually offered in fall term
Activity: Studio
1 Course Unit
FNAR 661 Video I
In this studio based course, students are introduced to video production and postproduction as well as to selected historical and theoretical texts addressing the medium of video. Students will be taught basic camera operation, sound recording and lighting, as well as basic video and sound editing and exporting using various screening and installation formats. In addition to a range of short assignment-based exercises, students will be expected to complete three short projects over the course of the semester. Critiques of these projects are crucial to the course as students are expected to speak at length about the formal, technical, critical and historical dimensions of their works. Weekly readings in philosophy, critical theory, artist statements and literature are assigned. The course will also include weekly screenings of films and videos, introducing students to the history of video art as well as to other contemporary practices. If you need assistance registering for a closed section, please email the department at fnarug@design.upenn.edu
One-term course offered either term
Activity: Seminar
1 Course Unit

FNAR 662 Video II
Video II offers opportunities to further explore the role of cinematic narrative technique, non-narrative forms, digital video cinematography, editing, and screen aesthetics. Through a series of several video projects and a variety of technical exercises, students will refine their ability to articulate technically and conceptually complex creative projects in digital cinema. In addition, one presentation on a contemporary issue related to the application of cinematic storytelling and/or the cultural context of digital video is required.
One-term course offered either term
Prerequisite: FNAR 661
Activity: Seminar
1 Course Unit

FNAR 663 Documentary Video
Documentary Video is an intensive production course involving the exploration of concepts, techniques, concerns, and aesthetics of the short form documentary. Building on camera, sound, and editing skills acquired in Video I, students will produce a portfolio of short videos and one longer project over the course of the semester using advanced level camera and sound equipment. One short presentation on a genre, technique, maker, or contemporary concern selected by the student is required.
Course usually offered in fall term
Prerequisite: FNAR 661
Activity: Seminar
1 Course Unit

FNAR 665 Cinema Production
This course focuses on the practices and theory of producing narrative based cinema. Members of the course will become the film crew and produce a short digital film. Workshops on producing, directing, lighting, camera, sound and editing will build skills necessary for the hands-on production shoots. Visiting lecturers will critically discuss the individual roles of production in the context of the history of film.
Course usually offered in fall term
Prerequisite: FNAR 661
Activity: Seminar
1 Course Unit

FNAR 667 Advanced Video Projects
This course is structured to create a focused environment and support for individual inquiries and projects. Students will present and discuss their work in one on one meetings with the instructor and in group critiques. Readings, screenings, and technical demonstrations will vary depending on students' past history as well as technical, theoretical, and aesthetic interests.
Course not offered every year
Prerequisite: FNAR 662
Activity: Seminar
1 Course Unit

FNAR 669 Graduate Video Studio
Through a series of studio projects, this course focuses on the conceptualization and production of time-based works of art. A seminar component of the course reviews contemporary examples of media based art and film. A studio component of the course introduces production techniques including lighting, cinematography, audio, editing, mastering projects, and installing audio-visual works in site-specific locations or gallery spaces.
Taught by: Mosley
Course usually offered in fall term
Activity: Studio
1 Course Unit

FNAR 670 Advanced Graphic Design and Typography
This course will explore advanced commercial, public and personal forms of visual communication. Emphasis will be placed on creative problem solving with consideration for audience. Discussion of design history, current ideology and future design applications will inform individual student projects. Work generated in this studio can be used to build a portfolio.
Course usually offered in fall term
Prerequisites: FNAR 566 AND FNAR 569 or Permission of Instructor.
Activity: Studio
1 Course Unit

FNAR 671 Film Sound: History, Aesthetics and Subversion
Sound and Image as experienced in the cinema, are not divisible. One perception influences the other, and transforms it. While a preexisting harmony between these two senses may exist, its conventions are subject to manipulation and the whims of subversion. Film Sound tracks the technological and aesthetic history of sound for film including psychoacoustics, dialogue, music, sound fx and audio’s gradual and triumphant march towards fidelity, stereo and surround sound. This lecture course, through an historical and pedagogical romp loaded with examples throughout film history and visits by lauded audio professionals from the film world, seeks to instruct students to engage in the process of sound perception, gaining an appreciation for the art of sound as it relates to the varied phenomenological dimensions of that unique audio-visual encounter we call movies.
Taught by: Novack
Course usually offered in fall term
Activity: Seminar
1 Course Unit
FNAR 673 Machine for Seeing: Architecture and the Moving Image
Architecture's relationship with cinema was established with the very first motion picture. In Sortie de l'usine Lumière de Lyon by Auguste and Louis Lumière we see a didactic presentation of film titles as workers from the Lumière brother's factory stream forth from its interior at days end. In many ways the context of the film is its subject as well. The title of the class plays on Le Corbusier's maxim that architecture is machine for living and perhaps cinema is simply a machine for helping us understand the vast construct of our built environment. A device, which allows us to imagine even greater follies or more importantly to think critically about architecture's relationship with and impact on society. Readings, screenings, discussions and critiques make up the curriculum along with studio time. Students will produce their own film and we will look at films produced by a range of practitioners: From architects speculating on the nature of and use of public space and urban development to documentarians researching the pathologies of neo-liberalism and its effect on the privatization of space. We will also look at the work of artists who engage with the poetics of space and who unpack the conflicted legacies of the built environment.

Taught by: Hartt
Course usually offered in spring term
Prerequisite: FNAR 661
Activity: Studio
1 Course Unit

FNAR 674 A Virus in the Culture: Social Critique in Media Arts
In order to change the world, we must first learn how to infect it. A Virus in the Culture is a studio class that examines and generates various forms of media resistance to dominant hegemonic systems of power and control. Using filmmaking, publication design and interactive media we'll think through and develop responses to some of the most pressing issues facing us today. We'll look at historical models from the agitprop design work of Gee Vaucher for Anarcho-punk band Crass to Chris Marker's film Le Fond de L'Air Est Rouge, a radical analysis of global social and political turmoil in the late 60s and early 70s. We'll also look at experimental contemporary design firms like Metahaven who question the role of designers and filmmakers today - Bypassing the power dynamics of clients and briefs they took it upon themselves to create a graphic identity for WikiLeaks. Each example broadens the definition and possibilities of practice to create a more porous engagement with audiences and users while informing the practice of social critique today. Considering a diverse range of topics from education policy, to the rights of environmental refugees, we'll use the class to workshop a singular comprehensive project that targets researches and responds to a specific contested position. The outcome of which will be a class produced short film, publication and website that unpacks the social, cultural, and economic complexities of our subject. This class is co-taught by David Hartt, an artist and filmmaker along with graphic designer, Mark Owens. Reading, screenings, discussions and critiques make up the curriculum along with studio time. While the focus of this course is not technical, prior knowledge of design programs, camera functions, and post-production techniques is expected.

Taught by: David Hartt and Mark Owens
Course usually offered in fall term
Prerequisite: FNAR 661 or permission from instructor
Activity: Studio
1 Course Unit

FNAR 675 Image and Sound Editing
This course presents an in-depth look at the storytelling power of image and sound in both narrative and documentary motion pictures. Students apply a theoretical framework in ongoing workshops, exploring practical approaches to picture editing and sound design. Students edit scenes with a variety of aesthetic approaches, and create story-driven soundtracks with the use of sound FX, dialogue replacement, foleys, music and mixing. Students not only learn critical skills that expand creative possibilities, but also broaden their understanding of the critical relationship between image and sound.

Course usually offered in spring term
Prerequisite: FNAR 661
Activity: Seminar
1 Course Unit

FNAR 677 On Thoughts Occasioned By
Activity: Seminar
1 Course Unit

FNAR 678 Interfacing Culture: Designing for Mobile, Web and Public Media
This course introduces advanced topics related to contemporary media technologies, ranging from social media to mobile phones applications and urban interfaces. Students learn how to use new methods from interaction design, service design, and social media and work towards prototyping their ideas using new platforms and media. The class will cover a range of topics such as such as online-gaming, viral communication, interface culture, networked environments, internet of things and discuss their artistic, social, and cultural implications to the public domain.

Course usually offered in spring term
Prerequisite: FNAR 634
Activity: Studio
1 Course Unit

FNAR 679 Studio Lighting
The necessity of light and how light is rendered in relationship to what is seen and understood, is often a key ingredient in the portrayal of a subject. The origin of the still life can be found in images as far back as antiquity and has dealt with notions of death, science, class, social customs and even sex. Photography picked up on the tradition in 1827 and has not only made use of the form, but has expanded the topic into very unique territories. Contemporary artists have re-invented and re-invigorated the still life, formalism & abstract photography. As a framework for exploring 'hands-on' lighting techniques, students will creatively grapple with the photography of objects in the studio. Working with the physical, symbolic, and conceptual ramifications of depicting specific forms in an image, teamed with the discussion of key texts, critiques, and studio lighting seminars, each student will create a considered and unique portfolio of images.

Taught by: Wahl
Course usually offered in spring term
Prerequisite: FNAR 571 or Permission of Instructor
Activity: Studio
1 Course Unit
FNAR 684 Photography & Fashion
Since the invention of photography, the fashion industry has been one of the cornerstones of creative expression, innovation and visionary provocation. Contemporary fashion photography has continued to attract a leading group of image-makers that continue the tradition of creating artwork that not only is being published in cutting edge magazines such as V, Another Magazine and Citizen K, but also are exhibiting their work in various galleries and museums around the world. This course is designed for students who are interested in creating contemporary fashion images through specific assignments that define the process: lighting in studio or location, working with fashion designers, stylists, models, hair/ make up artists, and the application of a variety of post production techniques, via Photoshop. The class will explore modern constructs that define the importance of branding, marketing, advertising and the relationship of fashion photography in contemporary art and culture today.
Prerequisite: FNAR 571 or FNAR 640 or Permission from Instructor
Activity: Studio
1 Course Unit

FNAR 685 Photography and Fiction
In spite of photography's traditional relationship with fact, the medium has been a vehicle for fiction since the very beginning. Fiction and photography encompass a broad range of meanings, from elaborately staging and performing for the camera, to manipulations using digital technology such as Photoshop to construct the work. This class will examine and trace the history of manipulated photography while paying special attention to the complex negotiations between the decisive moment, the constructed tableau, and the digitally manipulated image. There will be a combination of class lectures, studio projects, assigned readings, visiting artists, film screenings, field trips, and class critiques.
Taught by: Diamond
Course usually offered in spring term
Prerequisite: FNAR 271 or FNAR 640 or Permission of the Instructor
Activity: Studio
1 Course Unit

FNAR 686 Visual Narrative
Visual Narrative is an introduction to the practice of storytelling with images. From news and information to art, law, and science, visual storytelling is a critical aspect of creating and navigating contemporary culture. This course is situated at the intersection of design, art, and visual culture, focusing on relevant forms and topics including the photo essay, information design and visual explanation, the photographic sequence in contemporary art, scenario design and concept visualization. It proposes that studying and making sequential images and visual essays in a wide range of media - comics and graphic novels, propaganda, environments and installations, social media, animation, video, and digital media—are critical to understanding culture. The course immerses students in the study of narrative craft and creation of visual stories covering topics relevant to designers and photographers. Beginning with the photo series and the photo documentary tradition, the course evolves through multimedia narrative and non-narrative forms. Students will explore principles of narrative construction in design and photography through lecture, studio projects, and with presentations by visiting artists, designers, and photographers.
Taught by: Comberg and Diamond
Course usually offered in fall term
Activity: Studio
1 Course Unit

FNAR 701 Graduate Critique I
This course is designed to introduce students to different pedagogical methodologies relating to the critical examination of works of art as well as to assist students in terms of speaking about their own work. Graduate critique provides a democratic and interactive forum for the voicing of opinion in an informed context. 1st year MFA students only.
Taught by: Faculty
Course usually offered in fall term
Activity: Studio
1 Course Unit

FNAR 702 Graduate Critique II
Course usually offered in spring term
Activity: Studio
1 Course Unit

FNAR 703 Graduate Critique
This course is designed to introduce students to different pedagogical methodologies relating to the critical examination of works of art as well as to assist students in terms of speaking about their own work. Graduate critique provides a democratic and interactive forum for the voicing of opinion in an informed context. 2nd year MFA students only.
Course usually offered in fall term
Activity: Studio
1 Course Unit

FNAR 704 Graduate Critique IV
Course usually offered in spring term
Activity: Studio
1 Course Unit

FNAR 712 Visual Epistemologies for Creative Practices
In this joint seminar between Architecture and Fine Arts, we investigate the alternative modes of diagrammatic thinking that are influencing art and design disciplines. The course provides a historical perspective on the evolution of visual epistemologies from late 1950s and reviews its current state from the lens of contemporary representation theory, computation, fabrication and information technologies. The goal is to gain both theoretical and hands-on experience with the contemporary diagramming techniques in order to advance both designs and the thinking behind them.
Taught by: Furjan/Telhan
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 720 Topics in Representation: Printmaking and Making Landscape: Terrains of Wetness
Course usually offered in spring term
Activity: Seminar
1 Course Unit

FNAR 801 Critical Issues in Contemporary Art
Critical Issues in Contemporary Arts is a graduate level seminar course for fine arts majors and graduate students. Offering two to three sections each semester, standing faculty will rotate topics based around critical issues in contemporary art including Defense Against the Dark Arts and Perspectives in Art: A Nomadic Approach. Please see the PennMFA website for specific section descriptions. Enrollment may be granted to undergraduate fine art students with the permission of the professor.
Taught by: Faculty
Course usually offered in fall term
Activity: Studio
1 Course Unit
FNAR 802 Critical Issues in Art II: Covert Structures  
Course usually offered in spring term  
Activity: Studio  
1 Course Unit

FNAR 803 Critical Issues in Contemporary Art  
Critical Issues in Contemporary Arts is a graduate level seminar course for fine arts majors and graduate students. Offering two to three sections each semester, standing faculty will rotate topics based around critical issues in contemporary art including Creative Research Defense Against the Dark Arts, and Perspectives in Art: A Nomadic Approach. Please see the PennMFA website for specific section descriptions. Enrollment may be granted to undergraduate fine art students with the permission of the professor.  
Taught by: Faculty  
Course usually offered in fall term  
Activity: Studio  
1 Course Unit

FNAR 804 Critical Issues in Art IV: Covert Structures  
Course usually offered in spring term  
Activity: Studio  
1 Course Unit

FNAR 999 Independent Study  
Prerequisites: See Graduate Program Coordinator for section numbers.  
Activity: Independent Study  
1 Course Unit  
Notes: Hours and credits arranged
FOLKLORE (FOLK)

FOLK 022 World Music and Cultures
This course examines how we as consumers in the "Western" world engage with musical difference largely through the products of the global entertainment industry. We examine music cultures in contact in a variety of ways—particularly as traditions in transformation. Students gain an understanding of traditional music as live, meaningful person-to-person music making, by examining the music in its original site of production, and then considering its transformation once it is removed, and recontextualized in a variety of ways. The purpose of the course is to enable students to become informed and critical consumers of "World Music" by telling a series of stories about particular recordings made with, or using the music of, peoples culturally and geographically distant from the US. Students come to understand that not all music downloads containing music from unfamiliar places are the same, and that particular recordings may be embedded in intriguing and controversial narratives of production and consumption. At the very least, students should emerge from the class with a clear understanding that the production, distribution, and consumption of world music is rarely a neutral process. For BA Students: Arts and Letters Sector
Taught by: Muller
Course usually offered in fall term
Activity: Lecture
1 Course Unit

FOLK 029 Gender, Sexuality, & Religion
What does it mean to be a Muslim, Hindu, Jewish, Christian, or spiritual woman or man? How important are the gender differences in deciding social roles, ritual activities, and spiritual vocations? How does gender intersect with nationality, language, and politics? This course tackles all of these questions, showing how gender—its definition and the way it is taught and performed—is central to understanding religion. In this course we will learn about women's and men's rituals, social roles, and mythologies in specific religious traditions. We will also look at the central significance of gender to the field of religious studies generally, with particular attention to non-binary genders. The first part of the course will be focused on building a foundation of knowledge about a range of religious traditions and the role of women in those traditions. This course emphasizes religious traditions outside the West. Although it is beyond the scope of this class to offer comprehensive discussions of any one religious tradition, the aim is to provide entry points into the study of religious traditions through the lens of gender. This course will emphasize both historical perspectives and contemporary contexts. We will read religion through a variety of feminist and queer theory lenses—exploring the key characteristics of diverse feminist analyses of religion, as well as limits of specific feminist approaches.
Taught by: Robb
One-term course offered either term
Activity: Lecture
1 Course Unit

FOLK 101 Introduction to Folklore
The purpose of the course is to introduce you to the subjects of the discipline of Folklore, their occurrence in social life and the scholarly analysis of their use in culture. As a discipline folklore explores the manifestations of expressive forms in both traditional and modern societies, in small-scale groups where people interface with each face-to-face, and in large-scale, often industrial societies, in which the themes, symbols, and forms that permeate traditional life, occupy new positions, or occur in different occasions in an everyday life. For some of you the distinction between low and high culture, or artistic and popular art will be helpful in placing folklore forms in modern societies. For others, these distinction will not be helpful. In traditional societies, and within social groups that define themselves ethnically, professionally, or culturally, within modern heterogeneous societies, and traditional societies in the Americas, Africa, Asia, Europe and Australia, folklore plays a more prominent role in society, than it appears to plan in literate cultures on the same continents. Consequently the study of folklore and the analysis of its forms are appropriate in traditional as well as modern societies and any society that is in a transitional phase.
For BA Students: Humanities and Social Science Sector
Taught by: Ben-Amos
One-term course offered either term
Activity: Lecture
1 Course Unit

FOLK 201 American Folklore
This course will examine American expressive culture, including everyday speech, narrative, music, foodways, religion, public celebrations, and material culture through an exploration of the multiple and changing avenues of diversity in the United States. Folklore can be considered the unofficial culture that exists beneath and between the institutions of power that we read about in our history books, and that is what we will be studying—the 99% of American life that goes unseen and unnoticed in other college courses. Some of the topics we will examine are: campus folklore; body art and adornment; contemporary (urban) legends and beliefs; public celebrations and rituals; and the adaptation and commodification of folk culture in popular media.
One-term course offered either term
Activity: Lecture
1 Course Unit

FOLK 229 Myth in Society
In this course we will explore the mythologies of selected peoples in the Ancient Near East, Africa, Asia, and Native North and South America and examine how the gods function in the life and belief of each society. The study of mythological texts will be accompanied, as much as possible, by illustrative slides that will show the images of these deities in art and ritual.
Taught by: Ben-Amos
One-term course offered either term
Activity: Lecture
1 Course Unit
FOLK 241 Great Story Collections
This course is intended for those with no prior background in folklore or knowledge of various cultures. Texts range in age from the first century to the twentieth, and geographically from the Middle East to Europe to the United States. Each collection displays various techniques of collecting folk materials and making them concrete. Each in its own way also raises different issues of genre, legitimacy, canon formation, cultural values and context.
For BA Students: Arts and Letters Sector
Taught by: Azzolina
Course not offered every year
Activity: Lecture
1 Course Unit

FOLK 252 Themes in Jewish Tradition
Course topics will vary; they have included: The Binding of Isaac, Responses to Catastrophes in Jewish History, Holy Men & Women (Ben-Amos); Rewriting the Bible (Dohrmann); Performing Judaism (Fishman); Jewish Political Thought (Fishman); Jewish Esotericism (Lorberbaum) Democratic culture assumes the democracy of knowledge - the accessibility of of knowledge and its transparency. Should this always be the case? What of harmful knowledge? When are secrets necessary? In traditional Jewish thought, approaching the divine has often assumed an aura of danger. Theological knowledge was thought of as restricted. This seminar will explore the "open" and "closed" in theological knowledge, as presented in central texts of the rabbinic tradition: the Mishnah, Maimonides and the Kabbalah. Primary sources will be available in both Hebrew and English.
For BA Students: History and Tradition Sector
One-term course offered either term
Activity: Seminar
1 Course Unit

FOLK 270 Folklore and Sexuality
Sexuality is usually thought of as being biological or social, divided into categories of natural and unnatural. Often missed are its creative and communicative aspects. Examining the constructed social elements of sexuality requires attention be paid to folklore in groups, between individuals and on the larger platform of popular technological media. The most interesting locations for exploration are those places where borderlands or margins, occur between genders, orientations and other cultural categories. A field-based paper will be required that must include documentary research.
Taught by: Azzolina
Course not offered every year
Activity: Lecture
1 Course Unit

FOLK 280 Jewish Folklore
The Jews are among the few nations and ethnic groups whose oral tradition occurs in literary and religious texts dating back more than two thousand years. This tradition changed and diversified over the years in terms of the migrations of Jews into different countries and the historical, social, and cultural changes that these countries underwent. The course attempts to capture the historical and ethnic diversity of Jewish folklore in a variety of oral literary forms. A basic book of Hasidic legends from the 18th century will serve as a key text to explore problems in Jewish folklore relating to both earlier and later periods.
Taught by: Ben-Amos
One-term course offered either term
Activity: Lecture
1 Course Unit

FOLK 281 Horror and the Supernatural
Beliefs in the supernatural have not diminished appreciably in modern cultures, despite many predictions that they would. Recent public opinion surveys indicate many Americans hold supernatural beliefs or have had experiences they believe to be supernatural. This course will introduce key concepts in the study of culture and the supernatural. We will examine traditional beliefs about supernatural beings, supernatural realms, and humans who interact with these, as well as the historical development of Western ideas of "the supernatural" itself. Students will enhance their understanding of human diversity through cross-cultural examples of supernatural folklore, consider the relationship between the supernatural and place, and examine how various folklore genres have expressed human relationships to the supernatural. Topics may include witchcraft, ghosts, vampires, fairies, UFOs, supernatural assault, vodou, Neopaganism, saints, healing, legend tripping, and dark tourism. There will also be opportunity for students to explore related topics of interest to them.
Course not offered every year
Activity: Lecture
1 Course Unit

FOLK 299 Independent Study
Directed study at the senior level.
One-term course offered either term
Activity: Independent Study
1 Course Unit
FOLK 531 Prose Narrative
Historical, literary, comparative, and ethnographic methods contribute to study of prose narratives which were told in oral societies in antiquity and in modern times and were documented in literary societies for different purposes. Oral storytellers, both professional and amateurs, performed them in private and public spaces. Their recording from antiquity to modern times became an integral element of modern life in general and in education and arts in particular. The storytellers, their performances in oral and literary cultures, their genres, and their symbolic meanings are the subjects of the course, together with the analytical methods that help mapping their distribution worldwide.
Taught by: Ben-Amos
Course not offered every year
Activity: Seminar
1 Course Unit

FOLK 706 Culture/Power/Identities
This course will introduce students to a conceptual language and the theoretical tools to analyze the complex dynamics of racial, ethnic, gender, sexual, and class differences. The students will critically examine the interrelationships between culture, power, and identities through the recent contributions in cultural studies, critical pedagogy and post-structuralist theory and will explore the usefulness of these ideas for improving their own work as researchers and as practitioners.
Taught by: Hall
Course usually offered in fall term
Activity: Lecture
1 Course Unit
FRENCH (FREN)

FREN 110 Elementary French I
French 110 is the first semester of the elementary-level sequence designed to develop functional proficiency in the four skills and gain familiarity with French and Francophone culture. The primary emphasis is on the development of the oral-aural skills, speaking and listening. Readings on topics in French culture as well as frequent writing practice are also included in the course. As in other French courses, class will be conducted entirely in French. You will be guided through a variety of communicative activities in class which will expose you to a rich input of spoken French and lead you from structured practice to free expression. You will be given frequent opportunity to practice your newly acquired vocabulary and grammatical structures in small group and pair work which simulate real-life situations. The course will introduce to French and Francophone culture through authentic materials including written documents, simple articles, songs, films, videos and taped conversations between native speakers. Out-of-class homework will require practice with the online component of the textbook (MyFrenchLab) as well as regular writing practice. The course will also invite you to explore the Francophone world on the Internet.

For BA Students: Language Course
One-term course offered either term
Activity: Seminar
1 Course Unit

FREN 112 Accelerated Elementary French
French 112 is an intensive elementary language course for students who have not studied French, but who have met the language requirement in another foreign language. This course will provide an introduction of the basic structures of French, with intensive work on speaking and listening designed to prepare students to take Intermediate French. Due to the nature of the course, the first half will progress rapidly with the more difficult material presented after the midterm period. As in other French courses, class will be conducted entirely in French. You will be guided through a variety of communicative activities in class that will expose you to a rich input of spoken French and lead you from structured practice to free expression. You will have frequent opportunities to practice your newly acquired vocabulary and grammatical structures in small group and pair work that simulate real-life situations, so please prepare each day’s lesson attentively. See "Preparation for each class" below for additional details. The course will introduce you to French and Francophone culture through authentic materials including written documents, simple articles, songs, films, videos, and conversations between native speakers. Homework will consist of aural comprehension exercises in the online SAM as well as regular writing practice. The course will also invite you to explore the Francophone world by completing an engaging, interactive project in the final stage of the semester.

For BA Students: Language Course
Course usually offered in fall term
Activity: Seminar
2 Course Units

FREN 120 Elementary French II
French 120 is the second semester continuation of the elementary-level sequence designed to develop functional proficiency in the four skills and gain familiarity with French and Francophone culture. The primary emphasis is on the development of the oral-aural skills, speaking and listening. Readings on topics in French culture as well as frequent writing practice are also included in the course. As in other French courses, class will be conducted entirely in French. You will be guided through a variety of communicative activities in class which will expose you to rich input of spoken French and lead you from structured practice to free expression. You will be given frequent opportunity to practice your newly acquired vocabulary and grammatical structures in small group and pair work which simulate real-life situations. The course will introduce you to French and Francophone culture through authentic materials including written documents, simple articles, songs, films, videos, and taped conversations between native speakers. Out-of-class homework will require practice with the online component of the textbook (MyFrenchLab) as well as regular writing practice. The course will also invite you to explore the Francophone world on the Internet.

For BA Students: Language Course
One-term course offered either term
Prerequisite: FREN 110
Activity: Seminar
1 Course Unit

FREN 121 Accelerated Elementary French for “False Beginners”
French 121 is an intensive one-semester language course for students who have had some French before but who can benefit from a complete review of elementary French. This course will provide a re-introduction of the basic structures of French, with intensive work on speaking and listening designed to prepare students to take Intermediate French. Due to the nature of the course, the first half of the semester will progress rapidly, with much more difficult material being presented after the midterm period. As in other French courses, class will be conducted entirely in French. You will be guided through a variety of communicative activities in class that will expose you to a rich input of spoken French and lead you from structured practice to free expression. You will be given frequent opportunity to practice your newly acquired vocabulary and grammatical structures in small group and pair work activities that simulate real-life situations, so please prepare each day’s lesson attentively. See “Preparation for each class” below for additional details. The course will introduce you to French and Francophone culture through authentic materials including written documents, simple articles, songs, films, videos, and conversations between native speakers. Out-of-class homework will consist of aural comprehension exercises in the online SAM as well as regular writing practice. The course will also invite you to explore the Francophone world by completing an engaging, interactive project in the final stage of the semester.

For BA Students: Language Course
Course usually offered in fall term
Activity: Seminar
1 Course Unit
FREN 130 Intermediate French I
French 130 is the first half of a two-semester intermediate sequence designed to help you attain a level of proficiency that should allow you to function comfortably in a French-speaking environment. You are expected to have already learned the most basic grammatical structures in elementary French and you will review these on your own in the course workbook. This course will build on your existing skills in French, increase your confidence and ability to read, write, speak and understand French, and introduce you to more refined lexical items, more complex grammatical structures, and more challenging cultural material. As in other French courses at Penn, class will be conducted entirely in French. In addition to structured oral practice, work in class will include frequent communicative activities such as role-plays, problem-solving tasks, discussions, and debates, often carried out in pairs or small groups. Through the study of authentic materials such as articles, poems, songs, films, videos, you will deepen your knowledge of the French-speaking world. Daily homework will require listening practice with audio and video material, in addition to regular written exercises in the workbook and frequent composition practice.
For BA Students: Language Course
One-term course offered either term
Prerequisites: Completion of FREN 120 or 121, or placement into third-semester French.
Activity: Seminar
1 Course Unit

FREN 134 Accelerated Intermediate French
An intensive two-credit course covering the first and second semester of the intermediate year. See descriptions of French 130 and 140. Students must have a departmental permit to register. Also offered in the summer Penn-in-Tours program in France.
For BA Students: Last Language Course
Course usually offered in spring term
Activity: Seminar
2 Course Units

FREN 140 Intermediate French II
French 140 is the second half of a two-semester intermediate sequence designed to help you attain a level of proficiency that should allow you to function comfortably in a French-speaking environment. You are expected to have already learned the most basic grammatical structures in elementary French and you will review these on your own in the course workbook. This course will build on your existing skills in French, increase your confidence and ability to read, write, speak and understand French, and introduce you to more refined lexical items, more complex grammatical structures, and more challenging cultural material. This course focuses on the culture of French-speaking countries beyond the borders of France. Along with your classmates, you will explore the cities of Dakar, Fort-de-France and Marrakesh, investigating the diversity of the Francophone world through film, literature and music. As in other French courses at Penn, class is conducted entirely in French. In addition to structured oral practice, work in class will include frequent communicative activities such as problem-solving tasks, discussions, and debates, often carried out in pairs or small groups. Daily homework will require researching in the library and on the Internet, listening practice with video clips, in addition to regular written exercises in the workbook.
For BA Students: Last Language Course
One-term course offered either term
Prerequisites: Completion of French 130 or placement into fourth-semester French.
Activity: Seminar
1 Course Unit

FREN 180 Advanced French in Residence
Open only to residents in La Maison Francaise. Participants earn 1/2 c.u. per semester.
Two terms. student may enter either term.
Corequisite: Residence in Modern Language House
Activity: Seminar
0.5 Course Units

FREN 202 Advanced French
French 202 is a third-year level course aimed at better understanding contemporary French society, language and culture, with a special focus on today’s young generation. What defines a generation in the first place, and how do the lives of young people in France compare to those of their American counterparts? To answer these questions, students in 202 will delve into numerous aspects of French youth experience from the school system to family life, and from the workplace to the political arena, with the aid of resources including contemporary films, news articles, songs, literary texts, and the recent sociological project "Generation Quoi."
In addition, they will forge connections with the French community on Penn’s campus, as they embark on a journey of cultural exploration and reflexive self-discovery. While 202 is not a grammar-focused course, particular attention will be given to recognizing and employing the different registers of spoken and written French. The course constitutes excellent preparation for study abroad in a French-speaking region.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: Open to students who have completed the language requirement. Students who are continuing from French 134 or 140 should take French 202 before moving on to more advanced French courses.
Activity: Seminar
1 Course Unit

FREN 211 French for Business I
This content-based language course, taught in French, introduces economic, business and professional terminology through the study of the following topics: financial institutions (banking, stock market and insurance); business practices (business letters and resumes); trade and advertising; the internal structure and legal forms of French companies. The course also emphasizes verbal communication through three components: 1) In-class activities such as problem-solving tasks, discussions and debates. 2) The study of authentic materials such as newspapers and magazines’ articles, video clips, and radio shows. 3) A series of students’ presentations. Finally, in order to use and practice the new economic and business terminology studied in this course, and to also further explore the structure, the management, and the operations of the French companies, students will work in pairs on a research project about a major French company of their choice.
One-term course offered either term
Prerequisites: Advanced level of French (French 202 highly recommended). No business background necessary.
Activity: Seminar
1 Course Unit
FREN 212 Advanced French Grammar and Composition
Intensive review of grammar integrated into writing practice. A good knowledge of basic French grammar is a prerequisite (French 202 or equivalent is recommended). Conducted entirely in French, the course will study selected grammatical difficulties of the French verbal and nominal systems including colloquial usage. Frequent oral and written assignments with opportunity for rewrites. Articles from French newspapers and magazines, literary excerpts, and a novel or short stories will be used as supplementary materials in order to prepare students to take content courses in French in disciplines other than French.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: Advanced level of French (French 202 or equivalent highly recommended).
Activity: Seminar
1 Course Unit

FREN 214 Advanced French Composition and Conversation
Entitled “Contemporary French Society through its Media,” this course is intended to improve communicative skills through extensive practice in a variety of styles and forms. It aims to enhance student understanding of contemporary French culture, thought and modes of expression by promoting both cross-cultural understanding and critical thinking and developing students’ communicative abilities (in the presentational, interpretive, and interpersonal modes). The specific language functions we will focus on are: narration; description; offering and soliciting advice and opinions; expressing feelings; critique and analysis; argumentation. It is organized around the themes of current events, identity and art. Activities include the study, analysis and emulation of model texts as well as discussion and debates about events and social issues as covered by the French news media (television, print, Internet sources). The oral work include video blogs and group presentations on selected topics and current events. Written practice will comprise reflective journals, essays and collaborative work on Web projects. On completing this course, students will feel more confident and be able to speak and write effectively on a range of contemporary issues. Recommended for students who are planning to study abroad in France.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: Advanced level of French (French 202 or equivalent highly recommended).
Activity: Seminar
1 Course Unit

FREN 217 French Phonetics
This course is designed to provide students with a solid foundation in French phonetics and phonology. Part of the course will be devoted to learning how to produce discourse with native-like pronunciation and intonation. The course will also focus on improving aural comprehension by examining stylistic and regional differences in spoken French.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: Advanced level of French (French 202 or equivalent highly recommended).
Activity: Seminar
1 Course Unit

FREN 225 History, Memory, Culture
This course explores the history of the dark years of the French collaboration with Nazi Germany during WWII. In the first part, it examines the rise of the myths of an “eternal France” and the “true French” promoted by Marechal Petain’s National Revolution, as well as the myth of the resistance fighters that arose after the Liberation. The Holocaust and the holes left in national memory will hold a pivotal place in our reading of the national narrative. The second part of the course is dedicated to the study of literary works written by post-memory writers or survivors of the Holocaust who tried to fill in the blanks and confronted the linguistic challenge posed by Auschwitz. Paris will play a connecting role, as both witness to history and as tangible trace of the forgotten. This study of French history, its silences and (non-) memory will shed light on the legacy of the Occupation for contemporary France.
Assessment consists of a semester-long creative writing project and a final oral exam. Reading assignments include works by Pierre Assouline, Marcel Cohen, Georges Didi-Huberman, David Foenkinos, Sarah Kohfman, Marceline Loridan-Ivens, Patrick Modiano, Georges Perec.
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 226 French History and Culture until 1789
This civilization course presents the creation of modern France from 1789 to 1945 through the omnipresence of the myth of Perseus and Medusa in the historical narrative. The objective of the course is to introduce students to a period in France’s history that begins with the French Revolution and ends with Marechal Petain’s National Revolution.
It also helps them discover the intricacies of the slow construction of modern France. In this course, students are led to confront the linguistic challenge posed by Auschwitz. Paris will play a connecting role, as both witness to history and as tangible trace of the forgotten. This study of French history, its silences and (non-) memory will shed light on the legacy of the Occupation for contemporary France.
Assessment consists of a semester-long creative writing project and a final oral exam. Reading assignments include works by Pierre Assouline, Marcel Cohen, Georges Didi-Huberman, David Foenkinos, Sarah Kohfman, Marceline Loridan-Ivens, Patrick Modiano, Georges Perec.
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 227 French History and Culture 1789-1945
This civilization course presents the fabric/fabrication of the so-called national memory through its places of memory (lieux de memoire), as well as its places of non-memory (lieux de non-memoire), going from the Gauls to the Enlightenment. As the course tells the story of the rise and fall of the French monarchy, one is encouraged to envision it as a palimpsest and to become aware of the roles played by myths and legends. It helps see how French history has been manipulated by the collective memory, how retrospection often redefines, fabricates events and people depending on the needs of the moment. This course is taught in French.
For BA Students: History and Tradition Sector
Course usually offered in fall term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 229 French and American Culture: The Holocaust and the “French” promoted by Marechal Petain’s National Revolution, as well as the myth of the resistance fighters that arose after the Liberation. The Holocaust adn the holes left in national memory will hold a pivotal place in our reading of the national narrative. The second part of the course is dedicated to the study of literary works written by post-memory writers or survivors of the Holocaust who tried to fill in the blanks and confronted the linguistic challenge posed by Auschwitz. Paris will play a connecting role, as both witness to history and as tangible trace of the forgotten. This study of French history, its silences and (non-) memory will shed light on the legacy of the Occupation for contemporary France.
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Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

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Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit
FREN 228 Contemporary France
In this course we will be exploring the transformations of French society since the Second World War and into the Millennium. From the legacy of decolonization to the multicultural fervor of the 1998 Soccer World Cup, from the May 1968 civil protests to the Republican marches of 2015, we’ll be delving into the major historical and cultural movements that have marked the contemporary period. How did France recover from German occupation and cope with further wars in its colonial territories? How did unprecedented rates of urbanization and immigration change the face of the country over the ensuing decades? Who have been the major players on the historical stage? And what are the political, cultural, and socioeconomic challenges facing France at the outset of the 21st century? These are some of the questions that will guide our investigation into the past 70 years of French history, a period as turbulent as it is rich in cultural production, and as complex as it is fascinating. Throughout the semester we will be especially attentive to images, in every sense of the word: the images of national identity that France projects to the world and to itself, but also pictorial representations of the country, its people and its territory. These images, and the stories they tell, will help us envision the kaleidoscopic portrait of a nation. The course will be conducted entirely in French.
Course usually offered in fall term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 229 French in the World
Where adn how is French spoken in the world? Which variety (or varieties) of French represents “good” or standard language use? What does it mean to have an accent or to experience linguistic insecurity? To what extent have political forces and movements historically affected the evolution of French? How do language attitudes differ among French- and English-speaking regions of the world and what is the status of French in an era of globalization? In what ways does language shape our identities? Le Francais dans le monde/French in the World examines these questions by providing a survey of the sociolinguistics of the French language in the contemporary world. We will explore how societal changes influence the manner and the contexts in which the French language is spoken. Case studies focus on various parts of the Francophone world, including Europe (Belgium, Switzerland), New World (Quebec, Caribbean, Louisiana), Africa (North Africa, Sub-Saharan Africa), etc. Readings and class discussions are in French.
Course usually offered in spring term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 230 Masterpieces of French Cinema
This course will introduce students to key films of the French film canon, selected over a period ranging from the origins of French cinema to the present. Students will also be introduced to the key critical concepts (such as the notion of the “auteur” film genre) informing the discussion of films in France. The films will be studied in both a historical and theoretical context, related to their period styles (e.g. “le realisme poetique,” “la Nouvelle Vague,” etc.), their “auteurs,” the nature of the French star system, the role of the other arts, as well to the critical debates they have sparked among critics and historians. Students will acquire the analytical tools in French to discuss films as artistic and as cultural texts. Please note: This course follows a Lecture/Recitation format. The Lecture (FREN 230-401/CIMS 245-401) is taught in English. For French credit: please register for both FREN 230-401 (lecture) and FREN 230-402 (recitation); the FREN 230-402 recitation is conducted in French. For Cinema Studies credit: please register for CIMS 245-401 (lecture) and CIMS 245-403 (recitation); both are taught in English.
Course usually offered in fall term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Lecture
1 Course Unit

FREN 231 Perspectives in French Literature: Love and Passion
This basic course in literature provides an overview of French literature and acquaints students with major literary trends through the study of representative works from each period. Students are expected to take an active part in class discussion in French. French 231 has as its theme the presentation of love and passion in French literature. This course was previously offered as French 221.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 232 Perspectives in French Literature: The Individual and Society
This basic course in literature provides an overview of French literature and acquaints students with major literary trends through the study of representative works from each period. Special emphasis is placed on close reading of texts in order to familiarize students with major authors and their characteristics and with methods of interpretation. Students are expected to take an active part in class discussion in French. French 232 has as its theme the Individual and Society.
For BA Students: Arts and Letters Sector
Course usually offered in spring term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit
FREN 233 Francophone Literature and Film
French 233 is designed to give students a basic historical and theoretical groundwork in Francophone and postcolonial studies, and to help them develop their skills in literary and filmic analysis. It will provide an introductory survey of the richly diverse literature and film of the French-speaking world, from the 1950s through to the 21st century. Beginning with the gradual breakup of the French colonial empire, we will investigate the construction of individual and collective Francophone identities in such regions as the Caribbean, Africa, and the Maghreb, while exploring an equally wide range of literary and cinematic genres. Other histories and regions such as Quebec and Lebanon will also be discussed. Throughout the course we will remain especially attentive to questions of space—public and private spheres, urban and rural topographies, borders and migrations, as well as the complex dynamics between the Francophone regions and France itself—and to the ways in which these tensions are mapped onto the textual and visual surfaces of the works studied.
For BA Students: Arts and Letters Sector
Course usually offered in spring term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 250 French Literature in Translation
The content of the course will vary from semester to semester. All works read in English. Please check the department's website for a description. https://www.sas.upenn.edu/french/pc
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 258 Modernisms & Modernities: All of Beckett
Course not offered every year
Activity: Lecture
1 Course Unit

FREN 259 Modernism and the Theory of Fashion
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 300 The Making of Modern Paris
Paris, Ville-Lumiere, has long been renowned for its urbanity, architecture, and city design. This course will trace the people, ideas, and projects that contributed to this reputation, through an exploration of the city's built environment as expressed in literature and urban planning projects of the 19th and 20th centuries. The class will analyze literary readings, including texts by Hugo, Baudelaire, Zola, and Breton, in conjunction with historical and visual materials covering works from Viollet-le-Duc to Napoleon III and Haussmann to Mitterand and Sarkozy. This seminar has four goals: One-term course offered either term
Activity: Seminar
1 Course Unit

FREN 301 French Identity in the Twentieth Century
Topics vary. Please see the department's website for a description of the current offerings: https://www.sas.upenn.edu/french/pc
One-term course offered either term
Activity: Seminar
1 Course Unit

FREN 308 Topics in French Culture
Please see the department's website for the course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 310 Literary History
Please see the department's website for the course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 311 French Thought After 1968
In American academia, French thought after May '68 is often referred to as "French Theory," a heterogeneous corpus of philosophical and critical texts compacted into a set of poststructuralist premises, first introduced by and grew within humanities departments, then identified as a luxury by-product of the "literary" people. This course proposes to unpack the notion of "French Theory" and re-anchor it into its original social/historical background. We will read some of the most influential texts of its key figures, study how a post May 68 revolutionary energy is transformed into various innovative but also destabilizing ways of rethinking power relations, gender, language and subjectivity, and finally, consider in what capacities and limits these diverse critical approaches go beyond the simple label of "post-structuralism" and relate to our own epoch and personal experiences. The readings and discussions will be divided into four axes: 1. Philosophy of Desire (Lacan, Deleuze/Guattari); 2. Sexual Revolt and Body Politics (Foucault, Hochquenghem, Barthes); 3. Deconstruction and Its Impact on Feminism (Derrida, Cixous, Irigaray); 4. Consumer Society and Society of the Spectacle (Lipovetsky, Baudrillard, Debord). Several documentaries and feature films will be shown outside class time. Taught in English. Reading knowledge of French is welcome but not required.
One-term course offered either term
Activity: Seminar
1 Course Unit

FREN 313 French for Business II
The course, conducted entirely in French, emphasizes verbal communication in business professional situations through three components. First, a series of student's presentations, in-class activities (using newspapers’ articles, technical readings, radio shows and films), and debates on the following topics (list not exhaustive) related to France's economy and society. The role of the State in France's economy; the French fiscal system; Labor (impact of the 35-hour work week, "conges," women in the workplace, etc.); Regions of France (production); major French industries/companies/brands; France’s major imports/exports; "Green business"; Business of pop culture. Second, as effective communication is based not only on linguistic proficiency but also on cultural proficiency, cultural differences mostly between Americans and French will be explored.
Course usually offered in spring term
Prerequisites: Advanced level of French. French for Business I (211) highly advisable.
Activity: Seminar
1 Course Unit
FREN 322 France and the European Union
This course aims to provide an understanding of the European Union as a complex entity: its history, institutions, challenges and future. After reviewing the history of European integration and learning about the Community’s institutions, common programs and market, we will consider a wide variety of themes important to Europe: economics, education, immigration, the environment, social issues, national and European identities, the debate over a Federal Europe vs. a Europe of nations, European social/cultural models vs. American liberalism, relations between the EU and the rest of the world. Considering the acute and ongoing challenges facing the European community, we will focus on current events and discuss issues that are critical to the EU in general and to France in particular. Students will be responsible for pursuing substantive research on these and other topics and participating actively in debates. This class will be conducted entirely in French and is designed to improve cross-cultural understanding and communicative skills in the presentational, interpretive and interpersonal modes.
Course usually offered in spring term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 325 Advanced French Translation
This course provides an introduction to the theory and practice of translation and is designed to help foster a critical understanding of differences between French and English syntactical and lexical patterns. It will introduce students to theoretical concepts and problems of translation, with the ultimate goal being to improve their ability to communicate in more authentically sounding French. Students will have the opportunity to practice translation individually and to work with their peers on a variety of projects (advertising, journalistic and literary texts, movie and broadcast news subtitling) and to engage in critique and discussion of others’ translations. This course will help students refine their language skills and navigate more proficiently between these cultures and language systems. (Designed for students who already have a solid foundation in French and English grammar)
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
French 212 or equivalent highly recommended.
Activity: Seminar
1 Course Unit

FREN 330 Medieval Literature
An introductory course to the literature of the French Middle Ages. French literature began in the 11th and 12th centuries. This course examines the extraordinary period during which the French literary tradition was first established by looking at a number of key generative themes: Identity, Heroism, Love, Gender. All readings and discussions in French.
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 341 Boys Will Be Boys: Masculinity in French Literature
Why was a portrait depicting the Renaissance king Francois I as half-man, half-woman made with royal approval, and moreover intended to represent the king as the perfect embodiment of the ideal qualities of a male sovereign? And why, in what is now regarded as the official portrait of Louis XIV, does the king prominently display his silk stockings and high heels with diamond-encrusted buckles? These are just two examples of the questions that lead us to the point of departure for this course: the idea that masculinity is not a fixed essence that has existed since time immemorial, but rather a flexible concept that changes across and even within historical periods. We will examine how masculinity has evolved from the Middle Ages and the chivalric ideal to the present day, how it has been defined, and its implications for gender relations, politics, and religion in different eras. In addition to literary works, we will study how masculinity is represented across a range of media, including visual arts, music, and film. Discussions will be in English, and assignments will be available in translation, but students who wish to receive credit in French will be able to do coursework in French.
One-term course offered either term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 360 French Literature of the 18th Century
Topics vary. For current course description, please see the department’s webpage: https://www.sas.upenn.edu/french/pc
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 370 French Literature of the 19th Century
Topics vary. For current course description, please see the department’s webpage: https://www.sas.upenn.edu/french/pc
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 371 Poe’s French Legacies
Edgar Allan Poe was considered a vulgar hack by many of his fellow Americans, but in 19th-century France, he was touted as a misunderstood poetic genius, the original poete maudit. Through the translations of Charles Baudelaire, who found in Poe a kindred spirit in the “gout de l’infini,” French intellectuals came to know the American writer as a fount of aesthetic wisdom, diabolical sensibility, and mystic mastery. In this course, we will study Baudelaire’s poetry as well as the many literary and artistic movements in France that were directly inspired by Poe’s uncanny mix of the macabre and the methodical: Symbolist poetry (Valery, Mallarme), the Scientific Fantastic (Maupassant, Villiers de l’Isle-Adam), fin-de-siecle Decadence (Huysmans, Odilon Redon), Science Fiction (Verne), the detective novel (Gaboriau), and 20th-century Surrealism (Breton, Max Ernst).
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit
FREN 380 Literature of the Twentieth Century
This course, the theme of which changes from semester to semester, provides an introduction to important trends in twentieth-century literature. Please check the department’s website for the course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 386 Paris in Film
Latter-day examples like Christophe Honore’s Dans Paris, Cedric Klapisch’s Paris or the international omnibus Paris, je t’aime (with each director paying homage to a distinctive “arrondissement” of the capital), not to mention American blockbusters like The Da Vinci Code and Inception or Woody Allen’s Midnight in Paris, are there to remind us that there is something special – indeed, a special kind of magic – about Paris in and on film. Despite the extreme polarization between Paris and provincial France in both cultural and socio-economic terms, cultural historians have argued that Paris is a symbol of France (as a centralized nation), more than Rome is of Italy and much more than Madrid is of Spain or Berlin of Germany, for example. The prevalence of the City of Lights on our screens, Gallic and otherwise, should therefore come as no surprise, be it as a mere backdrop or as a character in its own right. But how exactly are the French capital and its variegated people captured on celluloid? Can we find significant differences between French and non-French approaches, or between films shot on location that have the ring of “authenticity” and studio-bound productions using reconstructed sets? Do these representations vary through time and perhaps reflect specific historical periods or zeitgeists? Do they conform to genre-based formulas and perpetuate age-old stereotypes, or do they provide new, original insights while revisiting cinematic conventions? Do some (sub)urban areas and/or segments of the Parisian population (in terms of gender, race, or class, for example) receive special attention or treatment? These are some of the many questions that we will seek to address...with a view to offering the next best thing to catching the next non-stop flight to Paris!
Taught by: Professor Philippe Met
Course usually offered in spring term
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Lecture
1 Course Unit

FREN 384 The French Novel of the Twentieth Century
Topics vary. Please check the department’s website for the course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 385 Modern French Theater
A study of major movements and major dramatists from Giraudoux and Sarthe to the theater of the absurd and its aftermath.
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 382 Horror Cinema
The purpose of this course is to provide an introduction to the history and main themes of the supernatural/horror film from a comparative perspective. Films considered will include: the German expressionists masterworks of the silent era, the Universal classics of the 30’s and the low-budget horror films produced by Val Lewton in the 40’s for RKO in the US, the 1980’s color films of sex and violence by Hammer studios in England, Italian Gothic horror or giallo (Mario Brava) and French lyrical macabre (Georges Franju) in the 60’s, and on to contemporary gore. In an effort to better understand how the horror film makes us confront our worst fears and our most secret desires alike, we will look at the genre’s main iconic figures (Frankenstein, Dracula, Dr. Jekyll and Mr. Hyde, etc.) as well as issues of ethics, gender, sexuality, violence, spectatorship through a variety of critical lenses (psychoanalysis, socio-historial and cultural context, aesthetics...).
Taught by: Professor Met
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Lecture
1 Course Unit

Notes: The course will be taught in English. French credit by arrangement with instructor.

FREN 389 France and Its Others
A historical appreciation of the impact of the exploration, colonization, and immigration of other peoples on French national consciousness, from the 16th century to the present. Emphasis is on the role of the Other in fostering critiques of French culture and society. Readings include travel literature, anthropological treatises, novels, and historical documents. Oral presentations and several short papers are included in the course.
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 390 Francophone Postcolonial Cultures
A brief introduction about the stages of French colonialism and its continuing political and cultural consequences, and then reading in various major works – novels, plays, poems – in French by authors from Quebec, the Caribbean, Africa (including the Maghreb), etc. Of interest to majors in International Relations, Anthropology and African Studies, as well as majors in French. Taught in French.
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit
FREN 391 Global France
Please check the department's website for the course description:
https://www.sas.upenn.edu/french/pc
Course not offered every year
Prerequisites: Two 200-level French courses taken at Penn or equivalent.
Activity: Seminar
1 Course Unit

FREN 398 Honors Thesis
One-term course offered either term
Activity: Independent Study
1 Course Unit

FREN 399 Independent Study
See instructor for permission.
One-term course offered either term
Activity: Independent Study
1 Course Unit

FREN 490 Black France: History/Representation
Please check the department's website for the course description:
https://www.sas.upenn.edu/french/pc
One-term course offered either term
Activity: Seminar
1 Course Unit

FREN 500 Proseminar
This course will provide a forum for collective preparation for the Master's exam.
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 537 The Novel and Marriage
Please check the department's website for the course description:
https://www.sas.upenn.edu/french/pc
Activity: Seminar
1 Course Unit

FREN 550 Etudes sur le XVII siecle
The specific topics of the seminar vary from semester to semester, depending on the instructor and his/her choice. Among the topics previously covered, and likely to be offered again, are the following: The Theatre of Jean Racine, Fiction of Mme de Lafayette, The Moralists (La Bruyere, La Rochefocauld, Perrault ), Realistic Novels (Sorel's Francion, Scarron's Le Roman Comique, Furetiere's Le Roman Bourgeois). Students give oral and written reports, and write a term paper.
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 580 Studies in 20th-Century French Literature
Topics vary. For current course description, please see the department's webpage: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 582 Fantastic Literature 19th/20th Centuries
This course will explore fantasy and the fantastic in short tales of 19th- and 20th-century French literature. A variety of approaches — thematic, psychoanalytic, cultural, narratological — will be used in an attempt to test their viability and define the subversive force of a literary mode that contributes to shedding light on the dark side of the human psyche by interrogating the "real," making visible the unseen and articulating the unsaid. Such broad categories as distortions of space and time, reason and madness, order and disorder, sexual transgressions, self and other will be considered. Readings will include "recits fantastiques" by Merimée, Gautier, Nerval, Maupassant, Breton, Pieyre de Mandiargues, Jean Ray and others.
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 590 Introduction to Francophone Studies
An introduction to major literary movements and authors from five areas of Francophonie: the Maghreb, West Africa, Central Africa, the Caribbean and Quebec.
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 591 Francophone Postcolonial Studies
Please see the department's website for current course description:
https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 595 Travel Literature
Within the context of the ill-defined, heterogeneous genre of the travelogue and of today's age of globalization, CNN and the Internet, this seminar will examine the poetics of travel writing based largely albeit not exclusively on travel notebooks, or journaux/carnets de voyage, spanning the 20th century from beginning to end. One of the principal specificities of the texts studied is that they all evince to a lesser or greater degree a paradoxical resistance both to the very idea of travel(ing) as such and to the mimetic rhetoric of traditional travel narratives. We will therefore look at how modern or postmodern texts question, revisit, subvert or reject such key notions of travel literature as exoticism, nostalgia, exile, nomadism, otherness or foreignness vs. selfhood, ethnology and autobiography, etc. Authors considered will include Segalen, Morand, Michaux, Leiris, Levi-Strauss, Butor, Le Clezio, Baudrillard, Bouvier, Jouanan, Leuwers.
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 601 Language Teaching and Learning
Please check the department's website for the course description.
https://www.sas.upenn.edu/french/pc
One-term course offered either term
Activity: Seminar
1 Course Unit

FREN 602 Theory and Criticism
Please see the department's website for current course description:
https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit
FREN 603 Poétique Du Recit
Please see the department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 606 Postcolonial Theory
Please see the department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 609 Global France
The purpose of this course is to examine the various modalities of interaction between anthropology and literature in modern French culture. Our guiding thesis is that the turn toward other cultures has functioned as a revitalizing element in the production of cultural artifacts while providing an alternative vantage point from which to examine the development of French culture and society in the contemporary period. The extraordinary innovations of "ethnosurrealism" in the twenties and thirties by such key figures of the avant-garde as Breton, Artaud, Bataille, Caillois, and Leiris, have become acknowledged models for the postwar critical thought of Barthes, Derrida, and Foucault, as well as inspiring a renewal of "anthropology as cultural critique in the United States." Besides the authors just indicated, key texts by Durkheim, Mauss and Levi-Strauss will be considered both on their own terms and in relation to their obvious influence. The institutional fate of these intellectual crossovers and their correlative disciplinary conflicts will provide the overarching historical frame for the course, from the turn of the century to the most recent debates.
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 610 Introduction to French Cinema
Please see the department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 611 Topics in Cinema Studies
Please see the department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 612 Film Noir
Topics vary. Please see the department's website for the current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 619 East/West Medieval Europe
Please see the department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 620 Paris and Philadelphia: Landscapes and Literature of the 19th Century
This course explores the literal and literary landscapes of 19th-century Paris and Philadelphia, paying particular attention to the ways in which the built environment is shaped by and shapes shifting ideologies in the modern age. Although today the luxury and excesses of the "City of Light" may seem worlds apart from the Quaker simplicity of the "City of Brotherly Love," Paris and Philadelphia saw themselves as partners and mutual referents during the 1800s in many areas, from urban planning to politics, prisons to paleontology. This interdisciplinary seminar will include readings from the realms of literature, historical geography, architectural history, and cultural studies as well as site visits to Philadelphia landmarks, with a view to uncovering overlaps and resonances among different ways of reading the City. We will facilitate in-depth research by students on topics relating to both French and American architectural history, literature, and cultural thought.
Taught by: Professors Andrea Goulet and Aaron Wunsch (Design)
Course usually offered in fall term
Activity: Seminar
1 Course Unit

FREN 630 Introduction to Medieval French Literature
Topics vary. Previous topics include The Grail and the Rose, Literary Genres and Transformations, and Readings in Old French Texts. Please see the department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 631 Epic and Romance
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 638 Topics: Medieval Culture
Topics will vary. Please see the department’s website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 640 Studies in the Renaissance
Topics vary. Previous topics have included Rabelais and M. de Navarre, Montaigne, and Renaissance and Counter-Renaissance. Please see the department’s website for the current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit
FREN 650 Studies in the 17th Century
Topics of discussion will vary from semester to semester. One possible topic is "The Royal Machine: Louis XIV and the Versailles Era." We will examine certain key texts of what is known as the Golden Age of French literature in tandem with a number of recent theoretical texts that could be described as historical. Our goal will be to explore the basis of "the new historicism," a term that is designed to cover a variety of critical systems that try to account for the historical specificity and referentiality of literary texts. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 660 Studies in the 18th Century
Topics of discussion will vary from semester to semester. One possible topic is "Masterpieces of the Enlightenment." We will read the most influential texts of the Enlightenment, texts that shaped the social and political consciousness characteristic of the Enlightenment—for example, the meditations on freedom of religious expression that Voltaire contributed to "affaires" such as the "affaire Calas." We will also discuss different monuments of the spirit of the age--its corruption (Les Liaisons dangereuses), its libertine excesses and philosophy (La Philosophie dans le boudoir). We will define the specificity of 18th-century prose (fiction), guided by a central question: What was the Enlightenment? Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 670 19th-Century Studies
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 671 Major Authors 19th Century
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 672 19th Century Literature and the Arts
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 673 19th Century Literature
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 674 Topics in 19th Century Literature
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 675 Studies in the 20th Century
Topics will vary. Please see the French department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 676 Major Authors 20th/21st Century
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 677 Contemporary French Culture
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 678 Francophone Africa
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 679 Francophone Studies
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 680 Francophone Africa
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 681 Studies in Modern French Poetry
How does one approach the modern poetic text which ever since the Mallarmean "crise de vers" appears to have cut loose from all referential anchoring and traditional markers (prosody, versification, etc.)? This course will present an array of possible methodological answers to this question, focusing on poetic forms and manifestations of brevity and fragmentation. In addition to being submitted to precise formal and textual inquiries, each text or work will be the point of departure for the analysis of a specific theoretical issue and/or an original practice - e.g., genetic criticism, translation theory, the poetic "diary", aphoristic modes of writing, quoting and rewriting practices, etc. Texts by key modern poets (Ponge, Chazal, Du Bouchet, Jourdan, Jabes, Michaux).
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 682 The French Novel of the 20th Century
Topics vary. Please check the French department's website for the course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 683 21st Century
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 684 The French Novel of the 20th Century
Topics vary. Please check the French department's website for the course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 685 The French Novel of the 21st Century
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 686 Modern French Poetry
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 687 Studies in 21st Century
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 688 Contemporary French Culture
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 689 Francophone Africa
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 690 Francophone Studies
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 691 Francophone Africa
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 692 Caribbean Studies
Topics vary. For current course description, please see French Department's webpage: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 693 Francophone Studies
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 694 Francophone Africa
Topics vary. For current course description, please see French Department's webpage: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit
FREN 696 Postco Theory Francophon
Topics vary. For current course description, please see French Department's webpage: https://www.sas.upenn.edu/french/pc
One-term course offered either term
Activity: Seminar
1 Course Unit

FREN 701 Topics in Cultural Studies
Topics will vary. Please see French department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 702 Topics in Popular Culture
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 703 Representing Paris
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 704 The French Atlantic
Topics will vary. Please see department's website for current course description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit

FREN 850 Field Statement
PhD Exam Preparation
Course not offered every year
Activity: Independent Study
1 Course Unit

FREN 851 Dissertation Proposal
Course not offered every year
Activity: Independent Study
1 Course Unit

FREN 999 Independent Study
Designed to allow students to pursue a particular research topic under the close supervision of an instructor.
One-term course offered either term
Activity: Independent Study
1 Course Unit
GENDER, SEXUALITY & WOMEN'S STUDIES (GSWS)

GSWS 002 Gender and Society
This course will introduce students to the ways in which sex, gender, and sexuality mark our bodies, influence our perceptions of self and others, organize families and work life, delimit opportunities for individuals and groups of people, as well as impact the terms of local and transnational economic exchange. We will explore the ways in which sex, gender, and sexuality work with other markers of difference and social status such as race, age, nationality, and ability to further demarcate possibilities, freedoms, choices, and opportunities available to people.
For BA Students: Society Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Requirement for Gender, Sexuality and Women's Studies major

GSWS 003 Introduction to Sexuality Studies and Queer Theory
This course will introduce students to the historical and intellectual forces that led to the emergence of queer theory as a distinct field, as well as to recent and ongoing debates about gender, sexuality, embodiment, race, privacy, global power, and social norms. We will begin by tracing queer theory's conceptual heritage and prehistory in psychoanalysis, deconstruction and poststructuralism, the history of sexuality, gay and lesbian studies, woman-of-color feminism, the feminist sex wars, and the AIDS crisis. We will then study the key terms and concepts of the foundational queer work of the 1990s and early 2000s. Finally, we will turn to the new questions and issues that queer theory has addressed in roughly the past decade. Students will write several short papers.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GSWS 004 The Family
Historical and cultural development of the family, analysis of sexual codes; discussion of role difference between men and women; factors involved in mate selection and marital adjustment; analysis of family disorganization with both individual and societal implications.
For BA Students: Society Sector
Taught by: Harknett
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 007 Population and Society
The course serves as an introduction to the study of population and demography, including issues pertaining to fertility, mortality, migration, and family formation and structure. Within these broad areas we consider the social, economic, and political implications of current trends, including: population explosion, baby bust, the impact of international migration on receiving societies, population aging, racial classification, growing diversity in household composition and family structure, population and environmental degradation, and the link between population and development/poverty.
For BA Students: Society Sector
Taught by: Flippenn, Harknett, Kohler, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 008 Critical Speaking Seminar
American political discourse, especially since September 11th, has often depicted Islam as an oppressive force from which both Muslims and non-Muslims, particularly women and gender/sexual minorities, must be saved. In this CWIC critical speaking seminar, we will investigate how oral and written narratives—such as political rhetoric, apologetics and historical sources—claim to establish unassailable “facts” about Islam, Muslims and the Middle East. We will also investigate how the notion of empire—both in its traditionally understood form in Islamic and European history, as well as in its iterations as US Military and soft power—privileges certain voices over others, and how we can reclaim the voices of the marginalized in both contemporary discourse as well as historical oral traditions.
Taught by: Rafii
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 010 Freshman Seminars
Freshmen seminars are small, substantive courses taught by members of the faculty and open only to freshmen. These seminars offer an excellent opportunity to explore areas not represented in high school curricula and to establish relationships with faculty members around areas of mutual interest. See www.college.upenn.edu/admissions/freshmen.php
Activity: Seminar
1 Course Unit

GSWS 017 Topics in Literature
An introduction to Writing about Literature, with emphasis on a particular theme, genre, or period. See the English Department’s website at www.english.upenn.edu for a description of current offerings.
For BA Students: Humanities and Social Science S
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 028 Introduction to Feminist Philosophy
This course is an introduction to feminist thought, both in theory and in practice. We will consider how feminist thought emerged and evolved, as well as how feminist theories respond to various intellectual, social and political challenges. Questions we will address include: What exactly is feminism? How does one's gender identity impact one's lived experiences? How should we revise, reframe or rethink traditional answers to political and ethical issues in light of feminist theories? How can feminist analyses contribute to the development of better science, and our conceptions of knowledge?
Taught by: M. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Offered through the College of Liberal and Professional Studies

GSWS 040 Womanism and Identity Politics in the Realm of Hip-Hop
This course centers on the intersections of womanism, woman of color identity development and agency within hip-hop culture. We will touch on several topics that uncover the condition of minoritized women in hip-hop media, including creating/owning space, lyrical assault, defining womanhood, sexuality, and fetishes. In exploring music, literature, advertisements, film, and television, we will discuss the ways women of color construct understandings of self, while navigating and reimagining reality within hip-hop contexts.
Taught by: Patterson
Activity: Seminar
1 Course Unit
GSWS 048 Voicing Politics/Politicizing Voices
What does it mean to have a voice? To raise your voice? To have your voice heard? What do our voices say about us and what do they fail to communicate? How we speak and how our voices are perceived impact our interactions in daily life, our participation in the political sphere, and our capacity to effect change through activism. This CWiC course explores the parameters by which voice is defined in the context of music and sound studies, social justice, philosophy, and media and communication studies. We will consider how voice embodies our political constitution through an examination of the vocal practices of artists such as Tanya Tagaq, Anohni, Juliana Huxtable, Laurie Anderson, Sikh Knowledge, and Lucas Silveira; the phenomena of voice-activated devices such as Apple’s Siri and Amazon’s Echo; and the collective voices of movements such as Black Lives Matter and the Standing Rock water protectors. Through individual and group presentations, discussions, and creative projects, this critical speaking seminar encourages students to develop their oral communication skills while examining what informs their individual and collective voices. No previous musical training required. Enrollment limited to 16.
Taught by: Murphy
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 050 The Romantic Period
This course offers an introduction to the literature of the Romantic period (ca. 1770-1830). Some versions of this course will incorporate European romantic writers, while others will focus exclusively on Anglo-American romanticism, and survey authors such as Austen, Blake, Brodkey Brown, Byron, Coleridge, Emerson, Irving, Keats, Radcliffe, Scott, Shelley, and Wordsworth. The primary for this course is ENGL-050. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Activity: Lecture
1 Course Unit

GSWS 060 Latina/o Literature and Culture
A survey of cultural productions by Latinas/os (i.e. people of Latin American descent who have been raised in the U.S.) that usually will focus on the twentieth century, but might at times examine earlier periods instead. The course will take a culturally and historically informed approach to a wide range of novels, poems, plays, and films, and will sometimes include visual art and music. Writers and artists might include Am?rico Paredes, Piri Thomas, Cherrie Moraga, Sandra Cisneros, Julia Alvarez, Junot Díaz, Cristina Garcia, El Teatro Campesino, John Leguizamo, Carmen Lomas Garza, the Hernandez Brothers, and Los Tigres del Norte. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 081 African-American Literature
An introduction to African-American literature, typically ranging across a wide spectrum of moments, methodologies, and ideological postures, from Reconstruction and the Harlem Renaissance to the Civil Rights Movement. Most versions of this course will begin in the 19th century; some versions of the course will concentrate only on the modern period. ENGL-081 is the primary for this course. See the English Department’s website adscription of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 090 Gender, Sexuality, and Literature
This course will focus on questions of gender difference and of sexual desire in a range of literary works, paying special attention to works by women and treatments of same-sex desire. More fundamentally, the course will introduce students to questions about the relation between identity and representation. We will attend in particular to intersections between gender, sexuality, race, class, and nation, and will choose from a rich vein of authors: Mary Wollstonecraft, Jane Austen, Mary Shelley, Lord Byron, the Brontes, Christina Rossetti, George Eliot, Oscar Wilde, Henry James, Gertrude Stein, Zora Neale Hurston, E. M. Forster, Virginia Woolf, Nella Larsen, Radclyffe Hall, Willa Cather, Elizabeth Bishop, Jean Rhys, James Baldwin, Sylvia Plath, Bessie Head, Audre Lorde, Adrienne Rich, Cherrie Moraga, Toni Morrison, Michael Cunningham, Dorothy Allison, Jeanette Winterson, and Leslie Feinberg. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 096 Theories of Gender and Sexuality
What makes men and women different? What is the nature of desire? This course introduces students to a long history of speculation about the meaning and nature of gender and sexuality — a history fundamental to literary representation and the business of making meaning. We will consider theories from Aristophanes speech in Platos Symposium to recent feminist and queer theory. Authors treated might include: Plato, Shakespeare, J. S. Mill, Mary Wollstonecraft, Sigmund Freud, Virginia Woolf, Simone de Beauvoir, Adrienne Rich, Audre Lorde, Michel Foucault, Gayle Rubin, Catherine MacKinnon, Eve Kosofsky Sedgwick, Judith Butler, bell hooks, Leo Bersani, Gloria Anzaldúa, David Halperin, Cherr?e Moraga, Donna Haraway, Gayatri Spivak, Diana Fuss, Rosemary Hennesy, Chandra Tadpole Mohanty, and Susan Stryker. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
For BA Students: Humanities and Social Science S
Taught by: Love
Course not offered every year
Activity: Lecture
1 Course Unit
GSWS 101 Study of an Author
This is an introduction to literary study through the works of a single author—often Shakespeare, but some versions of this course will feature other writers. (For offerings in a given semester, please see the on-line course descriptions on the English Department website.) We will read several works and approach them—both in discussion and in writing—from a range of critical perspectives. The author’s relation to his or her time, to literary history generally, and to the problems of performance, are likely to be emphasized. This course is designed for the General Requirement; it is also intended to serve as a first or second course for prospective English majors. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 102 Study of a Literary Theme
The primary for this course is the English Department. When the course content includes gender, sexuality and women’s studies it will be cross-listed with GSWS. See additional information and description on the English Department’s website: https://www.english.upenn.edu
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 109 Gender, Sexuality, & Religion
What does it mean to be a Muslim, Hindu, Jewish, Christian, or spiritual woman or man? How important are the gender differences in deciding social roles, ritual activities, and spiritual vocations? How does gender intersect with nationality, language, and politics? This course tackles all of these questions, showing how gender—it’s definition and the way it is taught and performed—is central to understanding religion. In this course we will learn about women’s and men’s rituals, social roles, and mythologies in specific religious traditions. We will also look at the central significance of gender to the field of religious studies generally, with particular attention to non-binary genders. The first part of the course will be focused on building a foundation of knowledge about a range of religious traditions and the role of women in those traditions. This course emphasizes religious traditions outside the West. Although it is beyond the scope of this class to offer comprehensive discussions of any one religious tradition, the aim is to provide entry points into the study of religious traditions through the lens of gender. This course will emphasize both historical perspectives and contemporary contexts. We will read religion through a variety of feminist and queer theory lenses—exploring the key characteristics of diverse feminist analyses of religion, as well as limits of specific feminist approaches.
Taught by: Robb
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 110 Iranian Cinema: Gender, Politics and Religion
This course provides a literary and cultural prehistory to contemporary discourses on transgender identity by focusing on the figure of the hermaphrodite in 19th Russia and the West. Far from a marginal subject, the hermaphrodite and intersex characters played central roles in the novels of Balzac, Tolstoy, Dostoevsky, and many others whose work we will read in this course. Interdisciplinary in nature, this course draws on 19th century discourses in medicine, psychology, opera, religious philosophy, and political theory to understand why characters who exist outside of the male/female gender binary feature so prominently in 19th century literature and cultural texts across a wide range of traditions (Anglophone, French, and Russian, and others).
Activity: Lecture
1 Course Unit

GSWS 111 Before Transgender: Hermaphrodites in 19th Century Literature
This course provides a literary and cultural prehistory to contemporary discourses on transgender identity by focusing on the figure of the hermaphrodite in 19th Russia and the West. Far from a marginal subject, the hermaphrodite and intersex characters played central roles in the novels of Balzac, Tolstoy, Dostoevsky, and many others whose work we will read in this course. Interdisciplinary in nature, this course draws on 19th century discourses in medicine, psychology, opera, religious philosophy, and political theory to understand why characters who exist outside of the male/female gender binary feature so prominently in 19th century literature and cultural texts across a wide range of traditions (Anglophone, French, and Russian, and others).
Activity: Lecture
1 Course Unit

GSWS 112 Discrimination: Sexual and Racial Conflict
This course is concerned with the structure, the causes and correlates, and the government policies to alleviate discrimination by race and gender in the United States. The central focus of the course is on employment differences by race and gender and the extent to which they arise from labor market discrimination versus other causes, although racial discrimination in housing is also considered. After a comprehensive overview of the structures of labor and housing markets and of nondiscriminatory reasons (that is, the cumulative effects of past discrimination and/or experiences) for the existence of group differentials in employment, wages and residential locations, various theories of the sources of current discrimination are reviewed and evaluated. Actual government policies and alternatives policies are evaluated in light of both the empirical evidence on group differences and the alternative theories of discrimination.
For BA Students: Society Sector
Taught by: Madden
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 113 Understanding Discrimination
This course is concerned with the structure, the causes and correlates, and the government policies to alleviate discrimination by race and gender in the United States. The central focus of the course is on employment differences by race and gender and the extent to which they arise from labor market discrimination versus other causes, although racial discrimination in housing is also considered. After a comprehensive overview of the structures of labor and housing markets and of nondiscriminatory reasons (that is, the cumulative effects of past discrimination and/or experiences) for the existence of group differentials in employment, wages and residential locations, various theories of the sources of current discrimination are reviewed and evaluated. Actual government policies and alternatives policies are evaluated in light of both the empirical evidence on group differences and the alternative theories of discrimination.
For BA Students: Society Sector
Taught by: Madden
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 114 Discrimination: Sexual and Racial Conflict
This course is concerned with the structure, the causes and correlates, and the government policies to alleviate discrimination by race and gender in the United States. The central focus of the course is on employment differences by race and gender and the extent to which they arise from labor market discrimination versus other causes, although racial discrimination in housing is also considered. After a comprehensive overview of the structures of labor and housing markets and of nondiscriminatory reasons (that is, the cumulative effects of past discrimination and/or experiences) for the existence of group differentials in employment, wages and residential locations, various theories of the sources of current discrimination are reviewed and evaluated. Actual government policies and alternatives policies are evaluated in light of both the empirical evidence on group differences and the alternative theories of discrimination.
For BA Students: Society Sector
Taught by: Madden
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 115 Before Transgender: Hermaphrodites in 19th Century Literature
This course provides a literary and cultural prehistory to contemporary discourses on transgender identity by focusing on the figure of the hermaphrodite in 19th Russia and the West. Far from a marginal subject, the hermaphrodite and intersex characters played central roles in the novels of Balzac, Tolstoy, Dostoevsky, and many others whose work we will read in this course. Interdisciplinary in nature, this course draws on 19th century discourses in medicine, psychology, opera, religious philosophy, and political theory to understand why characters who exist outside of the male/female gender binary feature so prominently in 19th century literature and cultural texts across a wide range of traditions (Anglophone, French, and Russian, and others).
Activity: Lecture
1 Course Unit

GSWS 116 Discrimination: Sexual and Racial Conflict
This course is concerned with the structure, the causes and correlates, and the government policies to alleviate discrimination by race and gender in the United States. The central focus of the course is on employment differences by race and gender and the extent to which they arise from labor market discrimination versus other causes, although racial discrimination in housing is also considered. After a comprehensive overview of the structures of labor and housing markets and of nondiscriminatory reasons (that is, the cumulative effects of past discrimination and/or experiences) for the existence of group differentials in employment, wages and residential locations, various theories of the sources of current discrimination are reviewed and evaluated. Actual government policies and alternatives policies are evaluated in light of both the empirical evidence on group differences and the alternative theories of discrimination.
For BA Students: Society Sector
Taught by: Madden
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 117 Discrimination: Sexual and Racial Conflict
This course is concerned with the structure, the causes and correlates, and the government policies to alleviate discrimination by race and gender in the United States. The central focus of the course is on employment differences by race and gender and the extent to which they arise from labor market discrimination versus other causes, although racial discrimination in housing is also considered. After a comprehensive overview of the structures of labor and housing markets and of nondiscriminatory reasons (that is, the cumulative effects of past discrimination and/or experiences) for the existence of group differentials in employment, wages and residential locations, various theories of the sources of current discrimination are reviewed and evaluated. Actual government policies and alternatives policies are evaluated in light of both the empirical evidence on group differences and the alternative theories of discrimination.
For BA Students: Society Sector
Taught by: Madden
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 118 Iranian Cinema: Gender, Politics and Religion
This course explores Iranian culture, society, history and politics through the medium of film. We will examine a variety of cinematic works that represent the social, political, economic and cultural circumstances of contemporary Iran, as well as the diaspora. Along the way, we will discuss issues pertaining to gender, religion, nationalism, ethnicity, and the role of cinema in Iranian society and beyond. Discussions topics will also include the place of the Iranian diaspora in cinema, as well as the transnational production, distribution, and consumption of Iranian cinema. Films will include those by internationally acclaimed filmmakers, such as Rakhshan Bani-Etemad, Asghar Farhadi, Bahman Ghobadi, Abbas Kiarostami, Mohsen Makhmalbaf, Dariush Mehrjui, Tahmineh Milani, Jafar Panahi, Marjane Satrapi and others. All films will be subtitled in English.
No prior knowledge is required.
Taught by: Entezari
Course not offered every year
Activity: Seminar
1 Course Unit
GSWS 122 The Sociology of Gender
Gender is an organizing principle of society, shaping social structures, cultural understandings, processes of interaction, and identities in ways that have profound consequences. It affects every aspect of people's lives, from their intimate relationships to their participation in work, family, government, and other social institutions and their place in the stratification system. Yet gender is such a taken for granted basis for differences among people that it can be hard to see the underlying social structures and cultural forces that reinforce or weaken the social boundaries that define gender. Differences in behavior, power, and experience are often seen as the result of biological imperatives or of individual choice. A sociological view of gender, in contrast, emphasizes how gender is socially constructed and how structural constraints limit choice. This course examines how differences based on gender are created and sustained, with particular attention to how other important bases of personal identity and social inequality—race and class—interact with patterns of gender relations. We will also seek to understand how social change happens and how gender inequality might be reduced.
For BA Students: Society Sector
Taught by: Leidner
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 125 The Adultery Novel
The object of this course is to analyze narratives of adultery from Shakespeare to the present and to develop a vocabulary for thinking critically about the literary conventions and social values that inform them. Many of the themes (of desire, transgression, suspicion, discovery) at the heart of these stories also lie at the core of many modern narratives. Is there anything special, we will ask, about the case of adultery—once called "a crime which contains within itself all others"? What might these stories teach us about the way we read in general? By supplementing classic literary accounts by Shakespeare, Pushkin, Flaubert, Chekhov, and Proust with films and with critical analyses, we will analyze the possibilities and limitations of the different genres and forms under discussion, including novels, films, short stories, and theatre.
What can these forms show us (or not show us) about desire, gender, family and social obligation? Through supplementary readings and class discussions, we will apply a range of critical approaches to place these narratives of adultery in a social and literary context, including formal analyses of narrative and style, feminist criticism, Marxist and sociological analyses of the family, and psychoanalytic understandings of desire and family.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: All readings and lectures in English.

GSWS 128 The Diary
Diary writing is an intimate mode of expression in which individuals seek to find meaning in their personal lives and relations, responding to the external realities in which they live. Their coping is subjected to their historical, educational and social contexts, and to the generic conventions of diary writing. This course examines the diary as a genre, exploring its functions, meanings, forms and conventions, comparing it with fictive and non-fictive autobiographical writings such as the diary novel, autobiography and the memoir, as well as comparative gender diary-writing.
Taught by: Ben-Amos
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GSWS 135 Creative Non-Fiction Writing
A workshop course in the writing of expository prose. Assignments include informal as well as formal essays, covering such topics as autobiography, family history, review, interview, analysis of advertising and popular culture, travel, work, and satire. ENGL-135 is the primary course for this course, and will be cross-listed with GSWS when the course content includes gender, sexuality and women's studies. See the English Department's website at www.english.upenn.edu for a description of the current offerings
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit with a different instructor.

GSWS 145 Advanced Non-Fiction Writing
Writing with a view to publication in the freelance sections of newspapers such as THE PHILADELPHIA INQUIRER and THE NEW YORK TIMES, in magazines such as THE ATLANTIC and THE NEW YORKER, and in the literary quarters and the journals of opinion. Among the areas likely to be considered are writing as a public act, issues of taste and of privacy, questions of ethics and of policy, methods of research and of checking, excerpting, marketing, and the realistic understanding of assignments and of the publishing world. Student papers will be the basis of weekly editorial sessions, with concentration on the language: how to render material literate, how to recognize and dispose of padding and self-indulgence, how to tighten structure and amplify substance. See the English Department's website at www.english.upenn.edu for a description of the current offerings
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen. Students wishing to take this course must submit a writing sample a part of the selection process. May be repeated for credit with a different instructor.

GSWS 149 Law and Social Policy on Sexuality and Reproduction
This course will examine how statutory law, court decisions and other forms of social policy encourage or discourage various forms of sexuality, reproduction and parenting. Such issues as contraception, abortion, gay and lesbian rights, reproductive technology, family violence, and welfare and family policies will be covered.
Taught by: Tracy
One-term course offered either term
Activity: Seminar
1 Course Unit
GSWS 152 Love and Loss in Japanese Literary Traditions: In Translation
How do people make sense of the multiple experiences that the simple words "love" and "loss" imply? How do they express their thoughts and feelings to one another? In this course, we will explore some means Japanese culture has found to grapple with these events and sensations. We will also see how these culturally sanctioned frameworks have shaped the ways Japanese view love and loss. Our materials will sample the literary tradition of Japan from earliest times to the early modern and even modern periods. Close readings of a diverse group of texts, including poetry, narrative, theater, and the related arts of calligraphy, painting, and music will structure our inquiry. The class will take an expedition to nearby Woodlands Cemetery to experience poetry in nature. By the end of the course, you should be able to appreciate texts that differ slightly in their value systems, linguistic expressions, and aesthetic sensibilities from those that you may already know. Among the available project work that you may select, if you have basic Japanese, is learning to read a literary manga. All shared class material is in English translation.
For BA Students: Arts and Letters Sector
Taught by: Chance
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GSWS 160 Sex and Socialism
This seminar examines classic and current scholarship and literature on gender and sexuality in contemporary Eastern Europe, and examines the dialogue and interchange of ideas between East and West. Although the scholarly and creative works will primarily investigate the changing status of women during the last three decades, the course will also look at changing constructions of masculinity and LGBT movements and communities in the former communist bloc. Topics will include: the woman question before 1989; gender and emerging nationalisms; visual representations in television and film; social movements; work; romance and intimacy; spirituality; and investigations into the constructed concepts of freedom and human rights.
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 162 Women in Jewish Literature
This course introduces students of literature, women's studies, and Jewish studies to the long tradition of women as readers, writers, and subjects in Jewish literature. All texts will be in translation from Yiddish and Hebrew, or in English. Through a variety of genres—devotional literature, memoir, fiction, and poetry—we will study women's roles and selves, the relation of women and men, and the interaction between Jewish texts and women's lives. The legacy of women in Yiddish devotional literature will serve as background for our reading of modern Jewish fiction & poetry from the past century. The course is divided into five segments. The first presents a case study of the Matriarchs Rachel and Leah, as they are portrayed in the Hebrew Bible, in rabbinic commentary, in pre-modern prayers, and in modern poems. We then examine a modern novel that recasts the story of Dinah, Leah's daughter. Next we turn to the seventeenth century Glikl of Hamel, the first Jewish woman memoirist. The third segment focuses on devotional literature for and by women. In the fourth segment, we read modern women poets in Yiddish, Hebrew, and English. The course concludes with a fifth segment on fiction and a memoir written by women in Yiddish, Hebrew, and English.
For BA Students: Arts and Letters Sector
Taught by: Hellerstein
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 199 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

GSWS 205 Identity
The content of the course may include the following, and related, themes: what makes a human the same human over time? What constitutes our identities? Are gender, race, sexual orientation, and the like essential features of our identities, and if so, how do they become so? How do ethics, politics and identity interact? After learning this philosophical content, Penn students will develop lesson plans for introducing this content to Philadelphia public high school students. Mid way through the semester, Penn students will start to prepare the high school students to present their own original work on the philosophy of identity at a conference to be held at Penn in May 2017. Penn students will be assessed on their own written and other work for the course, and in no way on the written or oral work of the high school students. Enrollment by permit only. Please contact Professor Detlefsen detlefsen@sas.upenn.edu to schedule an interview for admission to the course.
Taught by: Detlefsen
Activity: Seminar
1 Course Unit
GSWS 216 Gender and Health
Women's health is a constant refrain of modern life, prompting impassioned debates that speak to the fundamental nature of our society. Women's bodies are the tableaux across which politicians, physicians, healthcare professional, activists, and women themselves dispute issues as wide-ranging as individual versus collective rights, the legitimacy of scientific and medical knowledge, the role of the government in healthcare, inequalities of care, and the value of experiential knowledge, among many others. Understanding the history of these questions is crucial for informed engagement with contemporary issues.
Taught by: Linker
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 217 CU In India - Topics Course
C.U. in India is a hybrid, domestic/overseas course series which provides students with the opportunity to have an applied learning and cultural experience in India. The 2-CU course requires: 1) 15 classroom hours at Penn in the Fall term 2) A 12-Day trip to India with the instructor during the winter break to visit key sites and conduct original research (sites vary) 3) 15 classroom hours at Penn in the Spring term and 4) A research paper, due at the end of the spring term. Course enrollment is restricted to students admitted to the program. For more information, and the program application, go to http://sites.sas.upenn.edu/cuinindia
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

GSWS 222 African Women's Lives: Past and Present
Restoring women to African history is a worthy goal, but easier said than done. The course examines scholarship over the past forty years that brings to light previously overlooked contributions African women have made to political struggle, religious change, culture preservation, and economic development from pre-colonial times to present. The course addresses basic questions about changing women's roles and human rights controversies associated with African women within the wider cultural and historical contexts in which their lives are lived. It also raises fundamental questions about sources, methodology, and representation, including the value of African women's oral and written narrative and cinema production as avenues to insider perspectives on African women's lives.
Taught by: Blakely
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GSWS 224 Family Feuds: Beyonce, Jay-Z and Solange and the Meaning of American Music
Taking Beyonce's "Lemonade," Solange's "A Seat At The Table," and Jay-z's "4:44" as a point of departure, this class will focus on the role of popular music as "politics" within contemporary American culture. While these albums are clearly neither the first nor the only musical expressions to delve into the matters of black lives, feminism, and sexuality today, they do mark a very significant political and personal evolution for these individual artists and their audiences as they relate to the defining issues of our time. By looking at how each artist engages their influences (Nina Simone is staple for all three) and discussing how these albums challenge musical forms and incorporate different visual mediums, this course will reflect on the conversations these artists are having with each other and examine their cultural impact in order to understand the limits and possibilities of black musical expressions as sites of social change.
Taught by: Tillet
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 227 Sex and Power
Gender has been a primary way of organizing power relations throughout history. This class asks how transformations in the global economy, technological change, new patterns of household formation, and social movements, have influenced women's access to economic and political positions over the past two centuries. We will examine how women's mobilization contributed to the abolition of slavery, reform of property and franchise laws, and to the formation of the welfare state. Next, we turn to thinking about how women's increasing labor force participation was hindered by institutions like marriage bars and union policy. Third, we look at cross-national patterns of women's political participation and descriptive representation including whether and how the adoption of electoral quotas influences gender equality more generally. Finally we study how institutional norms and gender stereotypes affect political representation. This class will draw on examples from around the world, and will look a experiences of women from all economic, social, and ascriptive backgrounds.
Taught by: Teele
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 228 Topics In Classicism and Literature
The primary for this course is the English Department. When the course content includes gender, sexuality and women's studies it will be cross-listed with GSWS. See additional information and description on the English Department's website: https://www/english.upenn.edu
Course not offered every year
Activity: Seminar
1 Course Unit
GSWS 229 This course explores the origins and the politics of reform movements in the United States between 1800 and the Civil War.
This course explores the origins and the politics of reform movements in the United States between 1800 and the Civil War. We will consider the politics of antislavery and abolitionism, temperance, women's rights, education, Indian removal, and poor relief. The course will explore how broader social, economic, political and religious transformations affected the ways in which ordinary Americans as well as elected politicians and professional reformers understood the need for and the methods of reform. We will consider how urbanization, industrialization, electoral democratization, the market revolution, religious revivalism, and the growing sophistication of print culture revolutionized the way Americans understood the problems of good and evil and their own various roles in effecting societal change.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

GSWS 232 World History: Africa or the Middle East
Topics vary.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

GSWS 233 World History: East Asia or Latin America
This is a topics course. See History Department's website: http://www.history.upenn.edu/courses/undergraduate for a complete description of this course for the term.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

GSWS 234 Gender and Religion in China
This course examines gender in Chinese religious culture from ancient to contemporary times. We will explore topics including the Buddhist accommodation of Chinese family system, Chinese transformation of the bodhisattva Guanyin, female deities in Daoist and popular religious pantheons, writings about religious women, female ghosts and fox spirits in literary imagination and folk tales, and the significance of yin force in Chinese medicine and Daoist alchemy. Through the case of China, we will look at how gender plays critical and constitutive roles in religious traditions, and how religion can be used both to reinforce and to challenge gender norms.
Taught by: Cheng, H
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 235 Psychology of Women
Critical analyses of the psychological theories of female development, and introduction to feminist scholarship on gender development and sexuality.
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 236 Gender, Violence, and WWII: Europe, 1933-1950
This seminar explores World War II-era Europe through the lens of evolving gender norms and relations. This turbulent period in European history magnified the so-called "gender troubles" that emerged in the wake of the First World War. From the question of equality between the sexes to the liberalization of sexual mores and divergence from the proscribed roles of men and women, gender had a profound impact on the prewar, wartime, and immediate postwar European landscape. Drawing on primary and secondary sources, we will consider the following questions: How did gender and violence shape the course of World War II and the immediate postwar from Britain to the Soviet Union? How can gender and sexuality help us to understand militarization, violence, and war? How did war and occupation impact relations between and among men and women on the home- and war fronts? We will complicate these questions by probing topics such as women's support for war, masculinity in combat, everyday racial discrimination, eugenics, sexual violence and genocide and the ways in which they infiltrated the every aspect of Europeans' public and private lives. Finally, we will discuss scholarly debates and historiographies on gender during World War II that have emerged since the early 1970s.
Activity: Seminar
1 Course Unit

GSWS 243 The Fantastic and Uncanny in Literature: Ghosts, Spirits & Machines
Do we still believe in spirits and ghosts? Do they have any place in an age of science of technology? Can they perhaps help us to define what a human being is and what it can do? We will venture on a journey through literary texts from the late eighteenth century to the present to explore the uncanny and fantastic in literature and Our discussions will be based on a reading of Sigmund Freud's essay on the uncanny, and extraordinary Romantic narratives by Ludwig Tieck, E.T.A. Hoffmann, Edgar Allan Poe, Nathaniel Hawthorne, Prosper Merimee, Villiers de Isle-Adam, and others. For BA Students: Arts and Letters Sector
Taught by: Weissberg
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English

GSWS 245 Topics In The 18th-Century Novel
The primary for this course is the English Department. When the course content includes gender, sexuality and women's studies it will be cross-listed with GSWS. See additional information and description on the English Department's website: https://www/english.upenn.edu See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Major
GSWS 249 Philosophy of Education
The philosophy of education asks questions about the foundational assumptions of our formal institutions for the reproduction of culture. It ranges therefore, from epistemology and philosophy of mind to ethics and political philosophy. For instance: What is the nature of learning and teaching? How is it possible to come to know something we did not know already--and how can we aid others in doing that? How, if at all, should formal institutions of education be concerned with shaping students’ moral and civic character? What is the proper relation between educational institutions and the state? We also ask questions more specific to our own time and context. For example: how, in a multicultural state, should we educate students of varied social identities, like race, gender, and religion? What is the relationship between education and justice.
Taught by: Detlefsen
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 252 Freud: The Invention of Psychoanalysis
No other person of the twentieth century has probably influenced scientific thought, humanistic scholarship, medical therapy, and popular culture as much as Sigmund Freud. This course will study his work, its cultural background, and its impact on us today. In the first part of the course, we will learn about Freud’s life and the Viennese culture of his time. We will then move to a discussion of seminal texts, such as excerpts from his Interpretation of Dreams, case studies, as well as essays on psychoanalytic practice, human development, definitions of gender and sex, neuroses, and culture in general. In the final part of the course, we will discuss the impact of Freud’s work. Guest lecturers from the medical field, history of science, psychology, and the humanities will offer insights into the reception of Freud’s work, and its consequences for various fields of study and therapy.
For BA Students: Humanities and Social Science S
Taught by: Weissberg
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

GSWS 255 Thinking about Capitalism
Throughout the world today, economists are influential policymakers and pub intellectuals, and non-economists understand many aspects of their lives in economic terms. But as recently as 1945 in some regions of the world and a distantly as 1776 in others, the concept of the economy, the field of economics, and economists as a professional community did not exist. This class explores non-economic ways of understanding material life that have preceded, challenged, or undergirded economic thinking; the emergence of th economy and economics as naturalized, globally recognized concepts; the formation of economists as an authoritative professional group; and the rise of economic reasoning in daily life. The class takes a global approach, exploring these developments in societies from eighteenth-century Britain t twenty-first-century Egypt in order to understand the local variations, international relationships, and transnational processes at work. It simultaneously takes a social approach to intellectual history, considering how popular and professional ideas developed in relation to one another, an hhow knowledgeable related to lived experience.
Taught by: Offner
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 257 Contemporary Fiction & Film in Japan
This course will explore fiction and film in contemporary Japan, from 1945 to the present. Topics will include literary and cinematic representation of Japan’s war experience and post-war reconstruction, negotiation with Japanese classics, confrontation with the state, and changing ideas of gender and sexuality. We will explore these and other questions by analyzing texts of various genres, including film and film scripts, novels, short stories, mangazines, and academic essays. Class sessions will combine lectures, discussion, audio-visual materials, and creative as well as analytical writing exercises. The course is taught in English, although Japanese materials will be made available upon request. No prior coursework in Japanese literature, culture, or film is required or expected; additional secondary materials will be available for students taking the course at the 600 level. Writers and film directors examined may include: Kawabata Yasunari, Hayashi Fumiko, Abe Kobo, Mishima Yukio, Oe Kenzaburo, Yoshimoto Banana, Ozu Yasujirō, Naruse Mikio, Kurosawa Akira, Imamura Shohei, Koreeda Hirokazu, and Beat Takeshi.
Taught by: Kano
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Fulfills Cross-Cultural Analysis

GSWS 267 Topics In Poetry and Poetics
This course explores an aspect of poetry and poetics intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

GSWS 269 Topics In Modernism
This course explores an aspect of literary modernism intensively; specific course topics will vary from year to year. Past offerings have included seminars on the avant-garde, on the politics of modernism, and on its role in shaping poetry, music, and the visual arts. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

GSWS 270 Folklore and Sexuality
Sexuality is not only a biological act or fact, it also has a creative and aesthetic element. This course examines the folklore elements of sexuality and includes historical readings such as the Bible and the Decameron as well as a contemporary look at topics such as body art and clothing choice. A field-based paper will be required and a final examination will be given on class discussions and readings.
Taught by: Azzolina
Course not offered every year
Activity: Lecture
1 Course Unit
GSWS 279 Women in Theatre and Performance
Theatre began as a form that excluded women entirely. The plays of ancient Greece and Elizabethan England were written and performed only by men, beginning a long tradition of theatre that represented women only from male perspectives. Has that tradition been so dominant for so long that women’s voices on stage are still a novelty? This course focuses on a wide range of plays and performances by and about women; the work we read (and view) will evidence artistic attempts to represent women’s lives, experiences and perspectives on the stage. Among the issues encountered and examined in these works are the roles of love, sexuality, friendship, career, community, marriage, motherhood, family, and feminism in women’s lives - as well as the economic and political position(s) of women in society. The course will also offer contextual background on feminist theatre history, theory, and literature, the diverse (and divergent) creative efforts of female artists to use live performance as a means of creating social and political change.
Taught by: Malague
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 280 Feminist Political Thought
This course is designed to provide an overview of the variety of ideas, approaches, and subfields within feminist political thought. Readings and divided into three sections: contemporary theorizing about the meaning of “feminism”; women in the history of Western political thought; and feminist theoretical approaches to practical political problems and issues, such as abortion and sexual assault.
For BA Students: Society Sector
Taught by: Hirschmann
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 285 Kelly Writers House Seminar
This is a topics course for Spring 2015. The description is: Anne Waldman has been an active member of the “Outrider” experimental poetry community for over four decades as a writer, editor, teacher, performer, and cultural/political activist. She is the author of more than forty books, including Fast Speaking Woman, Vow to Poetry, and The Iovis Trilogy. Colors in the Mechanism of Concealment. Dorothy Allisons’ works of fiction and memoir delve into issues of gender, sexuality, autobiography, trauma, and the South and include the short story collection Trash and the novels Bastard Out of Carolina and Cavedweller. Jessiva Hagedorn’s novels include Toxicology, Dream Jungle, The Gangster of Love, and Dogeaters, set in the turbulent period of the Philippines’ late dictator and exploring intersections between American pop culture and local Filipino tradition; her writing for the theater includes Fe in the Desert, Stairway to Heaven, and the stage adaptation of Dogeaters.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 286 Topics American Lit: Emily Dickinson At Large
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 289 Topics In Literary Theory
The primary for this course is the English Department. When the course content includes gender, sexuality and women’s studies it will be cross-listed with GSWS. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshman.

GSWS 290 Topics In Gender, Sexuality, and Literature
The primary for this course is the English Department. When the course content includes gender, sexuality and women’s studies it will be cross-listed with GSWS. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshman.

GSWS 294 Art Now
One of the most striking features of today’s art world is the conspicuous place occupied in it by the photographic image. Large-scale color photographs and time-based installations in projections are everywhere. Looking back, we can see that much of the art making of the past 60 years has also been defined by this medium, regardless of the form it takes. Photographic images have inspired countless paintings, appeared in combines and installations, morphed into sculptures, drawings and performances, and served both as the object and the vehicle of institutional critique. They are also an increasingly important exhibition site: where most of us go to see earthworks, happenings and body-art. This course is a three-part exploration of our photographic present.
Taught by: Silverman
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GSWS 295 Cinema and Media
This course will provide an introduction to some of the most important film theory debates, and allow us to explore how writers and filmmakers from different countries and historical periods have attempted to make sense of the changing phenomenon known as “cinema,” to think cinematically. Topics under consideration may include: spectatorship, authorship, the apparatus, sound, editing, realism, race, gender and sexuality, stardom, the culture industry, the nation and decolonization, what counts as film theory and what counts as cinema, and the challenge of working across languages. There will be a weekly film screening for this course. No knowledge of film theory is presumed.
Course requirements: attendance at lecture and participation in lecture and section discussions; canvas postings; 1 in-class mid-term; 1 final project.
Taught by: Redrobe
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 296 Topics In Literary Theory
This course explores an aspect of literary theory intensively; specific course topics vary from year to year. It is an English course that is cross-listed with GSWS when the topic includes gender, sexuality and women’s studies. Please check out the English Department’s website for the current semester’s description.
Course not offered every year
Activity: Seminar
1 Course Unit
GSWS 297 Topics In Theories of Gender and Sexuality
The primary for this course is the English Department. When the course content includes gender, sexuality and women's studies it will be cross-listed with GSWS. See additional information and description on the English Department's website: https://www.english.upenn.edu
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 299 Women in Modern S.Asia
Activity: Lecture
1 Course Unit

GSWS 300 French Identity in the Twentieth Century
Topics vary. Please see the French Department's website for a description of the current offerings: https://www.sas.upenn.edu/french/pc
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 302 Queer Cinema
Queerness has often been understood as a threat to society whether social institutions like marriage or monogamy or familial practices have been characterized by increasing acceptance of gays and lesbians into mainstream society, this process has no doubt reproduced new inequalities and asymmetries - in terms of race, class and access to institutional spaces. Does "queer" still pose a threat to the mainstream or is it now part of the "normal"? Should one welcome the progressive acceptance of queer lives within the mainstream or should one reject it in the name of an indissoluble difference? In this course we will range across movies and theories that engage with these questions, particularly focusing on negative reactions to processes of assimilation. Topics will include sex and death, queerness and neoliberalism, intersections of race and sexuality. Some of the films we will watch and discuss are Paolini's Pigsty, Fassbiner's In a Year of 13 Moons, Jennie Livingstone's Paris is Burning, Cheryl Dunye's Watermelon Woman, Kimberly Peirce's Boys Don't Cry.
Activity: Seminar
1 Course Unit

GSWS 307 Love, Lust and Violence in the Middle Ages
Medieval Europe was undoubtedly gruff and violent but it also gave birth to courtly culture - raw worries transformed into knights who performed heroic deeds, troubadours wrote epics in their honor and love songs about their ladies, women of the elite carved out a place in public discourse as patrons of the arts, and princely courts were increasingly defined by pageantry from jousting tournaments to royal coronations. This course will trace the development of this courtly culture from the eleventh to the sixteenth century, from its roots in Southern France to its spread to Northern France and then to various kingdoms in Europe. Central themes will include the transformation of the warrior into the knight, the relationship between violence and courtliness, courtly love, cultural production and the patronage of art, and the development of court pageantry and ceremonial. This is a class in cultural history and, as such, will rely on the interpretation of objects of art and material culture, literature as well as historical accounts.
Taught by: Kuskowski
Activity: Lecture
1 Course Unit

GSWS 313 Topics in East Asian Art
Topic varies.
Taught by: Davis
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 318 Race, Gender, Class and the History of American Health Care
This multidisciplinary course surveys the history of American health care through the multiple perspectives of race, gender, and class, and grounds the discussions in contemporary health issues. It emphasizes the links between the past and present, using not only primary documents but materials from disciplines such as literature, art, sociology, and feminist studies that relate both closely and tangentially to the health professions and health care issues. Discussions will surround gender, class-based, ethnic, and racial ideas about the construction of disease, health and illness; the development of health care institutions; the interplay between religion and science; the experiences of patients and providers; and the response to disasters and epidemics.
Taught by: Fairman
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 324 Children's Health in the United States, 1800-2000
This course explores the impact of historical ideas, events, and actors pertaining to the history of children's health care in the United States. Emphasis is placed on tracing the origins and evolution of issues that have salience for twenty-first century children's health care policy and the delivery of care.
Taught by: Connolly
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 325 Global Feminism
Course usually offered in fall term
Activity: Seminar
1 Course Unit

GSWS 326 Advanced Topics in Global Gender and Sexuality Studies
This is an advanced topics course, and the course description will vary from semester to semester.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

GSWS 327 Children's Health in the United States, 1800-2000
This course explores the impact of historical ideas, events, and actors pertaining to the history of children's health care in the United States. Emphasis is placed on tracing the origins and evolution of issues that have salience for twenty-first century children's health care policy and the delivery of care.
Taught by: Connolly
One-term course offered either term
Activity: Seminar
1 Course Unit

Notes: For Benjamin Franklin Scholars Nursing Honors Students

GSWS 328 Children's Health in the United States, 1800-2000
This course explores the impact of historical ideas, events, and actors pertaining to the history of children's health care in the United States. Emphasis is placed on tracing the origins and evolution of issues that have salience for twenty-first century children's health care policy and the delivery of care.
Taught by: Connolly
One-term course offered either term
Activity: Seminar
1 Course Unit

Notes: For Benjamin Franklin Scholars Nursing Honors Students

GSWS 330 Medieval Literature
An introductory course to the literature of the French Middle Ages. French literature began in the 11th and 12th centuries. This course examines the extraordinary period during which the French literary tradition was first established by looking at a number of key generative themes: Identity, Heroism, Love, Gender. All readings and discussions in French.
Course not offered every year
Activity: Seminar
1 Course Unit
GSWS 335 Topics In The 18th Century Novel
This course explores an aspect of 18th-Century novel intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 336 "Where My Girls At?:African American Women Performers in The 20th Century
African American women performers from blues woman Bessie Smith to Paris revue star Josephine Baker, from jazz darling Billie Holiday to rock legend Tina Turner, and from hip hop giant Lauryn Hill to millennial star Beyonce, have constantly redefined and expanded American popular music. Using the long 20th century as our historical marker, this course will explore how African American women performers, across genres and time, have consciously and sometimes contradictorily navigated the racial and sexual limits of American popular culture in order to assert their own particular narratives of artistic and political freedom.
Taught by: Tillet
Course usually offered in spring term
Activity: Seminar
1 Course Unit

GSWS 343 Boys will be Boys: Masculinity in French Literature
Why was a portrait depicting the Renaissance king Francois I as half-man, half-woman made with royal approval, and moreover intended to represent the king as the perfect embodiment of the ideal qualities of a male sovereign? And why, in what is now regarded as the official portrait of Louis XIV, does the king prominently display his silk stockings and high heels with diamond-encrusted buckles? These are just two examples of the questions that lead us to the point of departure for this course: the idea that masculinity is not a fixed essence that has existed since time immemorial, but rather a flexible concept that changes across and even within historical periods. We will examine how masculinity has evolved from the Middle Ages and the chivalric ideal to the present day, how it has been defined, and its implications for gender relations, politics, and religion in different eras. In addition to literary works, we will study visual arts, music, and film. Discussions will be in English, and assignments will be available in translation, but students who wish to receive credit in French will be able to do coursework in French.
Activity: Seminar
1 Course Unit

GSWS 344 Psychology of Personal Growth
Intellectual, emotional and behavioral development in the college years. Illustrative topics: developing intellectual and social competence; developing personal and career goals; managing interpersonal relationships; values and behavior. Recommended for submatriculants in Psychological Services Master’s Degree program.
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 345 Sinners, Sex and Slaves: Race and Sex in Early America
This course explores the lost worlds of sinners, witches, sexual offenders, rebellious slaves, and Native American prophets from the seventeenth to nineteenth centuries. Using the life stories of unusual individuals from the past, we try to make sense of their contentious relationships with their societies. By following the careers of the trouble-makers, the criminals, and the rebels, we also learn about the foundations of social order and the impulse to reform that rocked American society during the nineteenth century.
Taught by: Brown
Course usually offered in fall term
Activity: Recitation
1 Course Unit

GSWS 346 Women in American History, 1865 to the Present
Picking up where History 345 leaves off, this course explores how immigration industrialization, racial segregation, and the growing authority of science transformed the fundamental conditions of women’s lives in the late nineteenth and early twentieth centuries. Building on previous efforts by female reformers to perfect society, women at the turn of the century organized large social movements dedicated to improving the lives of women and children and gaining public access to political power. We will examine the fruits of this activism as well as the consequences of subsequent events for the rise of several important social movements in the latter half of the century – including civil rights, women’s liberation, and gay rights – in which women played a vital role. The course concludes with an assessment of feminism in the present day, with special emphasis on the responses of younger women to its legacy.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GSWS 349 History of Sexuality in the U.S.
This course introduces students to a relatively new field of inquiry, the history of sexuality in the U.S. It explores the past to consider why sexuality has been so central to American identities, culture, and politics. Primary documents and other readings focus on the history of sexual ideology and regulation; popular culture and changing sexual practices; the emergence of distinct sexual identity and communities; the politics of sexuality; and the relationship between sexual and other forms of social difference, such as gender, race, ethnicity, age, and class. Topics include many themes with continuing relevance to contemporary public debate: among them, sexual representation and censorship, sexual violence, adolescent sexuality, the politics of reproduction, gay and lesbian sexualities and sexually transmitted diseases.
Taught by: Peiss
One-term course offered either term
Activity: Lecture
1 Course Unit

GSWS 353 Topics In 19th-Century American Literature
This course explores an aspect of 19th-Century American literature intensively; specific course topics will vary from year to year. See the English Department’s website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
GSWS 369 Topics In Poetry and Poetics
This course explores an aspect of poetry and poetics intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 387 Topics in Africana Studies
Topics vary: Black Feminist Approaches to History & Memory - The term black feminism emerged in public discourse amid the social, political, and cultural turbulence of the 1960s. The roots of black feminism, however, are much older, easily reaching back to the work of black women abolitionists and social critics of the nineteenth century. The concept continued to grow and evolve in the work of twentieth century black women writers, journalists, activists, and educators as they sought to document black women's lives. Collectively, their work established black feminism as a political practice dedicated to the equality of all people. More recently, black feminism has been deployed as a tool for theoretical and scholarly analysis that is characterized by an understanding that race, class, gender, and sexuality are inextricably interconnected.
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 390 Topics in Gender, Sexuality and Literature
The advanced women's studies course in the English department, focusing on a particular aspect of literature by and about women. Topics might include: "Victorian Literary Women"; "Women, Politics, and Literature"; "Feminist Literary Theory"; and similar foci. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

GSWS 391 Introduction to Spanish American Literature
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 394 Topics in Contemporary Art
Topic varies. Spring 2017: This course will examine key moments in the history of civil rights through a cinematic lens. Over the course of the semester, we will explore how filmmakers have depicted the lives, aspirations, and strategies of those who have struggled for equal rights; how different struggles have intersected with each other; what aesthetic strategies have been adopted to represent freedom and the denial of it; and how effective cinematic efforts to contribute to increased freedom have been as well as what criteria we use to evaluate success or failure in the first place. Each week, we will watch a film and read a series of texts that will be drawn from a variety of arenas, including histories of civil rights; civil rights pamphlets and speeches; filmmaker interviews; film and media theory; memoirs; and theories of race, gender and sexuality. Course requirements: mutual respect; completion of all readings and screenings; participation in class discussion; weekly online responses; a final project that can be a research paper, film, art project, or community-based initiative.
Taught by: Redrobe
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 396 Studies in Spanish American Culture
Topics vary.
One-term course offered either term
Prerequisite: Spanish 219
Activity: Seminar
1 Course Unit

GSWS 397 History of Spanish American Culture
Topics vary. Please see the Spanish Department's website descriptions for a description of the current offerings. http://ccat.sas.upenn.edu/roml/spanish/undergraduate/courses.html
Course not offered every year
Prerequisite: Spanish 219
Activity: Seminar
1 Course Unit

GSWS 420 Witchcraft and Gender in the Early Modern World
From the 15th century through the 18th century, social tensions erupted in Europe and the colonies in the witch craze, a period when intense cultural concern over witchcraft was expressed through religious treaties and sermons, popular literature like pamphlets and broadsides, legal accusations, trials, and, in some cases, executions. Although scholars argue vehemently about the total number of people executed during the witch-hunts, their importance in understanding early modern beliefs and responses to social tensions is clear. In this class, we will explore historians' understandings of the causes underlying this cultural phenomenon. With special attention to gender, social position, and religious belief, we will join academic debates about the causes of these persecutions. We will also read some primary sources from the medieval through the early modern periods, including trial transcripts, sermons, and pamphlets. Were women the main target of witchcraft accusations and executions, and if so, was misogyny their most important cause? What role did sexual norms and beliefs have in the way that accusations were framed? Were there different patterns of accusation and executions across time and region, and if so, what social and cultural factors might explain them?
Taught by: Rabberman
Course not offered every year
Activity: Online Course
1 Course Unit
Notes: Master in Liberal Arts course
GSWS 422 History of Sexuality
In this course, rather than simply debating changes in sexual practices over time, we will discuss the ways in which different societies in the past and present constructed sexual norms and understood normality and deviance in sexual terms. We will focus special attention on the following questions: To what extent are sexual identities constructed by different cultures, rather than simply being determined biologically? What influence do social, economic, and political conditions have on social constructions of sexuality? How have different societies used sexual norms to mark "natural" practices from "deviant" ones, and how are these norms connected to societies' power structures? We will explore case studies from Classical Greece through the contemporary United States. Our readings will explore topics such as medieval and modern views of the body, gender, sexuality, and science; prostitutes in medieval and Victorian England; same-sex relationships from classical Greece to medieval Europe to the contemporary United States; expectations for sexuality within and outside marriage; hermaphrodites; and sexual deviants, among others. Students will be expected to participate actively in class discussions, and to complete short response papers and a longer research paper.
Taught by: Rabberman
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Master in Liberal Arts course

GSWS 423 Gendered Constructions of Other Cultures in Western Travel Literature
Descriptions of peoples from foreign lands and faraway places have captured the imaginations of Europeans for centuries. Pilgrims and merchants, explorers and conquistadores, Victorians taking their Grand Tour and 21st century travelers have preserved their observations, both in written form, in ethnographies and diaries, novels and travel narratives, and in visual form, in maps, illuminated manuscripts, engravings, and photographs. Through these media, these travelers have not simply captured their memories, but have also helped to shape Western representations of the people they encountered. In the process, these travelers often have justified Western political, economic, cultural, and social dominance, although instead some travelers have critiqued the West. And in all these depictions, gender and sexuality have played central roles in the creation of these identities and relationship.
Taught by: Rabberman
Activity: Online Course
1 Course Unit

GSWS 434 The Politics of Ugly
Venus was the God of Beauty and Love yet she was married to Hephaestus, the mangled, grumpy and for all intents and purposes, ugly god. Why juxtapose such distinct figures? Are they doing the same job? The course discusses the interplay between ugliness and politics with focus on a number of central concepts such as race, social conflict, nationalism, ideology, dictatorship, propaganda and autonomy. Emphasis is put on the double role of the deployment of ugliness, as reinforcement of ideological and political ideas and as a force of social criticism. How does the state justify its own existence by the use of aesthetic narratives? How does the State identify undesirables? This class highlights how groups who feel somatically alike behave, and how their boundaries form and change over time. The focus will be interdisciplinary and multi-national, with case studies from past and present. The class will have a digital media focus as we will delve into issues of representation particularly with respect to race. For example, we will delve into the aesthetic discussion of northern and southern Sudanese as well and Hitler's Germany.
Taught by: Carelock
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 435 Writers Advisors Section
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 436 Africana Studies Undergraduate Seminar
On the stage of modern world history, Haiti plays the unique role as both exceptionally victorious and tragic character. This course interrogates archival documents, oral histories, historical texts, and prose created within the nation and her diaspora in order to establish a nuanced image of the projection of Haiti's modern history. Using two classic Haitian texts, Ma Vieux-Chauvet’s Love, Anger, Madness (1968) and Michel-Rolph Trouillot’s Silencing the Past: Power and the Production of History (1995), this course examines how, why, and to what end Haiti’s history and popular narratives of a the country have served to construct and dismantle global movements, popul culture, and meanings of race, gender, and citizenship in the Americas. I our historical examination, we will question some of the iconic representations of Haiti through literature that deepen the affective historical profile of Haiti with interrogations of culture, sexuality, political, and media performance. Students will become familiar with the -colonial history of Haiti and the region, meanings of race, and the production of history. The course is a research and historical methods seminar.
Taught by: Johnson
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 447 Human Reproductive Ecology
This course explores the processes that regulate fertility in human populations. We adopt an evolutionary perspective to examine the factors that have shaped human reproductive physiology and contribute to variation in reproductive parameters between populations. The biology of menopause, ovarian cycling, pregnancy, lactation, fetal loss, and menopause will be reviewed and the ecological and social factors that influence these steps in the reproductive process will be considered.
Course offered spring; even-numbered years
Prerequisite: ANTH 003 or consent of instructor
Activity: Seminar
1 Course Unit
GSWS 489 Fashioning Gender
Course not offered every year
Activity: Online Course
1 Course Unit

GSWS 492 More Human Than Human
Course not offered every year
Activity: Online Course
1 Course Unit

GSWS 499 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

GSWS 509 Modernist Jewish Poetry
One version of this seminar considers works by Jewish women who wrote in Yiddish, Hebrew, English, and other languages in the late 19th through the 20th century. The texts, poetry and prose, will include both belles lettres and popular writings, such as journalism, as well as private works (letters and diaries) and devotional works. The course will attempt to define “Jewish writing,” in terms of language and gender, and will consider each writer in the context of the aesthetic, religious, and national ideologies that prevailed in this period. Because students will come with proficiency in various languages, all primary texts and critical and theoretical materials will be taught in English translation. However, those students who can, will work on the original texts and share with the class their expertise to foster a comparative perspective. Because we will be discussing translated works, a secondary focus of the course will, in fact, be on literary translation’s process and products.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 516 Public Interest Workshop
This is a Public Interest Ethnography workshop (originally created by Peggy Reeves Sandy - Department of Anthropology) that incorporates an interdisciplinary approach to exploring social issues. Open to graduate and advanced undergraduate students, the workshop is a response to Amy Gutmann's call for interdisciplinary cooperation across the University and to the Department of Anthropology's commitment to developing public interest research and practice as a disciplinary theme. Rooted in the rubric of public interest social science, the course focuses on: 1) merging problem solving with theory and analysis in the interest of change motivated by a commitment to social justice, racial harmony, equality, and human rights; and 2) engaging in public debate on human issues to make research results accessible to a broader audience. The workshop brings in guest speakers and will incorporate original ethnographic research to merge theory with action. Students are encouraged to apply the framing model to a public interest research and action topic of their choice. This is an academically-based-community-service (ABCS) course that partners directly with Penn's Netter Center Community Partnerships.
Taught by: Suess
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 517 Sociology of Work
The thinkers whose work formed the foundations of sociological theory considered the nature of the relationship between work and identity key to understanding social solidarity, power, and historical change. In recent years, the division of labor, structures of work, and employment relations have all been undergoing rapid change, necessarily affecting the possibilities for constructing identity through work. This seminar examines how changes in the nature and organization of work have reshaped the relationship between work and identity. Taught by: Jacobs, Leidner
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 518 Nursing and the Gendering of Health Care in the United States and Internationally, 1860-2000
This course examines changing ideas about the nature of health and illness; changing forms of health care delivery; changing experiences of women as providers and patients; changing role expectations and realities for nurses; changing midwifery practice; and changing segmentation of the health care labor market by gender, class and race. It takes a gender perspective on all topics considered in the course. A comparative approach is used as national and international literature is considered. This focus is presented as one way of understanding the complex interrelationships among gender, class, and race in health care systems of the United States and countries abroad. Taught by: Wall
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GSWS 520 Art, Sex and the Sixties
Visiting Professor Jonathan Katz will be teaching for GSWS during the fall 2018. The course description is as follows: With a distinct emphasis on post World War II performance, film, sculpture and painting, this course explores the conjunction of the period’s systematic revamping of our social/sexual schema with the equally revolutionary ascendancy of an artistic postmodernity. And it seeks to explore this dynamic not only within the familiar confines of North America and Europe but towards Latin America and Asia, too, in what was a nearly simultaneous emergence of the erotic as a political force in the 60s. Reading a range of key voices from Brazilian theorist and poet Oswald de Andrade to Frankfurt School philosopher Herbert Marcuse, performance artists Carolee Schneemann, and Yoko Ono, Neo-Freudian theorist Norman O. Brown and lesbian feminist author Monique Wittig, we will examine how and why sex became a privileged form of politics at this historical juncture in a range of different contexts across the globe. Students interested in feminist, gender or queer theory, social revolution, performance studies, post war art and Frankfurt School thought should find the course particularly appealing, but it assumes no background in any of these fields.
Taught by: Katz
One-term course offered either term
Activity: Seminar
1 Course Unit
GSWS 524 Chaucer: Poetics and Performance
An advanced introduction to Chaucer's poetry and Chaucer criticism. Reading and discussion of the dream visions, Troilus and Criseyde, and selections from Canterbury Tales, from the viewpoint of Chaucer's development as a narrative artist.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 525 The Trouble with Freud: Psychoanalysis, Literature, Culture
For professionals in the field of mental care, Freud's work is often regarded as outmoded, if not problematic psychologists view his work as non-scientific, dependent on theses that cannot be confirmed by experiments. In the realm of literary and cultural theory, however, Freud's work seems to have relevance still, and is cited often. How do we understand the gap between a medical/scientific reading of Freud's work, and a humanist one? Where do we locate Freud's relevance today? The graduate course will concentrate on Freud's descriptions of psychoanalytic theory and practice, as well as his writings on literature and culture.
Taught by: Weissberg
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 527 Race, Gender and Auto/Biography
PRING 2017: Market Women, Madames, Mistresses & Mother Superior studies ender, labor, sexuality, and race in the Caribbean. In our historical examination of primary source documents in literature, and popular edia, we will question some of the iconic representations of Caribbean and Latin American women in order to understand the meaning, purpose and usages these women's bodies as objects of praise, possession, obsession and/or idicule by communities, governments and religious and outside of the region. Beginning in the late-18th century and ending with contemporary migration narratives, this course considers the relationship between slave society and colonial pasts on gender performance in the modern Caribbean, Latin America, and their diasporas. In our interrogation of gender meanings, we will consider the ways Caribbean women and men define themselves and each other, while considering the intersections of color, class, religion and culture on the political and social realities of the Caribbean and the region.
The geographic scope of the course will extend to Haiti, the Dominican Republic, Jamaica, Cuba, Puerto Rico, Costa Rica and Trinidad & Tobago. The following interrelated questions will anchor our exploration of each text: How have representations of Caribbean and Latin American women informed historical constructions and rhetoric of the region and national identity? What political and social strategies have Caribbean women and men used to define themselves in their countries and throughout the region? How do the history and contemporary conditions of a post-colonial nation impact the gender construction of Caribbean identities? What is the relationship between modern Caribbean gender identities and the regional racial and economic politics?
Taught by: Sanders
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 532 Gender, the Labor Force and Labor Markets
Drawing from sociology, economics and demography, this course examines the causes and effects of gender differences in labor force participation, earnings and occupation in the United States and in the rest of the developed developed and developing world. Differences by race and ethnicity are considered. Theories of labor supply, marriage, human capital and discrimination are explored as explanations for the observed trends. The course reviews current labor market policies and uses the literature, theories of labor supply, marriage, human capital and discrimination to men. evaluate their effects on women and men.
Taught by: Madden
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 542 Work and Gender
This seminar examines the relevance of gender to the organization and experience of paid and unpaid work. Combining materialist and social constructionist approaches, we will consider occupational segregation, the relation of work and family, gender and class solidarity, the construction of gender through work, race and class variation in work experiences, and related topics.
Taught by: Leidner
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 544 Science of Sex & Sexuality
The author of a New York Times article entitled "On Being Male, Female, Neither or Both" concluded her comments with the following statement: "The definition of sex was (and is) still up for grabs." In our post-modern world, we have become accustomed to the malleability of gender identity and sexuality. We are also aware that individuals undergo sex reassignment surgeries but by and large we assume that transgender people are transitioning from one discrete category to another. Queer activists certainly challenge this assumption, preferring to envision sex, gender, and sexuality on a continuum, but these days even scientists don't concur about a definitive definition of sex. Should sex be defined chiefly by anatomy? Chromosomes? The body's ability to produce and respond to hormones? If the boundaries of biological categories can be contested, what are the implications for culturally constructed ideas about gender identity and sexuality.
Prerequisite: This is an advanced seminar for MLA students
Activity: Seminar
1 Course Unit

GSWS 550 Topics 17th Century
The specific topics of the seminar vary from semester to semester, depending on the instructor and his/her choice. When the topic includes gender, sexuality or women's studies it will be cross-listed with GSWS.
Please see the French Department website for a description: https://www.sas.upenn.edu/french/pc
Course not offered every year
Activity: Seminar
1 Course Unit
GSWS 553 British Women Writers
A study of British women writers, often focusing on the women authors who came into prominence between 1775 and 1825. See the English Department's website at www.english.upenn.edu for a complete description of the current offerings.
Taught by: Bowers
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 555 Women and Incarceration
This elective course will afford students the opportunity to develop and implement health education workshops for incarcerated women in the Philadelphia jail system. Students will explore the social and historical framework and trends in the incarceration of women, as well as the needs of this population, and will identify specific areas that need to be addressed by particular disciplines or professions. Students will have direct contact with the jail system, its staff, and female inmates.
Taught by: Brown, K.; Guidera; Durain
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GSWS 570 African-American Literature
This course treats some important aspect of African-American literature and culture. Some recent versions of the course have focused on the emergence of African-American women writers, on the relation between African-American literature and cultural studies, and on the Harlem Renaissance. This course is cross-listed with the English Department. See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 572 Language and Gender
This course traces the development of research on language and gender, introducing key theoretical issues and methodological concerns in this area. Participants will consider how gender ideologies shape and are shaped by language use, with particular attention to how research findings can be applied to educational and other professional settings.
Taught by: Pomerantz
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GSWS 574 Masters in Liberal Arts Proseminar
Topic varies.
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 579 Provocative Performance
This course will examine a wide array of performance pieces by and about women, designed to provoke social, political, and personal change. Ranging from the serious to the hilarious (and sometimes outrageous), our readings will center on plays and performance art; we will also study live and filmed pieces, attend course-related productions in the city and on campus, and incorporate contextual material on feminist theatre theory and history.
Taught by: Malague
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 581 Advanced Psychology of Women
A critical analysis of psychological theories about women and sex differences, a thorough examination of "psychology of women" research articles, and class-initiated research. Among the issues to be covered are: sex role socialization; class, race and gender connections; women and work; employment discrimination, assertiveness training; women's responses to injustice: domestic violence, rape, discrimination; the family and the "new right"; perceptions of women; sexuality, disability and objectification; reproductive rights, sex roles, androgyne and new role prescriptions; mental health and aging.
Taught by: Stanley
Course usually offered summer term only
Prerequisite: A course in general psychology
Activity: Lecture
1 Course Unit

GSWS 583 19 Century American Lit: Kinship, Sexuality, Indigeneity
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 584 Political Philosophy
An examination of basic theoretical problems of political science divided into three parts. First, specific features of social sciences will be examined and three most important general orientations of social sciences (analytical, interpretative and critical) will be compared and analyzed. Second, basic concepts of social and political sciences will be studied: social determination, rationality, social change, politics, power, state, democracy. Third, the problem of value judgments will be considered: Is there a rational, objective method for the resolution of conflicts in value judgments? Is morality compatible with politics?
Taught by: Hirschmann
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 587 Race, Nation, Empire
This graduate seminar examines the dynamic relationships among empires, nations and states; colonial and post-colonial policies; and anti-colonial strategies within a changing global context. Using the rubrics of anthropology, history, cultural studies, and social theory, we will explore the intimacies of subject formation within imperial contexts- past and present- especially in relation to ideas about race and belonging. We will focus on how belonging and participation have been defined in particular locales, as well as how these notions have been socialized through a variety of institutional contexts. Finally, we will consider the relationships between popular culture and state formation, examining these as dialectical struggles for hegemony.
Taught by: Thomas
Course not offered every year
Activity: Seminar
1 Course Unit
**GSWS 588 The Politics of Women's Health Care**
This course will utilize a multidisciplinary approach to address the field of women's health care. The constructs of women's health care will be examined from a clinical, as well as sociological, anthropological and political point of view. Topics will reflect the historical movement of women's health care from an obstetrical/gynecological view to one that encompasses the entire life span and life needs of women. The emphasis of the course will be to undertake a critical exploration of the diversity of women's health care needs and the past and current approaches to this care. Issues will be addressed from both a national and global perspective, with a particular focus on the relationship between women's equality/inequality status and state of health.
Taught by: Durain, McCool
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**GSWS 589 Recent issues in Critical Theory**
This course is a critical exploration of recent literary and cultural theory, usually focusing on one particular movement or school, such as phenomenology, psychoanalysis, the Frankfurt School, or deconstruction.
Course not offered every year
Activity: Seminar
1 Course Unit

**GSWS 590 Gender and Education (ELD)**
This course is designed to provide an overview of the major discussions and debates in the area of gender and education. While the intersections of gender, race, class, ethnicity, and sexuality are emphasized throughout this course, the focus of the research we will read is on gender and education in English-speaking countries. We will examine theoretical frameworks of gender and use these to read popular literature, examine teaching practices and teachers with respect to gender, using case studies to investigate the topics.
Taught by: Schultz; Kuriloff
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**GSWS 594 Topics in Contemporary Art**
Topics vary. The primary for this course is the Art History Department. For a course description please see their website: http://www.sas.upenn.edu/arthistory/courses
Course not offered every year
Activity: Seminar
1 Course Unit

**GSWS 596 Topics in Contemporary Art**
Activity: Seminar
1 Course Unit

**GSWS 599 Independent Study**
One-term course offered either term
Activity: Independent Study
1 Course Unit

**GSWS 608 Gender and Sexuality in Hinduism**
Issues related to gender and sexuality occupy a complex, often contradictory place in Hinduism. Sexual desire, sexual activity, and the body are simultaneously celebrated, manipulated, controlled, and restricted. This fundamental ambiguity is at the core of this course, which concerns itself with religious perspectives on the body, gender and sexual activity in Hinduism. Topics include: dharma, morality, and sexual practice; menstruation; pregnancy and childbirth; Bhakti and Tantra; same-sex relations; masculinities; hijras and the notion of the "third sex"; eroticism in the literary, visual, and performing arts; colonialism; and somatic nationalism.
Taught by: Soneji, D.
Activity: Seminar
1 Course Unit

**GSWS 610 Topics in American History**
Reading and discussion course on selected topics in American history. See history's website for course description for the term: http://www.history.upenn.edu/courses
Course usually offered in fall term
Activity: Seminar
1 Course Unit

**GSWS 612 Interactional Processes with LGBT Individuals**
In the past quarter century, the awareness of the unique issues facing lesbian, gay, bisexual and transgender (LGBT) individuals has expanded and become essential knowledge in our work as educators, providers of psychological services, and other service provision fields. This course provides a contextual and applied understanding the interactional processes facing LGBT individuals.
Course usually offered summer term only
Activity: Lecture
1 Course Unit

**GSWS 630 Gender and Religion in China**
This course examines gender in Chinese religious culture from ancient to contemporary times. We will explore topics including the Buddhist accommodation of Chinese family system, Chinese transformation of the bodhisattva Guanyin, female deities in Daoist and popular religious pantheons, writings about religious women, female ghosts and fox spirits in literary imagination and folk tales, and the significance of yin force in Chinese medicine and Daoist alchemy. Through the case of China, we will look at how gender plays critical and constitutive roles in religious traditions, and how religion can be used both to reinforce and to challenge gender norms.
Taught by: Cheng
Course usually offered in fall term
Activity: Seminar
1 Course Unit

**GSWS 640 Studies in the Renaissance**
Topics vary. This course will be cross-listed with GSWS when the topic includes, Gender, Sexuality and Women's Studies. Please see French department’s website for current course description: https://www.sas.upenn.edu/french/p
Course not offered every year
Activity: Seminar
1 Course Unit
GSWS 670 Topics in Trans Regional History
What do historians gain by approaching the past with an awareness of the body as a material and historically contingent entity? In this course we consider several different ways of imagining historical bodies and the body in history. Our readings will explore how events and new social, racial, economic and political formations influence how contemporaries imagined and described bodies and their capacities. We will also explore whether the body itself might be a dynamic source of historical change. Among the topics we will discuss are: medical theories about bodies; epidemics and their impact; sensory capacities; capacities for physical labor; cultures of violence; reproductive capacities and politics; coerced immigration; fashion, beauty, and grace; and the state's interest in mobilizing bodies to serve imperial, economic, and military agendas.
Taught by: Brown
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 678 Gender and Sexuality in Education
This seminar gives an overview of the intersections and interplay among gender, sexuality, and education through theory, practice, current discussions, and analysis of varied contexts in English speaking countries (e.g. the United States, Canada, Great Britain, and Australia). After examining the theoretical foundations of genders and sexualities, we will look at their histories and effects in K-12 schools and colleges and universities as well as explore special topics.
Activity: Seminar
1 Course Unit

GSWS 682 Topics: Literature and Film
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 705 Seminar in Ethnomusicology
This seminar in Ethnomusicology is cross-listed with GSWS when the topic includes gender, sexuality and women's studies.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Open to graduate students from all departments

GSWS 740 Research Seminar in Middle Eastern History
Research seminar on selected topics in Middle Eastern history. See the History's Department website for course description.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 762 Women in South Asia
This course on women in South Asian history has several objectives. To comprehend the genres of narratives in which South Asian women between the sixteenth and twentieth centuries have spoken and have been spoken about. To gain an understanding of evolving institutions and practices shaping women's lives, such as the family, law and religious traditions. To understand the impact of historical processes -- the formation and and breakdown of empire, colonialism, nationalism and decolonization -- upon South Asian women between the sixteenth and twentieth centuries. We will read primary sources in addition to familiarizing ourselves with the historiography of women in South Asia.
Taught by: Sreenivasan
One-term course offered either term
Activity: Seminar
1 Course Unit

GSWS 769 Feminist Theory
See the English Department's website at www/english.upenn.edu for a complete description of the current offerings.
Taught by: Loombia
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 771 Current Japanology
Major trends in scholarship as reflected in important recent publications, especially formative books and periodical literatures. The trajectory within certain disciplines as well as the interaction among them will be critically evaluated in terms of gains and losses. Implications of these theses in the planning of graduate and postgraduate research.
Course not offered every year
Activity: Lecture
1 Course Unit

GSWS 790 Recent Issues in Critical Theory
The primary for this course is the English Department. When the course content includes gender, sexuality and women's studies it will be cross-listed with GSWS. See additional information and description on the English Department's website: https://wwwenglish.upenn.edu See the English Department's website at www/english.upenn.edu for a complete description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 793 Topics in Cinema and Media
Topics vary. Please refer to the History of Art Department's website for the course description: http://www.sas.upenn.edu/arthistory.
Course not offered every year
Activity: Seminar
1 Course Unit

GSWS 830 Conducting Research in Global Women's Health
The course focuses on critical examination of theoretical and methodological issues pertaining to research on women and girls conducted around the world across disciplines. A focused and intensive exploration of place as it pertains to women and girls in formal and informal structures of health care delivery as those needing and/or seeking health care, and as those providing health care to others. We will examine multiple dimensions and qualities of these endeavors (e.g. activity, power, control, visibility, value, and remuneration) and the intersection of gender and health - locally, globally and across borders.
We will focus our examination on the implications of seeking and providing health care for women's and girls' health and well-being. By examining issues in local and global contexts and across geographical boundaries, we will have the opportunity to challenge gendered, class, political, and cultural assumptions related to women's health. Invited guest speakers will highlight examples of research in global women's health representing multiple disciplinary perspectives.
Taught by: Teitelman
Course usually offered in fall term
Activity: Seminar
1 Course Unit
GENOMICS & COMP. BIOLOGY (GCB)

GCB 493 Epigenetics of Human Health and Disease
Epigenetic alterations encompass heritable, non-genetic changes to chromatin (the polymer of DNA plus histone proteins) that influence cellular and organismal processes. This course will examine epigenetic mechanisms in directing development from the earliest stages of growth, and in maintaining normal cellular homeostasis during life. We will also explore how diverse epigenetic processes are at the heart of numerous human disease states. We will review topics ranging from a historical perspective of the discovery of epigenetic mechanisms to the use of modern technology and drug development to target epigenetic mechanisms to increase healthy lifespan and combat human disease. The course will involve a combination of didactic lectures, primary scientific literature and research lectures, and student-led presentations.
Taught by: S Berger
Activity: Seminar
1 Course Unit

GCB 534 Experimental Genome Science
This course will survey methods and questions in experimental genomics, including next generation sequencing methods, genomic sequencing in humans and model organisms, functional genomics, proteomics, and applications of genomics methods. Students will be expected to review and discuss current literature and to propose new experiments based on material learned in the course.
Taught by: C Brown, J Murray
Prerequisites: Undergraduates and Masters students need BIOL431 or equivalent
Activity: Lecture
1 Course Unit

GCB 535 Introduction to Bioinformatics
This course provides overview of bioinformatics and computational biology as applied to biomedical research. A primary objective of the course is to enable students to integrate modern bioinformatics tools into their research activities. Course material is aimed to address biological questions using computational approaches and the analysis of data. A basic primer in programming and operating in a UNIX environment will be presented, and students will also be introduced to Python, R, and tools for reproducible research. This course emphasizes direct, hands-on experience with applications to current biological research problems. Areas include DNA sequence alignment, genetic variation and analysis, motif discovery, study design for high-throughput sequencing, RNA, and gene expression, single gene and whole-genome analysis, machine learning, and topics in systems biology. The relevant principles underlying methods used for analysis in these areas will be introduced and discussed at a level appropriate for biologists without a background in computer science. The course is not intended for computer science students who want to learn about biologically motivated algorithmic problems; BIOL 437/GCB 536 and GCB/CIS/BIOL537 are more appropriate.
Taught by: B Voight, C Greene
Course usually offered in spring term
Also Offered As: CIS 535
Prerequisites: The course will assume a solid knowledge of modern biology. An advanced undergraduate course such as BIOL 421 or a graduate course in biology such as BIOL 526 (Experimental Principles in Cell and Molecular Biology), BIOL527 (Advanced Molecular Biology and Genetics), BIOL 528 (Advanced Molecular Genetics), BIOL 540 (Genetic Systems, or equivalent, is a prerequisite.
Activity: Lecture
1 Course Unit
Notes: All students are required to bring a laptop to the lab sessions (Fridays). TAs will provide help with the material, but students should be computer-capable with their own laptop, and should be willing/capable to download and install free software from the internet.

GCB 536 Computational Biology
An introductory computational biology course designed for computational scientists. The course will cover fundamentals of algorithms, statistics, and mathematics as applied to biological problems. In particular, emphasis will be given to biological problem modeling. Students will be expected to learn the basic algorithms underlying computational biology, basic mathematical/statistical proofs and molecular biology. Topics to be covered are genome annotation and string algorithms, pattern search and statistical learning, molecular evolution and phylogenetics and small molecule folding.
Taught by: Kim
Course not offered every year
Activity: Lecture
1 Course Unit
GCB 537 Advanced Computational Biology
1. Learn important concepts/methods from statistical data analysis and machine learning as they are applied to computational biology. 2. Learn about current topics in genomics and computational biology through in depth discussion of both classic and recent papers. 3. Gain hands on experience in data analysis, coding and evaluating tools/algorithms as they apply to topics covered in class. 4. Learn to evaluate, criticize, summarize, and present research papers in genomics and computational biology.
Taught by: Y Barash, R Faryabi
Course usually offered in spring term
Prerequisite: GCB536 or equivalent
Activity: Seminar
1 Course Unit
Notes: This is not a bioinformatics lab. Non-GCB students need to be approved by instructors

GCB 567 Modeling Biol Systems
This course will cover topics in systems biology at the molecular/cellular scale. The emphasis will be on quantitative aspects of molecular biology, with possible subjects including probabilistic aspects of DNA replication, transcription, translation, as well as gene regulatory networks and signaling. The class will involve analyzing and simulating models of biological behavior using MATLAB.
Taught by: A Raj
Also Offered As: BE 567
Activity: Lecture
1 Course Unit

GCB 585 Wistar Inst Cancer Biol
This course is intended to provide foundational information about the molecular basis of cancer. When necessary the significance of this information for clinical aspects of cancer is also discussed. The main theme centers around cell cycle checkpoints with specific emphasis on the biochemistry and genetics of DNA damage signaling pathways, DNA damage checkpoints, mitotic checkpoints and their relevance to human cancer. The course is taught by the organizers and guest lecturers from universities and research institutions in the Northeast. Following every lecture, students present a research paper related to the topic of that lecture. The course is intended for first and second year graduate students, but all graduate students are welcome to attend.
Taught by: Skordalakes and Murphy
Also Offered As: BMB 585
Activity: Lecture
1 Course Unit

GCB 599 Lab Rotation
Activity: Laboratory
1 Course Unit

GCB 752 Genomics
Recent advances in molecular biology, computer science, and engineering have opened up new possibilities for studying the biology of organisms. Biologists now have access to the complete genomic sequence and set of cellular instructions encoded in the DNA of specific organisms, including homo sapiens, dozens of bacterial species, the yeast Saccharomyces cerevisiae, the nematode C. elegans, and the fruit fly Drosophila melanogaster. The goals of the course include the following: 1. introduce the basic principles involved in sequencing genomes, 2. familiarize the students with new instrumentation, informative tools, and laboratory automation technologies related to genomics, 3. teach the students how to access the information and biological materials that are being developed in genomics and 4. examine how these new tools and resources are being applied to basic and translational research. This will be accomplished through in depth discussion of classic and recent papers.
Taught by: S Diskin
Course usually offered in spring term
Prerequisites: GCB 534 or equivalent, or permission from instructor
Activity: Seminar
1 Course Unit

GCB 899 Pre-Dissertation Research
Activity: Laboratory
1 Course Unit

GCB 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit
GEOL 100 Introduction to Geology
An introduction to processes and forces that form the surface and the interior of the Earth. Topics include, changes in climate, the history of life, as well as earth resources and their uses.
For BA Students: Physical World Sector
Taught by: Omar
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Field trips required.

GEOL 103 Natural Disturbances and Human Disasters
Natural disturbances play a fundamental role in sculpturing landscapes and structuring natural and human-based ecosystems. This course explores the natural and social science of disturbances by analyzing their geologic causes, their ecological and social consequences, and the role of human behavior in disaster reduction and mitigation. Volcanoes, earthquakes, floods, droughts, fires, and extraterrestrial impacts are analyzed and compared.
For BA Students: Physical World Sector
Taught by: Phipps
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GEOL 109 Introduction to Geotechnical Science
Open to architectural and engineering majors as well as Ben Franklin Scholars. Field trips. Relations of rocks, rock structures, soils, groundwater, and geologic agents to architectural, engineering, and land-use problems.
For BA Students: Physical World Sector
Taught by: Omar
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GEOL 111 Geology Laboratory
Taught by: Omar
One-term course offered either term
Prerequisite: GEOL 100 preferably taken concurrently
Activity: Laboratory
1 Course Unit
Notes: Field trips required.

GEOL 125 Earth and Life Through Time
Origin of Earth, continents, and life. Continental movements, changing climates, and evolving life.
For BA Students: Physical World Sector
Taught by: Perez-Rodriguez
One-term course offered either term
Activity: Lecture
1 Course Unit

GEOL 130 Oceanography
The oceans cover over 2/3 of the Earth's surface. This course introduces basic oceanographic concepts such as plate tectonics, marine sediments, physical and chemical properties of seawater, ocean circulation, air-sea interactions, waves, tides, nutrient cycles in the ocean, biology of the oceans, and environmental issues related to the marine environment.
For BA Students: Physical World Sector
Taught by: Dmochowski
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GEOL 201 Mineralogy
Crystallography, representative minerals, their chemical and physical properties. Use of petrographic microscope in identifying common rock-forming minerals in thin section.
Taught by: Omar
Course usually offered in fall term
Prerequisites: GEOL 100 and CHEM 001 or 101
Activity: Lecture
1 Course Unit

GEOL 204 Global Climate Change
Public perceptions and attitudes concerning the causes and importance of globalwarming have changed. Global Climate Change provides a sound theoretical understanding of global warming through an appreciation of the Earth's climate system and how and why this has changed through time. We will describe progress in understanding of the human and natural drivers of climate change, climate processes and attribution, and estimates of projected future climate change. We will assess scientific, technical, and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation.
For BA Students: Physical World Sector
Taught by: Marinov
Course usually offered in fall term
Prerequisite: Any of the following courses: ENVS 100 or GEOL 100 or GEOL 130 or GEOL 125 or GEOL 103 or Instructor Permission
Activity: Lecture
1 Course Unit

GEOL 205 Paleontology
Geologic history of invertebrates and their inferred life habits, paleoecology, and evolution. Introduction to paleobotany and vertebrate paleontology.
For BA Students: Living World Sector
Taught by: Sallan
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Two field trips required.

GEOL 206 Stratigraphy
Introductory sedimentary concepts, stratigraphic principles, depositional environments, and interpretation of the rock record in a paleoeocological setting.
Taught by: Jerolmack
Course usually offered in fall term
Prerequisite: GEOL 100 or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Two field trips, field project
GEOL 208 Structural Geology
Introduction to deformation as a fundamental geologic process. Stress and strain; rock mechanics. Definition, measurement, geometrical and statistical analysis, and interpretation of structural features. Structural problems in the field. Maps, cross-sections, and three-dimensional visualization; regional structural geology.
Taught by: Phipps
Course usually offered in spring term
Prerequisites: GEOL 100 and 111; PHYS 150 strongly recommended
Activity: Lecture
1 Course Unit
Notes: Three field trips required

GEOL 299 Independent Study
Directed study for individuals or small groups under close supervision of a faculty member.
One-term course offered either term
Prerequisite: Permission of department
Activity: Independent Study
1 Course Unit
Notes: May be repeated for credit

GEOL 305 Earth Surface Processes
Patterns on the Earth's surface arise due to the transport of sediment by water and wind, with energy that is supplied by climate and tectonic deformation of the solid Earth. This course presents a treatment of the processes of erosion and deposition that shape landscapes. Emphasis will be placed on using simple physical principles as a tool for (a) understanding landscape patterns including drainage networks, river channels and deltas, desert dunes, and submarine channels, (b) reconstructing past environmental conditions using the sedimentary record, and (c) the management of rivers and landscapes under present and future climate scenarios. The course will conclude with a critical assessment of landscape evolution on other planets, including Mars.
For BA Students: Physical World Sector
Taught by: Jerolmack
Course usually offered in spring term
Prerequisites: ENVS 200, GEOL 100, or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: This course includes two required weekend field trips, and a hands-on laboratory.

GEOL 317 Petrology and Petrography
Occurrences and origins of igneous and metamorphic rocks; phase equilibria in heterogeneous systems. Laboratory study of rocks and thin sections as a tool in interpretation of petrogenesis.
Taught by: Omar
Course usually offered in spring term
Prerequisite: GEOL 201
Activity: Lecture
1 Course Unit
Notes: Two field trips

GEOL 318 Glaciers, Ice & Climate
All forms of frozen water at Earth's surface define the cryosphere. These icy environments are an integral part of the global climate system, with important linkages and feedbacks resulting from their influences on surface energy and moisture fluxes, clouds, precipitation, hydrology, and circulation in the atmosphere and oceans. This course will survey the various components of the cryosphere and their interactions with climate, with a strong emphasis on the dynamics of glaciers and ice sheets. Broad topics to be covered are: (1) the rudimentary mechanics of glacier and ice sheet flow, (2) fast-flowing ice streams and factors limiting their motion, (3) ice-quakes and their origins, (4) the nature of climate data recorded in natural ice bodies, (5) the influence of climate on the stability of ice sheets and glaciers, and (6) glacier-like flow on other planetary bodies. This will be a lecture-based course with written assignments and problems sets.
Taught by: Goldsby
Prerequisites: Students should have basic knowledge of Calculus. MATH 114 or equivalent.
Activity: Lecture
1 Course Unit

GEOL 399 Geology Research Seminar for Juniors
This seminar is designed to help Juniors prepare for the Senior Thesis research. Topic selection, advisor identification, funding options, and basic research methods will be discussed.
Taught by: Andrews
Course usually offered in spring term
Activity: Seminar
1 Course Unit

GEOL 405 Advanced Paleontology
Relationship of fossil assemblages to life assemblages; structure of ancient communities, and interaction of organisms with each other and with the physical environment; evolution of communities.
Taught by: Sallan
Course usually offered in fall term
Prerequisite: Permission of instructor
Activity: Lecture
1 Course Unit

GEOL 409 Intro to Remote Sensing
This course will introduce students to the principles of remote sensing, characteristics of remote sensors, and remote sensing applications. Image acquisition, data collection in the electromagnetic spectrum, and data set manipulations for earth and environmental science applications will be emphasized. We will cover fundamental knowledge of the physics of remote sensing; aerial photographic techniques; multispectral, hyperspectral, thermal, and other image analysis. Students will pursue an independent research project using remote sensing tools, and at the end of the semester should have a good understanding and the basic skills of remote sensing.
Taught by: Dmochowski
Prerequisites: PHYS151 and MATH114 or equivalent are preferable, but not required. See instructor.
Activity: Seminar
1 Course Unit
GEOL 411 Intro Soil Science
Soil is considered the "skin of the Earth", with interfaces between the lithosphere, hydrosphere, atmosphere, and biosphere. It is a mixture of minerals, organic matter, gases, liquids and a myriad of organisms that can support plant life. As such, soil is a natural body that exists as part of the environment. This course will examine the nature, properties, formation and environmental functions of soil.
Taught by: Plante
Prerequisite: GEOL 100 or equivalent
Activity: Lecture
1 Course Unit

GEOL 417 Advanced Petrology
Chemistry, physics, phase equilibria, microscope study in igneous and metamorphic petrology.
Taught by: Omar
Course usually offered in fall term
Prerequisite: GEOL 317
Activity: Lecture
1 Course Unit

GEOL 418 Geochemistry
This course provides a comprehensive introduction to theory and applications of chemistry in the earth and environmental sciences. Theory covered will include atomic structure, chemical bonding, cosmic abundances, nucleosynthesis, radioactive decay, dating of geological materials, stable isotopes, acid-base equilibria, salts and solutions, and oxidation-reduction reactions. Applications will emphasize oceanography, atmospheric sciences and environmental chemistry, as well as other topics depending on the interests of the class. Although we will review the basics, this course is intended to supplement, rather than to replace, courses offered in the Department of Chemistry. It is appropriate for advanced undergraduate as well as graduate students in Geology, Environmental Science, Chemistry and other sciences, who wish to have a better understanding of these important chemical processes.
Taught by: Giere
Course not offered every year
Activity: Lecture
1 Course Unit

GEOL 420 Introduction to Geophysics
This course will cover the application of geophysical investigation techniques to problems of the earth's planetary structure, local subsurface structure and mineral prospecting. The topics will include principles of geophysical measurements and interpretation with emphasis on gravity measurement, isostasy, geomagnetism, seismic refraction and reflection, electrical prospecting, electromagnetics and groung radar.
Taught by: Goldsby
Course not offered every year
Prerequisites: GEOL 100 or 109, two semesters Math and Physics, and/or instructor's permission
Activity: Lecture
1 Course Unit

GEOL 421 Biogeochemistry
Humans have an enormous impact on the global movement of chemical materials. Biogeochemistry has grown to be the principal scientific discipline to examine the flow of elements through the global earth systems and to examine human impacts on the global environment. This course will introduce and investigate processes and factor controlling the biogeochemical cycles of elements with and between the hydrosphere, lithosphere, atmosphere and biosphere. Students will apply principles learned in lectures by building simple computer-based biogeochemical models.
Taught by: Plante
Course usually offered in spring term
Prerequisites: ENVS 200, GEOL 100, or permission of the instructor
Activity: Lecture
1 Course Unit

GEOL 424 Geomicrobiology
Taught by: Perez-Rodriguez
Prerequisites: Biol 101, or Chem 101 or permission by instructor
Activity: Lecture
1 Course Unit

GEOL 477 Introduction to Vertebrate Paleontology
Taught by: Dodson
Course not offered every year
Prerequisites: GEOL 100, BIOL101, GEOL205 or similar course.
Activity: Lecture
1 Course Unit

GEOL 479 Macroevolution
Macroevolution, or evolution above the population level and on long timescales, as a field addresses fundamental questions about the origins of life, past and present. These include but are not limited to: How are highly dissimilar species related? Why are animals on distant continents so similar? How and when did major groups, like birds or mammals, originate? What drives evolutionary arms races? Why are there so many more species of beetle than crocodile? Why are there more species in the tropics than the arctic? Did dinosaurs prevent the diversification of mammals? Why do some animals survive mass extinction? How can invasive species spread so rapidly? Students will learn important concepts underlying our understanding of modern biodiversity and the fossil record, as well as how to use different methods and lines of evidence, including evolutionary trees (phylogeny), fossil databases, past climate and global events, mathematical modeling, and even modern genomics, to answer fundamental questions about the evolution of life.
Taught by: Lauren Sallan
Activity: Lecture
1 Course Unit
GEOL 498 Senior Thesis
The culmination of the Earth Science major. Students, while working with an advisor in their concentration, conduct research and write a thesis.
Taught by: Dmochowski
Two terms. student may enter either term.
Prerequisites: GEOL400-level and declaration of the EASC major
Activity: Senior Thesis
0.5 Course Units
Notes: The Earth Science major, as of the fall of 2008, requires 1 semester of GEOL399 and two semesters of GEOL498.

GEOL 508 The Geology and Geography of Energy Resources
This course will survey the way geology controls the formation and location of energy resources. Questions we'll address include, "How are oil and gas fields formed?", "Why does the Middle East have so much oil?", "What are the best locations in the US for wind and solar energy generation, and why?". We will discuss hydrocarbon, nuclear, solar, wind, and tidal energy sources.
Taught by: Phipps
Course not offered every year
Prerequisite: Geol100 or equivalent is preferred
Activity: Seminar
1 Course Unit
Notes: Possible field trips.

GEOL 509 Intro to Remote Sensing
This course will introduce graduate students to the principles of remote sensing, characteristics of remote sensors, and remote sensing applications. Image acquisition, data collection in the electromagnetic spectrum, and data set manipulations for earth and environmental science applications will be emphasized. We will cover fundamental knowledge of the physics of remote sensing; aerial photographic techniques; multispectral, hyperspectral, thermal, and other image analysis. Students will pursue an independent research project using remote sensing tools, and at the end of the semester should have a good understanding and the basic skills of remote sensing. Expectations for the graduate student independent research projects will be at the graduate level and can relate to their capstone or Ph.D. thesis research topics.
Taught by: Dmochowski
Prerequisites: PHYS151 and MATH114 or equivalent are preferable, but not required. See instructor.
Activity: Seminar
1 Course Unit

GEOL 511 Soil Science w Lab
Soil is considered the "skin of the earth", with interfaces between the lithosphere, hydrosphere, atmosphere, and biosphere. It is the mixture of minerals, organic matter, gases, liquids and a myriad of organisms that can support plant life. As such, soil is a natural body that exists as part of the environment. This course will examine the nature, properties, formation and environmental functions of soil. In addition to lectures, the course includes biweekly labs or field trips, and a multi-day field trip to held during Spring Break.
Taught by: Plante
Course usually offered in fall term
Prerequisite: GEOL 100 or equivalent
Activity: Lecture
1 Course Unit
Notes: Field trips

GEOL 515 Evolution/Revolution of Land Ecosystems
Origin and diversification of land ecosystems. Interaction between plants and animals. Effects of past climatic change and other external factors. The importance of past changes in land ecosystems to our understanding of current global change.
Taught by: Sallan
Course not offered every year
Activity: Seminar
1 Course Unit

GEOL 516 Paleoecology Discovering Lost Ecosystems
Paleoecology, or ecology in the fossil record, is the study of how interactions between species have developed over time and how ecosystems and environmental change have shaped the evolution of life and biodiversity. It also involves rebuilding lost communities from fossil evidence to provide context for the origins of modern life and modern ecosystems. This seminar course will survey major topics in Paleoecology, including of ecosystems, the long-term connections between habitat, life mode, and biodiversity as well as the distribution of life (e.g. paleobiogeography), escalation between predators and prey, competition between invasive and resident species, and how we can infer the ecology and behavior of long-dead organisms. Students will lead discussions on select concepts and choose one topic to investigate in depth.
Course not offered every year
Activity: Seminar
1 Course Unit

GEOL 521 Mineralogy of Rock Preservation
Advanced crystallography, representative minerals, their chemical and physical properties, with emphasis on building stone preservation. Use of petrographic microscope in identifying common rock-forming minerals in thin section.
Taught by: Omar
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Graduate School of Fine Arts students only.
GEOL 528 Aqueous Geochemistry
This course is designed to provide the graduate student with an understanding of the fundamentals of aqueous geochemistry. The chemistry of water, air, and soil will be studied from an environmental perspective. The nature, composition, structure, and properties of pollutants coupled with the major chemical mechanisms controlling the occurrence and mobility of chemicals in the environment will also be studied. Upon completion of this course, students should expect to have attained a broad understanding of and familiarity with aqueous geochemistry concepts applicable to the environmental field. Environmental issues that will be covered include acid deposition, toxic metal contamination, deforestation, and anthropogenic perturbed aspects of the earth's hydrosphere.
Taught by: Andrews
Course not offered every year
Prerequisites: GEOL 100 Intro to Geology or permission of instructor.
Activity: Lecture
1 Course Unit

GEOL 531 Advanced Mineralogy
Advanced crystallography, representative minerals, their chemical and physical properties. Use of petrographic microscope in identifying common rock-forming minerals in thin section.
Taught by: Omar
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GEOL 540 Geotectonics
Bulk structure of the Earth. Plate tectonics and plate boundaries. Plumes, rifting, and intraplate tectonics. Geotectonics and seismicity.
Taught by: Phipps
Course not offered every year
Prerequisites: GEOL 205, 206, 317 and 420, or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Field trip

GEOL 541 Advanced Geochemistry
Taught by: Plante
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GEOL 599 Independent Study
Directed study for individuals or small groups under supervision of a faculty member.
One-term course offered either term
Activity: Independent Study
1 Course Unit

GEOL 604 Geostatistical Analysis
Univariate and multivariate approaches to the analysis of spatial correlation and variability. Many disciplines, including geology, ecology and the environmental sciences regularly need to analyze and make predictions from data that is spatially autocorrelated. Mine reserve estimation, pollutant dispersal and the use of randomization tests in ecology are examples of where spatial statistics may be applied.
Taught by: Vann
Course usually offered in fall term
Prerequisites: STAT 101 or equivalent statistics course; BioL 556 suggested or other Inferential Statistics courses, covering uni- and multivariate techniques
Activity: Lecture
1 Course Unit

GEOL 611 Field Study of Soils
Processes of soil development in a variety of temperate environments. Effects of lithology and climate on soil properties.
Taught by: Plante
Course usually offered in spring term
Prerequisite: GEOL 511 or permission of instructor
Activity: Seminar
1 Course Unit
Notes: All day field trips

GEOL 615 Advanced Vertebrate Paleontology Seminar
Topics in vertebrate paleontology and paleoecology.
Taught by: Dodson
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit

GEOL 618 Fundamentals of Air Pollution
This course will cover various topics related to Air Quality. Initial lectures will cover the history of air pollution, discussions of the Clean Air Act and composition of the atmosphere. We will then progress to discussion of atmospheric pollutants and sources of those pollutants. Additional topics will include: fate of atmospheric pollutants (transport and dispersion mechanisms), effects of air pollution (health and environmental effects), urban smog, acid rain, climate change, ozone depletion in the stratosphere, air quality criteria, and engineering controls.
Taught by: Andrews
Course usually offered in spring term
Activity: Seminar
1 Course Unit

GEOL 619 Instrumentation for the Geosciences
An introduction to the theory, operation and application of modern analytical instrumentation used in geo- and environmental sciences. Primarily focused on laboratory instrumentation such as mass spectroscopy, elemental analyses and x-ray techniques. Some field instruments will be introduced as well. Students will be expected to develop projects utilizing the various instruments.
Taught by: Vann
Course usually offered in spring term
Activity: Lecture
1 Course Unit
GEOL 621 Field Methods in Biogeochemistry
This field- and lab-based course will examine a set of methods for the study and quantification of biochemical processes in terrestrial and aquatic systems. We will focus on field-based measurements, as well as sample collection and laboratory analyses of fluxes of carbon and nutrient elements, including photosynthesis, respiration, dissolved and suspended nutrient fluxes in streams.
Taught by: Plante
Course usually offered summer term only
Activity: Seminar
1 Course Unit

GEOL 650 Environmental Due Diligence
Evaluation of environmental contamination and liability is an important tool during acquisition of real estate property, and a standard work product in the environmental consulting field. This course will cover the purpose and history of the Superfund law, the various classifications of Superfund liable parties, and protections against Superfund liability, specifically with regard to bona fide prospective purchasers (BFPP).
In the context of the BFPP liability defense the course will focus on the performance of "All Appropriate Inquiry" for the presence of environmental contamination (e.g. Phase I environmental site assessment). Our study of "All Appropriate Inquiry" will include evaluation of historical maps and other resources, aerial photography, chain-of-title documentation, and governmental database information pertaining to known contaminated sites in the area of select properties on or near campus. Site visits will be performed to gain experience and knowledge for the identification of recognized environmental conditions. Students will prepare environmental reports for select properties and will have an opportunity to hone technical writing skills.
Taught by: Cron
Course usually offered in spring term
Activity: Seminar
1 Course Unit

GEOL 651 Geocomputations
Review and applications of selected methods from differential equations, advanced engineering mathematics and geostatistics to problems encountered in geology, engineering geology, geophysics and hydrology.
Taught by: Mastropaolo
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GEOL 652 Physical Geology for Environmental Professionals
Study of the genesis and properties of earth materials (minerals, rocks, soil, water); consideration of volcanic, erosional, glacial, and earthquake processes along with the characterization of the earth's deep interior crustal and near-surface structure. Classroom study of minerals, crystals, fossils, and rocks as time permits.
Taught by: Freed
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GEOL 653 Introduction to Hydrology
Introduction to the basic principles of the hydrologic cycle and water budgets, precipitation and infiltration, evaporation and transpiration, stream flow, hydrograph analysis (floods), subsurface and groundwater flow, well hydraulics, water quality, and frequency analysis.
Taught by: Sauder
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GEOL 654 Geomechanics: Solids
Mechanical properties of solid and fluid earth materials, stress and strain, earth pressures in soil and rock, tunnels, piles, and piers; flow through gates, wiers, spillways and culverts, hydraulics, seepage and Darcy's law as applied to the hydrologic sciences.
Taught by: Duda
Course usually offered in fall term
Activity: Seminar
1 Course Unit

GEOL 655 Fate and Transport of Pollutants
This course covers basic groundwater flow and solute transport modeling in one-, two- and three-dimensions. After first reviewing the principles of modeling, the student will gain hands-on experience by conducting simulations on the computer. The modeling programs used in the course are MODFLOW (USGS), MT3D, and the US Army Corps of Engineers GMS (Groundwater Modeling System).
Taught by: Mastropaolo
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GEOL 658 Environmental Statistical Analysis
Statistical analysis of data from geological, geotechnical, and geohydrologic sources.
Taught by: Mastropaolo
One-term course offered either term
Activity: Seminar
1 Course Unit

GEOL 661 Environmental Groundwater Hydrology
This course is designed to introduce the major definitions and concepts regarding groundwater flow and contaminant transport. The theory and underlying concepts, including mathematical derivations of governing equations used to model groundwater flow and contaminant transport, will be discussed and applications to environmental problems addressed. Upon completion of this course, students should expect to have acquired the skills necessary to pursue course work in flow and transport numerical and analytical modeling.
Taught by: Mastropaolo
Course usually offered in spring term
Activity: Lecture
1 Course Unit
GEOL 663 Geochemical Modeling
This course is designed to introduce the major concepts regarding geochemistry and geochemical modeling. The course introduces two United States Geological Survey (USGS) computer models, PHREEQC, a geochemical speciation model, and PHAST, a transport module which is coupled with PHREEQC output. These are highly respected, world-renowned models that are free-ware via the USGS, complete with documentation. Once familiar with the models, the student can continue to work with them beyond the course experience. PHREEQC is designed to perform a wide variety of aqueous geochemical calculations and can be used to simulate chemical reactions and transport processes in natural or polluted waters. PHREEQC is capable of modeling both equilibrium and kinetic reactions. Some of the simulations pursued during the course include: Speciation of precipitation water; Iron speciation; Zinc sorption onto hydrous ferric oxide; Oxidation of organic carbon and the sequence of electron donors in natural waters; Benzene advective transport in groundwater; TCE transport and degradation.
Taught by: Mastropaolo
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GEOL 666 Geology Field Work
Directed independent field work.
Taught by: Giegengack
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: 4-8 weeks during the summer.

GEOL 668 Geomechanics: Fluids
Static and Dynamic mechanical properties of fluid in earth materials, as applied to the Hydrologic Sciences; Principles of Fluid Mechanics and Hydraulics applied to open channel flow in earth materials; flow through gates, weirs, spillways, and culverts; Applications of Darcy's Law to subsurface flow and seepage.
Taught by: Duda
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GEOL 750 Topics in earth Science
This course will use the weekly EES seminar series to survey historic breakthrough papers or topics in the earth sciences, as well as modern papers - written by the seminar speakers - that often put the classics in perspective. Graduate students (Ph.D. only) in the Department of Earth and Environmental Science will engage in the material through reading, presentation, and discussion. The course has several goals. (1.) To engender an understanding and appreciation of major breakthroughs in our field. (2.) To develop skills in presenting and discussing scientific results. And (3.) to refine students' understanding of what constitutes great science.
Taught by: Sallan
Activity: Seminar
1 Course Unit
Notes: Open only to PhD students

GEOL 999 Independent Study and Research
Directed study for individuals or small groups under supervision of a faculty member.
One-term course offered either term
Prerequisite: Permission of departmental committee
Activity: Independent Study
1 Course Unit
Notes: Hours and credits to be arranged.
GRMN 011 Bad Taste

"Beauty is not a quality inherent to things: it only exists in the mind of the beholder." (David Hume) Most of us can recognize bad taste as soon as we see it: Harlequin romances, Elvis on black velvet, lawn ornaments. But bad taste also has a history, and kitsch has been identified as a peculiarly modern invention related to capitalism and consumerism. Beginning with a discussion of taste in the eighteenth century, we will investigate under what conditions good taste can go bad, for example when it is the object of mass reproduction, and, on the other hand, why bad taste in recent times has increasingly been viewed in positive terms. Categories such as the cute, the sentimental, the popular, the miniature, kitsch, and camp will be explored. We will also ask what forms of ideological work have been done by this brand of aesthetics, for example in the connection between politics and kitsch, femininity and the low-brow, or camp and queer identity. Writers and film-makers to be discussed include: Hume, Kant, Goethe, Flaubert, Bourdieu, Sacher-Masoch, Thomas Mann, Nabokov, Benjamin, Greenberg, Sontag, John Waters.

Taught by: MacLeod
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Freshman seminar. All readings and lectures in English. No knowledge of German is required.

GRMN 023 In Praise of the Small in Literature and the Arts

We can memorize aphorisms and jokes, carry miniature portraits with us, and feel playful in handling small objects. This seminar will ask us to pay attention to smaller texts, art works, and objects that may easily be overlooked. In addition to reading brief texts and looking at images and objects, we will also read texts on the history and theory of short genres and the small.

Taught by: Weissberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Freshman seminar. All readings and lectures in English. No knowledge of German is required.

GRMN 026 Jews and China: Views from Two Perspectives

Jews in China??? Who knew??? The history of the Jews in China, both modern and medieval, is an unexpected and fascinating case of cultural exchange. Even earlier than the 10th century, Jewish trader from India or Persia on the Silk Road, settled in Kaifeng, the capital of the Northern Song Dynasty, and established a Jewish community that lasted through the nineteenth century. In the mid-nineteenth century, Jewish merchants, mainly from Iraq, often via India, arrived in China and played a major role in the building of modern Shanghai. After 1898, Jews from Russia settled in the northern Chinese city of Harbin, first as traders and later as refugees from the Bolshevik Revolution and Russian Civil War. In the first decades of the twentieth century, a few Jews from Poland and Russia visited China as tourists, drawn by a combination of curiosity about the cultural exoticism of a truly foreign culture and an affinity that Polish Jewish socialists and communists felt as these political movements began to emerge in China. During World War II, Shanghai served as a port of refuge for Jews from Central Europe. In this freshman seminar, we will explore how these Jewish traders, travelers, and refugees responded to and represented China in their writings. We will also read works by their Chinese contemporaries and others to see the responses to and perceptions of these Jews. We will ask questions about cultural translation: How do exchanges between languages, religions, and cultures affect the identities of individuals and communities? What commonalities and differences between these people emerge?

Taught by: Hellerstein
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

GRMN 027 Euro Zone Crisis - The EU in a Currency War for Survival?

"Let me put it simply...there may be a contradiction between the interests of the financial world and the interests of the political world...We cannot keep constantly explaining to our voters and our citizens why the taxpayer should bear the cost of certain risks and not those people who have earned a lot of money from taking those risks," Angela Merkel, Chancellor of Germany, at the G20 Summit, November 2010. In January 1999, a single monetary system united Germany, a core nation, with 10 other European states. Amidst the optimism of the euro’s first days, most observers forecast that Europe would progress toward an ever closer union. Indeed, in the ensuing decade, the European Union became the world’s largest trading area, the euro area expanded to include 17 member states, and the Lisbon Treaty enhanced the efficiency and democratic legitimacy of the Union. In 2009, Greece’s debt crisis exposed deep rifts within the European Union and developed into a euro zone crisis - arguably the most difficult test Europe has faced in the past 60 years. After two years of a more benign EURO debt situation, the risk of recession, EU sanctions agains Russia, and a possible collision of a newly-elected Greek government with its creditors, the euro crisis returned with a vengeance in 2015. In addition, the pressure mounts for European leaders to find a solution to the refugee crisis which reached a peak in the fall of 2015. In 2016 the Brexit delivered the latest blow to the European Union, and the future of the European project without the UK looks bleak. The Economic and Monetary Union (EMU) is still fragile, and economic and political developments in 2017 could determine the future of the euro.

Taught by: Shields, Susanne (Lauder Institute)
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Freshman seminar. All readings and lectures in English. No knowledge of German is required.
GRMN 101 Elementary German I
Designed for the beginning student with no previous knowledge of German. German 101, as the first course in the first-year series, focuses on the development of language competence in listening, speaking, reading, and writing. By the end of the semester, students will be able to engage in simple conversations about familiar things, know greetings and everyday expressions, they will be able to count and tell time, and negate sentences in day-to-day contexts. Furthermore, students will be able to speak about events that happened in the immediate past and express plans for the future. In addition, students will have developed reading strategies that allow them to glean information from simple newspaper and magazine articles and short literary texts. Because cultural knowledge is one of the foci of German 101, students will learn much about practical life in Germany and will explore German-speaking cultures on the Internet.
For BA Students: Language Course
One-term course offered either term
Activity: Lecture
1 Course Unit

GRMN 102 Elementary German II
This course is a continuation of GRMN 101 and is designed to strengthen and expand students' listening, speaking, reading, and writing competence and to deepen an understanding of German-speaking cultures. By the end of the course, students will be able to handle a variety of day-to-day needs in a German-speaking setting and engage in simple conversations about personally significant topics. Students will begin to be able to talk about the past and the future, make comparisons, describe people and things in increasing detail, make travel plans that include other European countries, and make reservations in hotels and youth hostels. By the end of the course students will be able to talk about their studies and about their dreams for the future. In addition, students will develop reading strategies that should allow them to understand the general meaning of articles, and short literary texts. Furthermore, students will feel more able to understand information when hearing German speakers talking about familiar topics. Cultural knowledge remains among one of the foci of German 102, and students will continue to be exposed to authentic materials.
For BA Students: Language Course
One-term course offered either term
Prerequisites: GRMN 101 or equivalent.
Activity: Lecture
1 Course Unit

GRMN 103 Intermediate German I
This course is designed to improve students writing and speaking competence, to increase vocabulary, to deepen grammar usage, and to help develop effective reading and listening strategies in German across literary genres and media as students interpret and analyze cultural, political, and historical moments in German-speaking countries and compare them with their own cultural practices. This course is organized around content-based modules and prepares students well for GRMN 104 and a minor or major in German.
For BA Students: Language Course
One-term course offered either term
Prerequisites: GRMN 102 or equivalent.
Activity: Lecture
1 Course Unit

GRMN 104 Intermediate German II
A continuation of GRMN 103. Expands students writing and speaking competence in German, increases vocabulary and helps students practice effective reading and listening strategies. Our in-class discussions are based on weekly readings of literary and non-literary texts to facilitate exchange of information, ideas, reactions, and opinions. In addition, the readings provide cultural and historical background information. The review of grammar will not be the primary focus of the course. Students will, however, expand and deepen their knowledge of grammar through specific grammar exercises. Students will conclude the basic-language program at PENN by reading an authentic literary text; offering the opportunity to practice and deepen reading knowledge and to sensitize cultural and historical awareness of German-speaking countries.
For BA Students: Last Language Course
One-term course offered either term
Prerequisites: GRMN 103 or equivalent.
Activity: Lecture
1 Course Unit

GRMN 106 Accelerated Elementary German
This course is intensive and is intended for dedicated, highly self-motivated students who will take responsibility for their learning and creation of meaning with their peers. An intensive two credit course in which two semesters of elementary German (GRMN 101 & 102) are completed in one. Introduction to the basic elements of spoken and written German, with emphasis placed on the acquisition of communication skills. Readings and discussions focus on cultural differences. Expression and comprehension are then expanded through the study of literature and social themes.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
2 Course Units

GRMN 107 Accelerated Intermediate German
This course is intensive and is intended for dedicated, highly self-motivated students who will take responsibility for their learning and creation of meaning with their peers. This accelerated course is designed to improve students writing and speaking competencies, to increase vocabulary, to deepen grammar usage, and to help develop effective reading and listening strategies in German across literary genres and media as students interpret and analyze cultural, political, and historical moments in German-speaking countries and compare them with their own cultural practices. This course is organized around content-based modules. Students conclude the basic-language program at PENN by reading an authentic literary text; offering the opportunity to practice and deepen reading knowledge and to sensitize cultural and historical awareness of German-speaking countries.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisite: 102 or 106 or equivalent
Activity: Lecture
2 Course Units

GRMN 136 Nazi Germany & Holocaust
Course not offered every year
Activity: Lecture
1 Course Unit
GRMN 150 Water Worlds: Cultural Responses to Sea Level Rise & Catastrophic Flooding
As a result of climate change, the world that will take shape in the course of this century will be decidedly more inundated with water than we're accustomed to. The polar ice caps are melting, glaciers are retreating, ocean levels are rising, polar bear habitat is disappearing, countries are jockeying for control over a new Arctic passage, while low-lying cities and small island nations are confronting the possibility of their own demise. Catastrophic flooding events are increasing in frequency, as are extreme droughts. Hurricane-related storm surges, tsunamis, and raging rivers have devastated regions on a local and global scale. In this seminar we will turn to the narratives and images that the human imagination has produced in response to the experience of overwhelming watery invasion, from Noah to New Orleans. Objects of analysis will include mythology, ancient and early modern diluvialism, literature, art, film, and commemorative practice. The basic question we'll be asking is: What can we learn from the humanities that will be helpful for confronting the problems and challenges caused by climate change and sea level rise?
For BA Students: Arts and Letters Sector
Taught by: Richter, Simon
Course not offered every year
Activity: Lecture
1 Course Unit

GRMN 152 Liquid Histories and Floating Archives
Climate change transforms the natural and built environments, and it is re-shaping how we understand, make sense, and care for our past. Climate changes history. This course explores the Anthropocene, the age when humans are remaking earth's systems, from an on-water perspective. In on-line dialogue and video conferences with research teams in port cities on four continents, this undergraduate course focuses on Philadelphia as one case study of how rising waters are transfiguring urban history, as well as its present and future. Students projects take them into the archives at the Independence Seaport Museum and at Bartram's Garden. Field trips by boat on the Schuylkill and Delaware Rivers and on land to the Port of Philadelphia and to the John Heinz National Wildlife Refuge invite transhistorical dialogues about how colonial and then industrial-era energy and port infrastructure transformed the region's vast tidal marshlands wetlands. Excursions also help document how extreme rain events, storms, and rising waters are re-making the built environment, redrawing lines that had demarcated land from water. In dialogue with one another and invited guest artists, writers, and landscape architects, students final projects consider how our waters might themselves be read and investigated as archives. What do rising seas subsume and hold? Whose stories do they tell? What floats to the surface?
Taught by: Wiggin
Course not offered every year
Activity: Lecture
1 Course Unit

GRMN 155 Fascist Cinemas
Cinema played a crucial role in the cultural life of Nazi Germany and other fascist states. As cinema enthusiasts, Goebbels and Hitler were among the first to realize the important ideological potential of film as a mass medium and saw to it that Germany remained a cinema powerhouse producing more than 1000 films during the Nazi era. Mussolini, too, declared cinema "the strongest weapon." This course explores the world of Nazi cinema ranging from infamous propaganda pieces such as The Triumph of the Will and The Eternal Jew to entertainments by important directors as Douglas Sirk. While the main focus is Germany, the course explores the strange and mutually defining kinship between fascism more broadly and film. We will consider what elements mobilize and connect the film industries of the Axis Powers: style, genre, the aestheticization of politics, the creation of racialized others. More than seventy years later, fascist cinemas challenge us to grapple with issues of more subtle ideological insinuation than we might think. Weekly screenings with subtitles.
Taught by: MacLeod
Course not offered every year
Activity: Lecture
1 Course Unit

GRMN 180 German in Residence
The German House is a half-credit course with concentrations in German conversation, film, and culture. Though many students enroll for credit, others often come to select events. All interested parties are invited, and you do not have to actually live in the house to enroll for credit. Students from all different levels of language proficiency are welcome. Beginners learn from more advanced students, and all enjoy a relaxed environment for maintaining or improving their German language skills.
One-term course offered either term
Activity: Lecture
0.5 Course Units
GRMN 181 Comparative Cultures of Sustainability
Sustainability is more than science, engineering, policy, and design. Surveying the world, we see that the politics and practice of sustainability play out in different ways depending on cultural factors. Some cultures are more prone to pursue ecological goals than others. Why? Do the environmental history and experience of a nation affect policy? Do nature and the environment play a crucial role in the cultural memory of a nation? Can cultural components be effectively leveraged in order to win approval for a politics of sustainability? And what can we, as residents of a country where climate change and global warming are flashpoints in an enduring culture war, learn from other cultures? This course is designed to equip undergraduate students with the historical and cultural tools necessary to understand the cultural aspects of sustainability in two countries noted for their ecological leadership and cultural innovation, Germany and the Netherlands. This hybrid course combines online instruction with a short-term study abroad experience in Berlin and Rotterdam. During the pre-tip online portion of the course, students will become acquainted with the cultural histories of German and Dutch attitudes toward sustainability and the environment through a combination of recorded lectures by the instructor, reading assignments, viewing assignments (documentary and feature films), threaded discussions, and short written assignments. The goal of the pre-tip instruction are to help students develop tools for analyzing and interpreting cultural difference, construct working models of German and Dutch concepts of sustainability, and formulate hypotheses about the relation between culture and policy in Germany and the Netherlands. Taught by: Richter
Course usually offered summer term only
Prerequisites: There are no prerequisites or language requirements.
Activity: Lecture
1 Course Unit
Notes: Summer abroad course.

GRMN 203 Texts and Contexts
In this course, you will explore themes of cultural and historical significance in contemporary German-speaking countries through literature and nonfiction, through film and current event media coverage. Whether you wish to dive deeply into historical or political contexts, explore untranslatable cultural phenomena or the aesthetic rhythm and semantic complexity of the German language, GRMN 203 Texts and Contexts will inspire your imagination and deepen your understanding of German language, culture and literature. This is a required course for all courses taught in German at or above the 200 level. For BA Students: Advanced Language Course One-term course offered either term
Prerequisites: GRMN 104 or the equivalent.
Activity: Lecture
1 Course Unit

GRMN 219 Business German: A Macro Perspective
This course offers you insights into the dynamics of Business German, while taking a macro approach. Examples of various course topics include: economic geography and its diversity, the changing role of the European Union, and the economic importance of national transportation and tourism. In addition, the course emphasizes the development of students' discourse competencies, Business German vocabulary and grammar. Course assignments include oral presentations on current events, class discussions, role-play, and collaborative group work. Class time will be utilized to practice speaking, answering questions, reviewing exercises and holding group discussions on various topics. Class participation is a key component of this course. For BA Students: Advanced Language Course Taught by: James
Course usually offered in fall term
Prerequisites: GRMN 203 or equivalent.
Activity: Lecture
1 Course Unit
Notes: No previous knowledge of economics or business required. Course taught in German.

GRMN 220 Business German: A Micro Perspective
This course is designed to enhance your speaking, reading and writing skills, in addition to helping you build a strong foundation in business vocabulary. Course objectives include acquiring skills in cross cultural communication, teamwork, business management, and creating a business plan. German grammar will be covered on a need be basis. This course will prepare you to perform and contribute while in a German-speaking business environment. For BA Students: Advanced Language Course Taught by: James
Course usually offered in spring term
Prerequisites: GRMN 203 or equivalent.
Activity: Lecture
1 Course Unit
Notes: Course taught in German.

GRMN 230 The Novel in Nineteenth Century Dutch and European Literature: Constructing National and Class Identities
This course explores how the novel as a genre functioned in 19th Century Europe, in a period when newly born nations (e.g. Belgium and the Netherlands) and newly born classes (bourgeoisie, hired labour classes) had to find or construct new identities in the wake of recent developments on the political plane and other recent revolutions (in particular the French and the Industrial one), which had led to large upheavals in traditional society. Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Taught in English.

GRMN 232 Topics in European History
The title for Fall 2017 is: The Nazi Revolution: Power and Ideology. Taught by: Steinberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually.
GRMN 237 Berlin: History, Politics, Culture
What do you know about Berlin's history, architecture, culture, and political life? The present course will offer a survey of the history of Prussia, beginning with the seventeenth century, and the unification of the small towns of Berlin and Koelín to establish a new capital for this country. It will tell the story of Berlin's rising political prominence in the eighteenth century, and its position as a center of the German and Jewish Enlightenment. It will follow Berlin's transformation into an industrial city in the nineteenth century, its rise to metropolis in the early twentieth century, its history during the Third Reich, and the post-war cold war period. The course will conclude its historical survey with a consideration of Berlin's position as a capital in reunified Germany.

For BA Students: Humanities and Social Science S
Taught by: Wiggin
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Taught in English.

GRMN 239 Sustainability & Utopianism
This seminar explores how the humanities can contribute to discussions of sustainability. We begin by investigating the contested term itself, paying close attention to critics and activists who deplore the very idea that we should try to sustain our, in their eyes, dystopian present, one marked by environmental catastrophe as well as by an assault on the educational ideals long embodied in the humanities. We then turn to classic humanist texts on utopia, beginning with More's fictive island of 1517. The "origins of environmentalism" lie in such depictions of island edens (Richard Grove), and our course proceeds to analyze classic utopian tests from American, English, and German literatures. Readings extend to utopian visions from Europe and America of the nineteenth and twentieth centuries, as well as literary and visual texts that deal with contemporary nuclear and flood catastrophes. Authors include: Bill McKibben, Jill Kerr Conway, Christopher Newfield, Thomas More, Francis Bacon, Karl Marx, Henry David Thoreau, Robert Owens, William Morris, Charlotte Perkins Gilman, Ayn Rand, Christa Wolf, and others.

For BA Students: Humanities and Social Science S
Taught by: Wiggin
Activity: Seminar
1 Course Unit
Notes: Taught in English.

GRMN 240 Global Sustainabilities
This research-oriented seminar focuses on the ways in which "sustainability" and "sustainable development" are linguistically and culturally translated into the world's languages. We may take the terms for granted, but they have only really been on the global stage since they were widely introduced in the 1987 United Nations report, Our Common Future. Seminar participants will first become acquainted with the cultural and conceptual history of the terms and the UN framework within which sustainability efforts directly or indirectly operate. Having established the significance of cultural and linguistic difference in conceiving and implementing sustainability, participants will collaboratively develop a research methodology in order to begin collecting and analyzing data. We will draw heavily on Penn's diverse language communities and international units. Seminar members will work together and individually to build an increasingly comprehensive website that provides information about the world's languages of sustainability.

Taught by: Richter
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar. All readings and lectures in English.

GRMN 242 The Fantastic and Uncanny in Literature: Ghosts, Spirits & Machines
Do we still believe in spirits and ghosts? Do they have any place in an age of science of technology? Can they perhaps help us to define what a human being is and what it can do? We will venture on a journey through literary texts from the late eighteenth century to the present to explore the uncanny and fantastic in literature and life. Our discussions will be based on a reading of Sigmund Freud's essay on the uncanny, and extraordinary Romantic narratives by Ludwig Tieck, E.T.A. Hoffmann, Edgar Allan Poe, Nathaniel Hawthorne, Prosper Merimee, Villiers de Isle-Adam, and others.

For BA Students: Arts and Letters Sector
Taught by: Weissberg
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

GRMN 244 Metropolis: Culture of the City
An exploration of modern discourses on and of the city. Topics include: the city as site of avant-garde experimentation; technology and culture; the city as embodiment of social order and disorder; traffic and speed; ways of seeing the city; the crowd; city figures such as the detective, the criminal, the flaneur, the dandy; film as the new medium of the city. Special emphasis on Berlin. Readings by, among others, Dickens, Poe, Baudelaire, Rilke, Doeblin, Marx, Engels, Benjamin, Kracauer. Films include Fritz Lang's Metropolis and Tom Tykwer's Run Lola Run.

For BA Students: Arts and Letters Sector
Taught by: MacLeod
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All lectures and readings in English.
GRMN 247 Free Radicals: Marx, Marxism, and the Culture of Revolution

"A spectre is haunting Europe--the spectre of Communism": This, the famous opening line of The Communist Manifesto, will guide this course’s exploration of the history, legacy, and potential future of Karl Marx’s most important texts and ideas, even long after Communism has been pronounced dead. Contextualizing Marx within a tradition of radical thought regarding politics, religion, and sexuality, we will focus on the philosophical, political, and cultural origins and implications of his ideas. Our work will center on the question of how his writings seek to counter or exploit various tendencies of the time; how they might continue to haunt us today. We will begin by discussing key works by Marx himself, examining ways in which he is both influenced by and appeals to many of the same fantasies, desires, and anxieties encoded in the literature, arts and intellectual currents of the time. In examining his legacy, we will focus on elaborations or challenges to his ideas, particularly within cultural criticism, postwar protest movements, and the cultural politics of the Cold War. In conclusion, we will turn to the question of Marxism or Post-Marxism today, asking what promise Marx’s ideas might still hold in a world vastly different from his own.

For BA Students: Humanities and Social Science S
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

GRMN 248 Nietzsche’s Modernity and the Death of God

"God is dead." This famous, all too famous death sentence, issued by the 19th-century German philosopher Friedrich Nietzsche, also signaled the genesis of a radical challenge to traditional notions of morality, cultural life, and the structure of society as a whole. In this course we will examine both the “modernity” of Nietzsche’s thought and the ways in which his ideas have helped to define the very concept of Modernity (and, arguably, Postmodernity) itself. In exploring the origin and evolution of Nietzsche’s key concepts, we will trace the ways in which his work has been variously revered or refuted, championed or co-opted, for more than a century. We will survey his broad influence on everything from philosophy and literature to music and art, theater and psychology, history and cultural theory, politics and popular culture. Further, we will ask how his ideas continue to challenge us today, though perhaps in unexpected ways. As we will see, Nietzsche wanted to teach us “how to philosophize with a hammer.”

Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

GRMN 249 Topics in Modernism

This course explores an aspect of literary modernism intensively; specific course topics will vary from year to year. Topic title for Spring 2018: Modernism and the Theory of Fashion. In this class we will study international modernism from 1860 to 1940 by focusing on the emergence of a concept of the "new" that was also understood as a "new fashion." What was the "fashion of the new," how was it linked with "fashion" itself? The rise of modernism was accompanied by a series of self-conscious discourses in fashion, the first of which were elaborated by Beaudelaire & Mallarme. We will follow the social uses of the "new" in the context of the fashion industry so as to map a cultural history of "fashion" as it was developed by Walter Benjamin and Georg Simmel. We will read through Beaudelaire and Mallarme’s prose and poetry, then engage with Aragon’s Surrealist novel Paris Peasant, after which we will survey selected sections of Benjamin’s Arcades Project. All the while, the Fashion Theory: A Reader will serve as our theoretical guide.

Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually.

GRMN 253 Freud: The Invention of Psychoanalysis

No other person of the twentieth century has probably influenced scientific thought, humanistic scholarship, medical therapy, and popular culture as much as Sigmund Freud. This course will study his work, its cultural background, and its impact on us today. In the first part of the course, we will learn about Freud’s life and the Viennese culture of his time. We will then move to a discussion of seminal texts, such as excerpts from his Interpretation of Dreams, case studies, as well as essays on psychoanalytic practice, human development, definitions of gender and sex, neuroses, and culture in general. In the final part of the course, we will discuss the impact of Freud’s work. Guest lecturers from the medical field, history of science, psychology, and the humanities will offer insights into the reception of Freud’s work, and its consequences for various fields of study and therapy.

For BA Students: Humanities and Social Science S
Taught by: Weissberg
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.
GRMN 257 Fascist Cinemas
Cinema played a crucial role in the cultural life of Nazi Germany and other fascist states. As cinema enthusiasts, Goebbels and Hitler were among the first to realize the important ideological potential of film as a mass medium and saw to it that Germany remained a cinema powerhouse producing more than 1000 films during the Nazi era. In Italy, Mussolini, too, declared cinema "the strongest weapon." This course explores the world of "fascist" cinemas ranging from infamous propaganda pieces such as The Triumph of the Will to popular entertainments such as musicals and melodramas. It examines the strange and mutually defining kinship between fascism more broadly and film. We will consider what elements mobilize and connect the film industries of the Axis Powers: style, genre, the aestheticization of politics, the creation of racialized others. More than seventy years later, fascist cinemas challenge us to grapple with issues of more subtle ideological insinuation than we might think. Weekly screenings with subtitles.
For BA Students: Arts and Letters Sector
Taught by: MacLeod
Activity: Lecture
1 Course Unit
Notes: All readings and discussions in English.

GRMN 258 German Cinema
An introduction to the momentous history of German film, from its beginnings before World War One to developments following the fall of the Berlin Wall in 1989 and German reunification in 1990. With an eye to film's place in its historical and political context, the course will explore the "Golden Age" of German cinema in the Weimar Republic, when Berlin vied with Hollywood; the complex relationship between Nazi ideology and entertainment during the Third Reich; the fate of German film-makers in exile during the Hitler years; post-war film production in both West and East Germany; the call for an alternative to "Papa's Kino" and the rise of New German Cinema in the 1960s.
For BA Students: Arts and Letters Sector
Taught by: Fleishman
Activity: Lecture
1 Course Unit
Notes: All readings and discussions in English.

GRMN 259 Topics German Cinema
This topic course explores aspects of Film History intensively. Specific course topics vary from year to year. See the Cinema Studies website at http://cinemastudies.sas.upenn.edu for a description of the current offerings.
Taught by: Katz, Corrigan, Decherney, Beckman, Fleishman
Activity: Lecture
1 Course Unit
Notes: All readings and discussions in English.

GRMN 261 Jewish Films and Literature
From the 1922 silent film "Hungry Hearts" through the first "talkie," "The Jazz Singer," produced in 1927, and beyond "Schindler's List" Jewish characters have confronted the problems of their Jewishness on the silver screen for a general American audience. Alongside this Hollywood tradition of Jewish film, Yiddish film blossomed from independent producers between 1911 and 1939, and interpreted literary masterpieces, from Shakespeare's "King Lear" to Sholom Aleichem's "Teyve the Dairyman," primarily for an immigrant, urban Jewish audience. In this course, we will study a number of films and their literary sources (in fiction and drama), focusing on English language and Yiddish films within the framework of three dilemmas of interpretation: a) the different ways we "read" literature and film, b) the various ways that the media of fiction, drama, and film "translate" Jewish culture, and c) how these translations of Jewish culture affect and are affected by their implied audience.
For BA Students: Arts and Letters Sector
Taught by: Hellerstein
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

GRMN 262 Women in Jewish Literature
This course introduces students of literature, women's studies, and Jewish studies to the long tradition of women as readers, writers, and subjects in Jewish literature. All texts will be in translation from Yiddish and Hebrew, or in English. Through a variety of genres--devotional literature, memoir, fiction, and poetry -- we will study women's roles and selves, the relation of women and men, and the interaction between Jewish texts and women's lives. The legacy of women in Yiddish devotional literature will serve as background for our reading of modern Jewish fiction & poetry from the past century. The course is devided into five segments. The first presents a case study of the Matriarchs Rachel and Leah, as they are portrayed in the Hebrew Bible, in rabbinic commentary, in pre-modern prayers, and in modern poems. We then examine a modern novel that recasts the story of Dinah, Leah's daughter. Next we turn to the seventeenth century Glikl of Hamel, the first Jewish woman memoirist. The third segment focuses on devotional literature will serve as background for our reading of modern Jewish texts and women's lives. The legacy of women in Yiddish devotional literature will serve as background for our reading of modern Jewish fiction & poetry from the past century. The course is devided into five segments. The first presents a case study of the Matriarchs Rachel and Leah, as they are portrayed in the Hebrew Bible, in rabbinic commentary, in pre-modern prayers, and in modern poems. We then examine a modern novel that recasts the story of Dinah, Leah's daughter. Next we turn to the seventeenth century Glikl of Hamel, the first Jewish woman memoirist. The third segment focuses on devotional literature for and by women. In the fourth segment, we read modern women poets in Yiddish, Hebrew, and English. The course concludes with a fifth segment on fiction and a memoir written by women in Yiddish, Hebrew, and English. "Jewish woman, who knows your life? In darkness you have come, in darkness do you go." J. L. Gordon (1890)
For BA Students: Arts and Letters Sector
Taught by: Hellerstein
Activity: Seminar
1 Course Unit
Notes: All readings and lectures in English.
GRMN 263 Jewish American Literature
What makes Jewish American literature Jewish? What makes it American? This course will address these questions about ethnic literature through fiction, poetry, drama, and other writings by Jews in America, from their arrival in 1654 to the present. We will discuss how Jewish identity and ethnicity shape literature and will consider how form and language develop as Jewish writers "immigrate" from Yiddish, Hebrew, and other languages to American English. Our readings, from Jewish American Literature: A Norton Anthology, will include a variety of stellar authors, both famous and less-known, including Isaac Mayer Wise, Emma Lazarus, Isaac Bashevis Singer, Celia Dropkin, Abraham Cahan, Anzia Yezierska, Saul Bellow, Philip Roth, Cynthia Ozick, and Allegra Goodman. Students will come away from this course having explored the ways that Jewish culture intertwinelines with American culture in literature.
For BA Students: Arts and Letters Sector
Taught by: Hellerstein
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

GRMN 264 Translating Cultures: Literature on and in Translation
"Languages are not strangers to one another," writes the great critic and translator Walter Benjamin. Yet two people who speak different languages have a difficult time talking to one another, unless they both know a third, common language or can find someone who knows both their languages to translate what they want to say. Without translation, most of us would not be able to read the Bible or Homer, the foundations of Western culture. Americans wouldn’t know much about the cultures of Europe, China, Africa, South America, and the Middle East. And people who live in or come from these places would not know much about American culture. Without translation, Americans would not know much about the diversity of cultures within America. The very fabric of our world depend upon translation between people, between cultures, between texts. With a diverse group of readings—autobiography, fiction, poetry, anthropology, and literary theory—this course will address some fundamental questions about translating language and culture. What does it mean to translate? How do we read a text in translation? What does it mean to live between two languages? Who is a translator? What are different kinds of literary and cultural translation? what are their principles and theories? Their assumptions and practices? Their effects on and implications for the individual and the society?
For BA Students: Arts and Letters Sector
Taught by: Hellerstein
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar. All readings and lectures in English.

GRMN 280 Topics in Aesthetics
What is beauty? What is the relationship between beauty and goodness? What does aesthetic judgment tell us, if anything, about the world? This course addresses these and other questions by focusing predominantly on Kant’s highly influential aesthetic theory. It situates this text in the context of other works on aesthetics. We begin with Plato’s view expressed in The Symposium that beauty is a form to which humans gain (some) access through love. We then turn to essays by Shaftesbury and Hume that introduce key aesthetic notions that Kant will elaborate (and revise)—including those of taste, common sense, harmony, and aesthetic disinterest. We also read selections from the work of Friedrich Schiller, John Dewey, and A. K. Coomaraswamy who offer alternative accounts of the relationship between beauty and ethical life—a relationship that Kant acknowledges but considers to be importantly limited. The question of the relationship between ethics and aesthetics will form the backdrop for this semester’s reading overall.
Taught by: Gibbons
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 280 Topics in Aesthetics
What is beauty? What is the relationship between beauty and goodness? What does aesthetic judgment tell us, if anything, about the world? This course addresses these and other questions by focusing predominantly on Kant’s highly influential aesthetic theory. It situates this text in the context of other works on aesthetics. We begin with Plato’s view expressed in The Symposium that beauty is a form to which humans gain (some) access through love. We then turn to essays by Shaftesbury and Hume that introduce key aesthetic notions that Kant will elaborate (and revise)—including those of taste, common sense, harmony, and aesthetic disinterest. We also read selections from the work of Friedrich Schiller, John Dewey, and A. K. Coomaraswamy who offer alternative accounts of the relationship between beauty and ethical life—a relationship that Kant acknowledges but considers to be importantly limited. The question of the relationship between ethics and aesthetics will form the backdrop for this semester’s reading overall.
Taught by: Gibbons
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 301 Handschrift-Hypertext: Deutsche Medien
This course will provide an introduction to German-language literary studies through exemplary readings of short forms: fables, fairy tales, aphorisms, stories, novellas, feuilletons, poems, songs, radio plays, film clips, web projects and others. Paying particular attention to how emergent technology influences genre, we will trace an evolution from Minnesang to rock songs, from early print culture to the internet age and from Handschrift to hypertext. Students will have ample opportunity to improve their spoken and written German through class discussion and a series of internet-based assignments. Readings and discussions in German.
For BA Students: Arts and Letters Sector
Course usually offered in spring term
Prerequisites: GRMN 203 is a prerequisite.
Activity: Lecture
1 Course Unit
Notes: This course will be offered every spring semester. Taught in German.

GRMN 302 Places of Memory. Lieux de memoire. Erinnerungsorte.
What is culture? What is German? Where are the borders between German, Austrian and Swiss culture? What is part of the "cultural canon"? Who decides and what role does memory play? Relying on the theory of collective memory (Halbwachs) and the concept of "places of memory" (Erinnerungsorte; Nora, Francois/Schulze) and with reference to exemplary scholarly and literary texts, debates, songs, films, documents, and paintings from high and pop culture, this course will weave a mosaic of that which (also) constitutes German or German-language culture. Course usually offered in fall term
Prerequisites: GRMN 203 is a prerequisite.
Activity: Lecture
1 Course Unit
Notes: This course will be offered every spring semester. Taught in German.

GRMN 311 Krautrock und die Folgen
Taught by: Hahmann, Lewis
Course not offered every year
Prerequisites: GRMN 203 or equivalent.
Activity: Lecture
1 Course Unit
Notes: Taught in German.
GRMN 326 Kings and Kaisers: Prussian History in Literature and Film
Taught by: Richter
Course not offered every year
Prerequisite: GRMN 302 or equivalent
Activity: Lecture
1 Course Unit
Notes: Taught in German.

GRMN 356 Crime and Detection - Dark Deeds
The detective story and the crime drama are time-honored genres of literature and popular culture. We are drawn to morbid scenes of violence and crime, and satisfied by the apprehension of criminals and their punishment. At the same time, the process of detection, of deciphering clues, is much like the process of reading and interpretation. In this course we will read a variety of detective and crime stories, some by famous authors (e.g., Droste-Huelshoff, Fontane, Handke), others by contemporary authors that address interesting aspects of German culture (e.g., Turkish-Germans, gay and lesbian subcultures, DDR and Wende). We will also look at episodes from popular West, East, and post-reunification German TV crime shows (e.g., Tatort).
Taught by: Frei
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Taught in German.

GRMN 361 Staging the 20th Century
Course not offered every year
Prerequisites: GRMN 203 or equivalent.
Activity: Seminar
1 Course Unit
Notes: Topics vary annually. Course taught in German. Topic for Spring 2014: "Staging the Middle Ages".

GRMN 363 Kant’s Critical Project
This seminar is dedicated to Kant’s critical philosophy. In particular, the Critique of pure Reason, which is the first of three Critiques, ranks amongst the most important texts of modern philosophy. Even in contemporary debates, Kantian claims still play a crucial role and basic knowledge of Kant’s critical philosophy is often assumed. In this seminar we will deal with central passages from different works which, taken together, give a good picture of Kant’s critical revision of classical metaphysics. We shall discuss important conceptions and ideas of Kant’s mature philosophy, such as the nature of transcendental aesthetics and the resulting distinction between a thing-in-itself and appearance, the meaning and application of the categories, the justification and determination of human freedom, and the role of the moral law for Kant’s so-called practical metaphysics.
Taught by: Hahmann
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 364 Topics vary annually. The topic for Spring 2015 is: Unhuman Encounters
Topics vary annually. The course description for Spring 2015 is as follows: Typically "the Other" stands for a person or a group of people from another cultural background. But there have always been other encounters that forced people to distiguish themselves from an "other". Foremost, in order to define what is "human", the "unhuman" needed to be described. Initially, this meant distinguishing the human from the rest of nature. With the industrial revolution, the technological became a concern--machines as monsters. On a figurative level, we have the supernatural, ghosts, aliens, and cyborgs. In this course we will explore the ways in which real and imagined encounters with these "other Others" are depicted in German language literature and culture.
Taught by: Dayioglu-Yucel
Course not offered every year
Prerequisite: GRMN 203 or equivalent
Activity: Seminar
1 Course Unit
Notes: Taught in German.

GRMN 375 German Literature after 1945
Focus on the continuity of the literary tradition, innovation, and prominent themes related to coming-of-age in today’s society, and specific stylistic experiments. Topics include: the changing literary perspective on German history and World War II; the representation of such prominent issues as individual responsibilty, German reunification, and human relations in modern society.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Taught in German.

GRMN 379 Decadence
The period of the late nineteenth and turn to the twentieth century has often been described as a time of decadence—a decline in the "standards" of morals and virtue. While Freud explored the nature of sexual desire, writers like Schnitzler or Wedekind made this exploration central for their stories or plays. The course will focus on the literature and culture of fin-de-siecle Vienna and Berlin, and consider a variety of texts as well as their later reception and translation into film. Lectures and discussion in German.
Taught by: Weissberg
Course not offered every year
Prerequisites: GRMN 203 or equivalent.
Activity: Lecture
1 Course Unit
Notes: Lectures and discussions in German.
GRMN 380 Heimat
The concept of Heimat (homeland, home, roots) has been a focal point of German culture for at least the past two hundred years; but it has no precise translation into English. Heimat is deeply connected with German notions of modernity, nature, community, and gender; but the question of where one belongs has also been associated with escapism, exclusion and marginality. Beginning with a reading of Freud's essay "Das Unheimliche," we will explore literary representations of Heimat (including works by authors such as Eichendorff, Storm, Stifter, Raabe, and Sebald); nineteenth-century paintings by artists such as Leibl; and Edgar Reitz's epic film Heimat (1984).

Taught by: MacLeod
Course not offered every year
Prerequisites: GRMN 203 or equivalent.
Activity: Lecture
1 Course Unit
Notes: Taught in German.

GRMN 381 Topics in German Culture. Topics vary annually. The topic for Fall 2017 is: Contemporary Germany - Deutschland schafft sich ab...oder erfindet sich neu?

Taught by: Hahmann
Course not offered every year
Prerequisite: GRMN 203 or equivalent
Activity: Seminar
0.5 Course Units

GRMN 401 Trans(l)its
Drawing on Goethe's musings on "world literature", the course focuses on authors who have arrived at their German words via global, worldly itineraries. The course considers movements between languages, including those of the students themselves and encourages students to develop their own voice as authors via a series of critical and creative writing exercise. At the same time, students develop strategies to reflect on their own language learning. This course provides an important space for German-learners at Penn to draw on one another's experiences in the program and to build a sense of community. The course is required for all German majors in the Fall semester of their senior year.

Taught by: Wiggin, MacLeod
Course usually offered in fall term
Prerequisites: GRMN 203.
Activity: Independent Study
1 Course Unit
Notes: This course will be offered every fall semester.

GRMN 402 Independent Study-Senior.
One-term course offered either term
Activity: Independent Study
1 Course Unit

GRMN 403 Senior Colloquium.
Taught by: Wiggin, MacLeod
Course usually offered in spring term
Activity: Seminar
0.5 Course Units

GRMN 507 Elementary Middle High German
Designed to familiarize the student with the principal elements of Middle High German grammar and to develop skills in reading and translating a major work of the twelfth century. Limited text interpretation.

Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Middle High German for Reading Knowledge will be taught in English.
GRMN 509 Topics in Yiddish Literature - Modernist Jewish Poetry.
One version of this seminar considers works by Jewish women who wrote in Yiddish, Hebrew, English, and other languages in the late 19th through the 20th century. The texts, poetry and prose, will include both belles lettres and popular writings, such as journalism, as well as private works (letters and diaries) and devotional works. The course will attempt to define "Jewish writing," in terms of language and gender, and will consider each writer in the context of the aesthetic, religious, and national ideologies that prevailed in this period. Because students will come with proficiency in various languages, all primary texts and critical and theoretical materials will be taught in English translation. However, those students who can, will work on the original texts and share with the class their expertise to foster a comparative perspective. Because we will be discussing translated works, a secondary focus of the course will, in fact, be on literary translation's process and products. Another version of this seminar presents Jewish modernism as an international phenomenon of the early 20th century. The course will attempt to define "Jewish modernism" through the prism of poetry, which inevitably, given the historical events in Europe and America during this time, grapples with aesthetic, religious, and national ideologies and methods. The syllabus will focus mainly on poetry written in Yiddish and English, and will also include German, Russian, and Hebrew verse. All poetry, critical, and theoretical materials will be taught in English translation, although students who know the languages will work on the original texts and will bring to the table a comparative perspective. Because we will be discussing translated poems, a secondary focus of the course will, in fact, be on literary translation's process and products.

Taught by: Hellerstein
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually.

GRMN 510 Topics in Language and Literature
Topic for Fall 2015: Old English and its Afterlives. The first half or more of this course will be devoted to the study of 8th-12th-century language and literature, with attention to grammar, metrics, translation, and transmission. We will cover a wide range of texts, such as the life of Sait Andrew, a saint who saved his followers from cannibals. Aelfric's Preface to his landmark translation of the bible, King Alfred the Great's Preface to Gregory's Pastoral Care, a brilliant meditation on the relationship between memory and culture; Wulfstan's thunderous Sermon to the English, which rebukes the Anglo-Saxon for stooping to fratricide, incest, and child slavery during the Viking invasions; the very strange collection of monstrosities and prodigies, which we call The Wonders of the East; "Caedmon's Hymn", what might just be the first recorded poem in English, supposedly composed by an illiterate cowherd; and the stunningly beautiful lyric poem "The Dream of Rood" in which the Cross recounts its heroics during the Crucifixion. In the second half of the course we will turn to post-Conquest literature (and beyond), as we explore the ways that medieval and early modern writers documented and theorized the Anglo-Saxon past. This section of the course will be determined part by student interests. Our questions will include the following: what constitutes a significant event? In what ways do different genres--chronicles, saints' lives, encyclopedias, sermons, romances, genealogies, geographies--offer competing or affirming views of the past? How do linguistic change and continuity matter? What impact did the Anglo-Saxons' pressing concerns with conquest, anonymity, decadence, and suffering have on later writers? And how did pre-Conquest England serve the needs of later English propaganda, antiquarianism, and reform? Students are not expected to know Old English, but we will need to get up to speed pretty quickly.

Taught by: Steiner
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually. Topic for Fall 2015: Old English and Its Afterlives

GRMN 511 Stylistics
Textual analysis based on communication theory. Texts selected from literature and other disciplines. Emphasis placed on the development of the student's own compositional and stylistic skills.

Course not offered every year
Prerequisite: GRMN 221 or the equivalent language preparation
Activity: Seminar
1 Course Unit
Notes: Graduate seminar

GRMN 516 Teaching Methods
This course examines major foreign language methodologies, introduces resources available to foreign language teachers, and addresses current issues and concerns of foreign language teaching and learning, such as second language acquisition theory and application of technology.

Taught by: Frei
One-term course offered either term
Activity: Lecture
1 Course Unit

Although the starting point for the Anthropocene is still under discussion, there is broad agreement that the industrial revolution and the turn to fossil fuels mark an intensification of humanity's impact on the Earth. It may not be a coincidence that Kant's proclamation of the Copernican revolution in philosophy, according to which human reason replaces the natural light of traditional metaphysics, falls roughly in the same period. Human finite cognition became the measure for God and his creation. The dawn of the era of human freedom and the ramped up exploitation of resources coincide. It is against this background that the Naturphilosophie of F. W. J. Schelling can become particularly interesting. The genesis of German idealism is closely related with the opposition between freedom and necessity that lies at the heart of Kant's critical project. Kant associated the former with man and the latter with nature. In trying to bridge the gap between them, Schelling reinstates nature as an autonomous actor in its own right. Schelling's thinking about nature chimed with the literary and empirical-scientific work of his contemporary Johann Wolfgang von Goethe. In the productive interplay of poetry, science, religion, and philosophical thought, Goethe and Schelling offer a critical alternative to philosophy in the aftermath of the Copernican revolution that may be viable or useful today as humanity tries to come to terms with anthropogenically induced climate change. This co-taught interdisciplinary seminar will focus on works by Schelling (Ideas for a Philosophy of Nature, First Outline of a System of the Philosophy of Nature, On the World Soul) and Goethe (scientific writings, Faust I & II), in addition to engaging recent scholarship of Schelling and Goethe in relation to environmental humanities.

Taught by: Richter/Hahmann
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 526 The Trouble with Freud: Psychoanalysis, Literature, Culture

For professionals in the field of mental care, Freud's work is often regarded as outmoded, if not problematic psychologists view his work as non-scientific, dependent on theses that cannot be confirmed by experiments. In the realm of literary and cultural theory, however, Freud's work seems to have relevance still, and is cited often. How do we understand the gap between a medical/scientific reading of Freud's work, and a humanist one? Where do we locate Freud's relevance today? The graduate course will concentrate on Freud's descriptions of psychoanalytic theory and practice, as well as his writings on literature and culture.

Taught by: Weissberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Readings and discussions in English.

GRMN 527 Philosophy of Psychology

The seminar will consider selected episodes in the interaction between philosophy and psychology. It starts with an intensive study of Descartes' machine psychology (in the Treatise on Man), which should complicate our picture of the history of such interactions. We then proceed, partly in response to student interest, to interactions involving Kant and nineteenth-century Kantians, Rylean "behaviorism", and recent work on the embodied mind (Wheeler, others).

Taught by: Hatfield
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 529 Seminar in Theory: Aurality and Deconstruction

Taught by: Fleishman, Waltham-Smith
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Graduate seminar.

GRMN 534 History of Literary Theory

Over the last three decades, the fields of literary and cultural studies have been reconfigured by a variety of theoretical and methodological developments. Bracing-and-often confrontational-dialogues between theoretical and political positions as varied as Deconstruction, New Historicism, Cultural Materialism, Feminism, Queer Theory, Minority Discourse Theory, Colonial and Post-colonial Studies and Cultural Studies have, in particular, altered disciplinary agendas and intellectual priorities for students embarking on the professional study of literature. In this course, we will study key texts, statements and debates that define these issues, and will work towards a broad knowledge of the complex rewritings of the project of literary studies in process today. The reading list will keep in mind the Examination List in Comparative Literature. We will not work towards complete coverage but will ask how crucial contemporary theorists engage with the longer history and institutional practices of literary criticism. There will be no examinations. Students will make one class presentation, which will then be reworked into a paper (1200-1500 words) to be submitted one week after the presentation. A second paper will be an annotated bibliography on a theoretical issue or issues that a student wishes to explore further. The bibliography will be developed in consultation with the instructor; it will typically include three or four books and six to eight articles or their equivalent. The annotated bibliography will be prefaced by a five or six page introduction; the whole will add up to between 5000 and 6000 words of prose. Students will prepare "position notes" each week, which will either be posted on a weblog or circulated in class.

Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually.

GRMN 535 The Elemental Turn

The unfolding effects of climate change--rising sea level, melting ice sheets, subsiding land masses, drought stricken regions, wild fires, air laden with greenhouse gases, and inundated cities--heighen our awareness of the elements: air, earth, fire and water. Within the context of the new materialism, philosophers, eco-critics, and writers are re-turning to the elements and encountering, at the same time, predecessor texts that assume new relevance. This seminar will place current thinking and writing about the elements into dialogue with older traditions ranging from the classical (Empedocles, Plato, Lucretius) to writers and thinkers of the eighteenth, nineteenth and twentieth centuries (e.g., Goethe, Novalis, Tieck, Stifter, Bachelard, Heidegger, Boehme).

Taught by: Richter
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Graduate seminar. Taught in English.

GRMN 537 Translating Literature: Theory and Practice

Taught by: Hellerstein
Course not offered every year
Activity: Seminar
1 Course Unit
GRMN 541 Topics in Cultural History
Topic for Spring 2016: Making and Marking Time. What is time? In the late 19th century, the questions of how to define time, how to slow down time, and, above all, how to accelerate movement have become focus of the work by many European philosophers who have tried to come to terms with what is now termed as the Industrial Revolution, and the idea of “progress.” And can time be understood as something continuous, or is it fragmented, proceeding in fits and bursts? Such contemplations on time have deeply influenced writers. Marcel Proust was a reader of Henri Bergson and translated his theories of time into a concept of memory. Thomas Mann has tried to navigate timelessness in a novel set on a “Magic Mountain.” Virginia Woolf and James Joyce have pictured an entire universe in a single day (Mrs. Dalloway, Ulysses) while early 20th century Italian Futurists made the contemplation of time part of their manifestos. With them, and with expressionist writers in Germany or writers from the DADA movement there elsewhere in Europe, a reckoning with time would also influence their choice of genre and form, writerly practice, and technique. Parallel to these literary experimentation, pictures were set into motion in scholarly studies by Eadweard Muybridge and finally in the new medium film; Impressionist painters insisted on picturing fleeting moments, and composers experimented with temporal sequences. We may be able to understand a reconsideration of time as driving force for the modern movement, or simply “modernity.” In this seminar, we will study a selection of literary texts of the late 19th century and the modernist movement, consider the philosophical background and changes in historiography, and integrate a consideration of the visual arts and music.

Taught by: Weissberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually. Title for Spring 2016: Making and Marking Time.

GRMN 542 Topics in Culture.
Topics vary annually.
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 543 Environmental Humanities: Theory, Method, Practice
Environmental Humanities: Theory, Methods, Practice is a seminar-style course designed to introduce students to the trans- and interdisciplinary field of environmental humanities. Weekly readings and discussions will be complemented by guest speakers from a range of disciplines including ecology, atmospheric science, computing, history of science, medicine, anthropology, literature, and the visual arts. Participants will develop their own research questions and a final project, with special consideration given to building the multi-disciplinary collaborative teams research in the environmental humanities often requires.

Taught by: Wigg
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 544 Public Environmental Humanities
This broadly interdisciplinary course is designed for Graduate and Undergraduate Fellows in the Penn Program in Environmental Humanities (PPEH) who have previously taken Public Environmental Humanities (GRMN 543). This course will include a broader international and global history of environmental humanities and the relationship between science, politics, and the environment. The course will focus on the role of the arts and humanities in understanding environmental issues and will introduce students to a range of interdisciplinary approaches to environmental studies. The course will be taught by University of Pennsylvania faculty and will include guest lectures from scholars and artists working in the field of environmental humanities. Course assignments include: * 2 short-form essays (course blog posts); * a 12-hour research stay (conducted over multiple visits) with a community course partner to canvas data uses and desires; * authorship of a multi-media data stories; * co-organization and participation in a city-wide data storytelling event on May 2, 2018.

Taught by: Wigg
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 548 19th Century Philosophy
After an orientation to Kant’s philosophy, we will examine Hegel, Feuerbach, Marx, and Nietzsche.
Taught by: Horstmann
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 550 German Film History and Analysis
From the early 20th century, German cinema has played a key role in the history of film. Seminar topics may include: Weimar cinema, film in the Nazi period, East German film, the New German cinema, and feminist film.
Taught by: Richter
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Topics vary annually.

GRMN 551 Kant I
The course will concentrate on the Critique of Pure Reason and discuss in detail Kant’s conception of knowledge and experience, his criticism of traditional metaphysics and the resulting project of a system of transcendental philosophy.
Taught by: Horstmann
Course not offered every year
Activity: Seminar
1 Course Unit
GRMN 552 Kant II
A study of Kant’s moral philosophy, political philosophy, and aesthetics, focusing on his Groundwork for the Metaphysics of Morals, Critique of Practical Reason, Metaphysics of Morals, and Critique of Judgement. 
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 555 Topics in Dutch Studies
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually.

GRMN 556 What is Enlightenment?
The question “What is the Enlightenment?” was posed for an essay competition in a journal, the Berlin Monatsschrift in 1784. At that point, French and English philosophers had already considered new ways of thinking, inventing the modern individual and the modern citizen (in contrast to a state's subject). German responses to this question were written by an established philosopher (Immanuel Kant), a Jewish resident of Berlin (Moses Mendelssohn), as well as concerned readers of recent philosophical treatises. In our course, we will consider this question by exploring this early discussion and the formation of Enlightenment thought in Europe and specifically Germany, including the German-Jewish Enlightenment (Haskalah), but also trace the historical transformation of this discussion, including Theodor W. Adorno’s and Max Horkheimer’s Dialectics of Enlightenment (1944/1947) and more recent criticism.
Taught by: Weissberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Graduate seminar.

GRMN 557 Reading the Twentieth Century
Taught by: MacLeod
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Graduate seminar.

GRMN 560 Topics in Philosophy and Literature
Topics vary annually.
Taught by: Chignell
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary. The title for Fall 2017 is: Kant's Philosophy of Religion

GRMN 562 Early Modernism
Topics vary annually.
Taught by: Wiggin, Frei, Hahmann
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Graduate course. Topics vary annually.

GRMN 557 Topics in History of Philosophy. Topics change annually. Title for Spring 2016 is: Schiller's Philosophical Writings
Topics change annually. Topic title for Spring 2016 is: Schiller's Philosophical Writings. Today Friedrich Schiller is primarily known for his dramas and poems. However, during a period of several years (after he was appointed professor of History in Jena) he was also concerned with philosophical issues. The focus was mainly on questions of aesthetics and philosophy of history. With regard to both, it was Kant who was extremely influential for the development of Schiller's philosophical position. But Schiller did not simply copy or rearrange Kantian ideas, in fact, he evolved Kantian philosophy significantly in numerous respects. And even though Schiller later gave up with his philosophical ambitions--in a letter he even dismissed his philosophical efforts altogether as immature--his specific understanding of Kantian philosophy became extremely influential for the genesis of German idealism in general, but in particular shaped the reception of Kantian ideas by Hegel. In this seminar we will look at Schiller's most important philosophical writings and address both his conception of aesthetics and his approach to philosophy of history.
Taught by: Hahmann
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Seminar taught in English.

GRMN 559 New German Fiction
Our seminar will deal with contemporary German culture. What do German readers read? We will read nine novels that were published recently. While considering newspaper accounts of these books and their authors, we will try to come to our own judgments regarding the quality of these works, and their lasting impact. Instead of term papers, we will write book reviews-and all members of the seminar will be asked to review all the books in question.
Taught by: Weissberg
Course not offered every year
Prerequisite: GRMN 203 or equivalent
Activity: Seminar
1 Course Unit
Notes: Course taught in German.

GRMN 567 Topics in Criticism & Theory: Object Theory
Topic for Fall 2017 is: “Object Theory”. This seminar will investigate the rise of and ongoing scholarly concern with “objects” and “things,” which has emerged from fields such as anthropology and art history as a category of renewed interest for literary scholars, too. We will investigate key contributions to theories of the object by thinkers such as: Mauss, Barthes, Heidegger, Latour, Benjamin, Bill Brown, Jane Bennett, among others. Literary readings will accompany these theoretical texts.
Taught by: MacLeod
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics change annually.
GRMN 578 Topics in Art History
Topics vary. Fall 2016: 16 C. North Paint/Graphc. 16th Century Northern Paintings and Graphics. Focusing primarily on Germany and the Netherlands during the period of the nascent Reformation, this course will use both paintings and prints to investigate a host of social and cultural changes: to the religious image and its use (including Iconoclasm), to political structures (the Holy Roman Empire and developing nation-states, such as Spain and England), and to innovative artistic themes, particularly the rise of specialized pictorial genres and secular subjects. Major artists will include Hieronymus Bosch, Albrecht Durer and his circle, Lucas Cranach, Hans Holbein (and England), Lucas van Leyden, and Pieter Bruegel. Students will be expected to write a research paper of their choosing after completing a shorter analysis paper on a single work. Open to qualified undergraduates as well as graduate students.
Taught by: Silver
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 580 Topics In Aesthetics
Topic title for Spring 2018: Walter Benjamin. Walter Benjamin (1892-1940) is a philosopher whose writings on art, literature, and politics have had tremendous influence on many disciplines in the Humanities and Social Studies. He has been variously described as one of the leading German-Jewish thinkers, and a secular Marxist theorist. With the publication of a four-volume collection of his works in English, many more of his writings have been made accessible to a wider public. Our seminar will undertake a survey of his work that begins with his studies on language and allegory, and continues with his autobiographical work, his writings on art and literature, and on the imaginary urban spaces of the nineteenth-century.
Taught by: Weissberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually.

GRMN 581 Topics in Jewish-German Culture
Reading and discussion course on selected topics in Jewish history. The instructors are visiting scholars at the Center for Advanced Judaic Studies. Topic and seminar title for Spring 2015: Topics in Jewish Studies: The Origins of Jewish Studies. Course description for Spring 2015: This is a reading course that grants seminar participants access to Katz Center fellows, some of the best scholars in Judaic studies from around the world. The aim of the course is to expose students to these scholars and their work, to get to know them as people, learn from them at high level, and understand their approach to the field. Over the course of the spring semester there will be four 3-session modules. Students will meet with 4 different fellows for 3 sessions each. The weekly 90-minute classes will be held at the Katz Center on Wednesdays from 10:30 am - 12 pm, and participants will be encouraged to then stay for lunch and the fellows' seminar which runs from 12:30 - 2:30 pm.
Taught by: Spring 2015: Liliane Weissberg and Steven Weitzman
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Readings and Discussions in English.

GRMN 582 Topics in Political Science
Topics vary.
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 583 Topics in German Philosophy
Topics vary annually.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary annually.

GRMN 603 Seminar in German Literature
Topics range from the study of individual authors to analyses of major texts.
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 614 Weimar Landscapes
This new course is designed for students of literature, landscape architecture and urban planning, and cultural history in general. It will explore the ideas of, and attitudes towards, landscape in selected works by Johann Wolfgang Goethe, and consider his own considerable practical involvement in reshaping the town and gardens of Weimar. The course will provide the larger context of German literature, aesthetics and landscape taste, and politics of the later 18th and early 19th centuries. We will consider the development of new gardens and parks in a "new" style (e.g. Woerlitz); they were regarded to be less formal and more "natural" than their French predecessors. We will study the English models for this movement, and offer a particular attention to the major German theorist, C.C.L. Hirschfeld, who would soon become famous outside Germany as well. Students will be expected (but not required) to read in German. Translations of key works by Goethe, as well as of commentaries on German gardening history, are available to ensure that non-German speakers can readily follow the course. In final papers there will be the freedom to select topics that focus upon literary or landscape architecture, though it is anticipated that a comparativist perspective will be adopted in either approach.
Taught by: Weissberg/Hunt
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Readings and Discussions in English.
GRMN 628 Topics 18th Century, vary annually.
The course examines the development of realistic and antirealistic currents in modern German drama. From Wedekind and Expressionism to Piscator’s political theater, Brecht’s epic theater and beyond (Horvath, Fleisser, Frisch, Duerrenmatt, Handke). 
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics vary

GRMN 678 Realism: Literature and Theory
What is "realism"? What does it mean to depict the world as a "realist" writer or artist? This seminar will consider these questions and concentrate on German literature and art of the second half of the nineteenth century. It will focus on writers such as Stifter, Storm, Raabe, and Fontane; but also on Stifter’s drawings and paintings, visual artists such as Menzel, and the vogue of historical painting. Finally, the seminar will consider the role of early photography in the development of the notion of "realism." Secondary literature will include studies by Michael Fried, Linda Nochlin, and others.
Taught by: Weissberg
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 679 The title for Spring 2014 is: German Prints & Drawings.
Development of the major graphic media and subjects from Schongauer through the sixteenth century. Regular visits to Philadelphia Museum of Art.
Taught by: Silver
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Topics change annually.

GRMN 683 Topics in Philosophy
Topics vary
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 684 Topics in Philosophy. Title for Spring 2015: After Idealism: Political thought in Germany from Weber to Habermas.
This seminar explores political thought in Germany from the Imperial state of the early 20th century through its fragmentation and division and into the reunification of east and west Germany in 1992. Much of this period was “after idealism” philosophically and politically, the preface to pessimism and “the passing of political philosophy” as articulated in the Enlightenment (Shklar), but fascinating period of thought and argument. Among our texts are Habermas (philosophy), Weber (sociology), Schmitt (law), Juenger (literature) & their contemporaries. Students are not expected to read texts in the original, although having German will greatly expand your range and the depth of your reading.
Taught by: Kennedy
Course not offered every year
Activity: Seminar
1 Course Unit

GRMN 700 Research Workshop
Taught by: MacLeod and Richter
Activity: Seminar
0.5 Course Units
Notes: GRMN Ph.D. requirement
GOVERNMENT ADMINISTRATION (GAFL)

GAFL 500 Half-Term Electives
This is a hybrid course, meaning that class will meet on-campus one Friday/Saturday each month and online each Monday evening. Fall 2018 on-campus meetings will be held on the following Fridays and Saturdays from 2-5:30pm: First session: September 7 & 8, October 12 & 13 Second session: November 9 & 10, December 7 & 8. Online classes will be held Mondays 8:15-9:15pm. The following sections will be offered the first half of the semester: GAFL500-028 Elements of Data Analytics; GAFL500-022 Project Management and the Public Sector. The following sections will be offered the second half of the semester: GAFL500-029 Communicating with Data; GAFL500-012 Organizational Leadership and Communication. Course descriptions for each section can be found here: https://www.fels.upenn.edu/academics/courses/all. Please direct any issues or inquiries to felsinstitute@sas.upenn.edu.
One-term course offered either term
Corequisites: Must be taken with corresponding GAFL 500 section in opposing session. E.g. GAFL 500 011 and 023. This completes the 1 CU. Activity: Hybrid Course
0.5 Course Units

GAFL 502 Public Communications
Successful leaders must be able to convey their integrity and their ideas, their vision and their values clearly and convincingly in public settings. By analyzing great political speeches and affording students the opportunity to prepare and deliver different types of speeches, this course teaches the fundamentals of persuasive public speaking while encouraging students to develop their own voice. This is a performance course. Students will gain skill and confidence in their speech writing and public speaking skills through practice, peer feedback, and extensive professional coaching. Class lectures and discussions will focus on persuasive strategies and techniques for handling community meetings, Q and A sessions, and interactions with the media. In Summer 2018, Public Communications will meet online weekly on Mondays from 6:30-7:30. It will meet on campus from 2:00-5:30pm on the following Fridays & Saturdays: May 18-19, June 22-23, July 27-28. In Fall 2018 this course has two sections in TWO DIFFERENT FORMATS. In Fall 18,GAFL502-002 is a traditional format with on-campus meetings Tuesdays, 6-9pm. GAFL502-001 is a hybrid format. Details for the hybrid format are: Fall 2018 on-campus meetings will be held on the following Fridays and Saturdays from 2:00-5:30pm: September 7 & 8, October 12 & 13, November 9 & 10, December 7&8. Class will meet online on Mondays 8:15-9:15pm.
Course offered summer, fall and spring terms
Activity: Hybrid Course
1 Course Unit
Notes: This course has seats reserved for Fels’ students and gives priority to grad students. Post-bacc students, contact Cameron Miller (cammill@upenn.edu) Undergraduate students, contact Cameron 2 weeks before the start of the pertinent term to request a seat. Seats are not guaranteed to post-bacc or undergraduate students.

GAFL 506 The Problem of Jobs: The Philadelphia Story
Once the "workshop of the world" with a diverse manufacturing economy, the City of Philadelphia has lost a huge proportion of its historical economic base in the past 60 years. Today, Philadelphia struggles to find its competitive advantage. Yet, it has tremendous assets that can be leveraged. This course will explore the rise and fall of Philadelphia’s manufacturing economy, efforts to forestall its decline in the 1960s and 70s, the racial and gender dynamics of its employment ecosystem, and contemporary strategies to create a sustainable local economy.
We will focus on the emerging national recognition of place-based economic development strategies, including the revival of downtown residential living, tourism, and hospitality, and the role of institutions, such as universities and hospitals, in the revitalization of urban America. The course will combine readings in economic and social history and urban economics with case study analyses of local policies aimed at stimulating growth.
Taught by: Hornstein
Course not offered every year
Activity: Seminar
1 Course Unit

GAFL 511 Reinventing Nonprofits
Three nonprofit leaders walk into a bar. What’s the conversation? cross fields, focus, size, and target audiences, nonprofits often face similar challenges: public policy changes, evolving stakeholder expectations, new modalities to service requiring investment, rising competition, fickle funders and demographic shifts, all in a world where culture eats strategy for breakfast. Against this backdrop, nonprofits need to re-assess their mission, approach, position, organizational structure and revenue model. Why are some organizations able to pivot and reinvent themselves while others languish? Through readings to frame the issues, speakers offering firsthand accounts of successes and disappointments, projects with practitioners wrestling with real-time issues, and group discussions to tie it all together; this course is intended to provide students with an intellectual construct, ideas, and experience to be better prepared to enter and advance in the field, and be part of the conversation.
Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit

GAFL 514 Public Finance and Public Policy
This course deals with how governments tax and spend. Students become familiar with the theoretical, empirical, and practical tools and methods used to create and analyze government budgets, as well as the flow of public resources. The course examines public revenues and expenditures within the context of fiscal federalism, in addition to budgeting and resource management and the social, economic, and political forces that shape the fiscal environment within which governments (particularly state and local governments) operate. Significant attention is paid to tax policy analysis and the fiscal crises confronting many large cities and states. Additional special topics covered include health care & social security, public education finance, public finance and the environment, bond markets & municipal finance, and public pensions.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
GAFL 515 Public Finance Leadership in the New Fiscal Reality
Several factors are intersecting upon U.S. local governments including: muted economic growth, demographics, technological change, ineffective monetary & fiscal policy, and political shenanigans. These are having a profound impact on local government financial health. Many local governments are struggling to structurally balance their budgets, even now several years into one of the longest U.S. post-WWII economic recoveries. Expenditure demand, especially because of rising employee pension and OPEB benefits, is rising faster than expected. Revenues are not rising as quickly as they have historically. This New Fiscal Reality is redefining the concept of municipal distress. Further, the options local governments have to respond to distress may be changing. It might be necessary for local governments to move away from typical solutions like distressed municipality programs and other state level aid. If the current financial trajectory continues, some local governments will not be able to deliver the same service-level they have in the past. New solutions are required. This class will 1) define the New Fiscal Reality; 2) review essential public finance concepts and relationships; 3) study past and recent examples of financial distress and prescribed solutions; 4) survey the current local government financial landscape; and 5) identify solutions public finance leaders can institute for the future. Several local government finance, political and policy experts will speak during the semester. A heavy amount of student engagement is expected to be completed in the form of research, group work, writing, and the critiquing of other students/ work.
Taught by: Kozlik
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GAFL 517 Quantitative Tools for Consulting
The purpose of the course is to study the theory and application of certain, key quantitative methods utilized in financial and fiscal decision-making in state and local governments: defining and measuring efficiency and equity; statistical analysis, multivariate analysis, linear and multipole regression; inter-temporal decision-making; and cost-benefit analysis. Primary emphasis will be on understanding the context and quantitative basics of these methods to prepare students for effective careers in state and local governments. Each student should have a basic understanding of market economics, the roles of government in our market economy, accounting/budgeting basics, and the Philadelphia metro area economy and government.
Activity: Seminar
1 Course Unit

GAFL 520 Marketing & Fundraising for Non-Profit Organizations
Fundraising and marketing are complementary tools for building revenue streams and fulfilling the program objectives of nearly every nonprofit organization. This course develops students’ ability to market a nonprofit to mission recipients and prospective donors and to solicit funds from individuals and organizations. Through lectures, readings, discussions, and assignments, students are actively engaged in learning how to help an organization achieve its mission and objectives. This includes but is not limited to the assessing an organization’s marketing and fundraising capabilities; identifying, segmenting, and creating relationships with target markets and donors; building infrastructure to properly seek and steward gifts; using technology to fulfill marketing and fundraising objectives; and focusing on fundraising and marketing methods such as social media, direct response, events, major gifts, planned giving, and others.
Taught by: Hugg
Course usually offered in fall term
Activity: Hybrid Course
1 Course Unit
Notes: This is a “hybrid” course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee.

GAFL 526 Municipal Bonds
The course provides a comprehensive overview of the $3.7 trillion municipal bond market, with a focus on public finance investment banking; capital project financing for state and local governments including water, sewer, mass transit and road projects, and non-profit financing for educational and healthcare institutions; the legal and regulatory framework governing the municipal bonds market; rating agency analysis; quantitative modeling; and investor perspectives.
Taught by: Steven Genyk
Course usually offered in fall term
Activity: Lecture
1 Course Unit
GAFL 527 Community Development and Qualitative Methods
Urban planning and community development involve attempting to understand (and then propose methods for solving) complex problems arising from our shared experience of living together in communities. These wicked problems (Rittel & Weber, 1973) often arise from multiple co-occurring influences; economic, socio-cultural, political, geographic/ geological, psychological, etc. The fluid and multi-dimensional nature of these problems, therefore, calls for a fluid and multi-dimensional approach to understanding them. Nonetheless, for the better part of the last half a century the majority of efforts to approach such dilemmas has relied largely on quantitative research methods. While quantitative approaches to understanding community dynamics certainly have a demonstrated value, an over-reliance on such methods can come at the expense of the more nuanced understanding available through qualitative research approaches. Quantitative methods are useful in exploring questions such as where, when, who and how many. They are less effective, however, in answering questions of why and how. For answers to these sorts of questions we must turn to qualitative research methods.

Taught by: Terence Milstead
Activity: Seminar
1 Course Unit

GAFL 528 Critical Issues in Public Finance
The Course, Critical Issues in Public Finance will consider contemporary issues affecting the fiscal state of local governments. COVERED will be issues that have distressed municipalities; the policies/initiatives that seek to rectify such including privatization/public private partnerships; reformation of municipal pensions; sustainable education funding alternatives; and tax policies aimed at promoting economic growth. Students will be assigned to a team, which will identify and provide a solution for an issue or issues plaguing a fictional government. Each team will prepare a written report and make a presentation all of which will constitute the final project. Assignments will serve as the building blocks for the final written work product and presentation developed by each team. The class is divided into four modules. The first module will take a historical look at events behind fiscal distress in municipalities and then explore current day drivers that are causing the same today. Modules two, three and four will examine some of the tools that have been used successfully or otherwise to remediate the drivers of fiscal distress. In each module case studies will be used to further analyze the particular fiscal challenge of a municipality. Written assignments will be based on case studies. This course meets online on Mondays 7:45-8:45pm. The course meets in person from 9:30am-1pm on the following Fridays and Saturdays: May 18-19, June 22-23, July 27-28.

Taught by: Olanipekun-Lewis
Course usually offered summer term only
Activity: Hybrid Course
1 Course Unit

Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee.

GAFL 529 Nonprofit Financial Management
The course is designed to provide the student with an understanding of the primary financial management issues and decisions that confront senior management in nonprofits and government. Students will examine financial analysis techniques from both a practical and strategic perspective as they examine operating and capital decisions. The objective of the course is to allow the student to understand how managers integrate the various discrete financial decisions within a broader framework that allows them to analyze, develop and execute a coherent overall financial strategy.

Taught by: Rosenzweig, Janet
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GAFL 530 Evidence Based Policies of Economic and Political Development
This class provides a "hands-on" introduction to the promises and limitations of using Randomized Control Trials (RCTs) to inform policy makers, practitioners, and academics of the conditions under which policies likely would have a positive effect on economic and political outcomes, in the context of international development. This course has three parts: the first is devoted to understanding the "nuts and bolts" of running field experiments / RCTs in developing countries. In part, we will be reading Glennester and Takavarasha’s Running Randomized Evaluations: A Practical Guide. In addition, we will discuss core behavioral concepts from both behavioral economics and social psychology (prospect theory). The second part of the course will be devoted to demonstrating how schools have used RCTs to inform core policy debates (e.g. What are some effective ways to reduce corruption? How can we improve the performance of frontline service providers? How can politicians be more responsive to their constituents?) In the third part, students will be presenting their own research proposals, explicitly designed to address either a core policy question in the developing world or--for those interested--in the USA. Here students will have an opportunity to partner with the Social and Behavioral Sciences Team (https://sbst.gov), which is under the National Science and Technology Council.

Course usually offered in spring term
Activity: Seminar
1 Course Unit

GAFL 531 Data Science for Public Policy
Taught by: Nelson Lim
Course usually offered in fall term
Activity: Seminar
1 Course Unit
GAFL 532 Urban Government in Action
This class explores how city administrators and legislatures have addressed the critical issues facing urban America today, including fighting urban blight and transforming neighborhoods, public school funding, public financing of sports stadiums, reducing the tax burden, public health issues like smoking bans, legislative redistricting, crime and safety issues, campaign finance finance reform, economic development issues like tax increment financing, race relations, welfare reform, public transportation, and how to reverse job and population losses. The goal is to place in context the various ways that elected officials approach complex issues, towards a more realistic understanding of how to influence a proposal as it works its way through the process towards implementation.
Taught by: Kenney
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GAFL 534 Infrastructure Investment and Economic Growth: Why, How, and When
Infrastructure is widely acknowledged to be critical for economic success, and infrastructure investments are promoted as leading to economic growth, either at the local or national level. Yet, investments in telecommunications, transportation, energy, or other infrastructure do not always yield the hoped public benefit. This course will help answer the question: Under what circumstances does infrastructure investment contribute to economic growth, and how do we know? Because government resources are limited, advocates often must be creative to find sufficient funding to get desirable projects completed. This course will also help answer the question: How do we pay for the infrastructure projects we want to build? The course will illustrate approaches to answering these questions using case studies of past and proposed investments.
Taught by: Angelides
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GAFL 538 Human Rights, Access To Justice, and Public Policy
Law is central to effective and legitimate governance at all levels (local, national, regional, global). Law not only serves as a basis and frames governance and policy-making processes; it also offers tools and opportunities for public policy, as well as accountability mechanisms. Familiarity and understanding of legal frameworks, mechanisms and dynamics is thus essential for public and private actors involved in policy-making. This course combines theoretical insights as well as practical components. During the first portion of each class students will examine a wide spectrum of international legal frameworks and instruments which set standards for good governance on a variety of themes: eg. Children, women, refugees. This comparative perspective lays the context for US policies. During the second major portion of each class, students will explore how statutes, regulations and case law serve as tools for social change. Students will gain familiarity with relevant US legal frameworks at the Federal, State and Municipal level and at all three branches of government: legislative, executive and judicial. The third portion of every class will explore the role of the non-government sector in public policy. Students will learn about core competencies needed to non profits effective such as: Boards, management leadership, and program. Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit

GAFL 542 Downtown Development
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GAFL 546 Social Enterprise Models and Social Impact Locally and Globally
If you believe in finding innovative ways to make a difference and solve social issues locally and globally, you will benefit from the Social Enterprise and Impact Locally and Globally Course (Social Enterprise). Social Enterprise is designed for those who have a practitioner's interest in the development, leadership, and management of the evolving nonprofit sector and their intersection with the socially conscious private sector and government. The course takes the student through the process of developing a mock social enterprise including idea exploration, testing and plan execution and provides the student with essential strategies and tools to conduct in-depth analysis of a social enterprise leading to their application to a regional social enterprise. This course fulfills an elective for the MPA and the Certificate in Nonprofit Administration.
Taught by: Hansen-Turton, Tine; Torres, Nicholas
Course usually offered in spring term
Activity: Seminar
1 Course Unit

GAFL 548 Grant Writing
This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings. Synchronous online meetings will be held on Tuesdays 6:30-7:30pm On-campus meetings for Spring 2018 will be held on the following Friday afternoons (2:30-5pm) and Saturday mornings (9:30am-1pm): January 12-13, February 9-10, March 16-17, April 20-21. This course will provide students with the role of the foundation in philanthropy, what it does, how it does it, and what you need to know to be both an effective foundation manager and foundation grant seeker. From the foundation side, the course will include strategic planning, assessment of project results, and the responsibilities of the foundation grant program officer. From the grant seeker side, it will include identifying the appropriate foundations making the connection to the foundation, grant writing, and relationship management.
Taught by: Colleen Terrell
Activity: Hybrid Course
1 Course Unit

GAFL 549 Leading Nonprofits
Leading Nonprofit Organizations is designed for those interested in leading and managing a nonprofit organization. It takes a practitioners perspective on strategic realities of modern practice. Each section will seek to rapidly orient a new manager to the complexities, strategic issues, & politics. The course is taught through a combination of theory and practice using selected readings, lectures, guest presentations, group activities (Mock senior staff discussions) and field assignments (pairing with area nonprofit leader and attendance at one of the organizations board meetings.)
Course usually offered summer term only
Activity: Lecture
1 Course Unit
GAFL 550 Organizational Diagnosis
This course will help participants learn the skills involved in conducting a systemic, organizational diagnosis. Applying organizational diagnosis skills can help organizations make more effective, evidence-based decisions; increase an organization's ability to learn and to apply these learnings; increase organizational effectiveness; and, often, save organizations from flawed and detrimental actions. The course places an emphasis on systems thinking, psychodynamic organizational theory, and appreciative inquiry as ways into understanding organizational issues and problems. Frequently, when organizations find themselves in trouble, e.g. problems in the system about such things as lack of leadership, poor communication, diminished productivity, low morale, etc., there is a tendency to frame the problem(s) simplistically and/or locate blame on a few difficult individuals or groups. However, upon closer examination, problematic issues are often found to be symptomatic and/or symbolic of multiple issues within the organization. This course will help participants to understand how problems, which appear, at one level of the system, (e.g. at the personal or interpersonal level) often represent problems at other levels of the system (e.g. at the group and/or institutional level), or signify a range of inter-related issues. Emphasis will be placed on the diagnostic skills needed to examine government agencies, non-profits, and bureaucracies. It will provide participants with the theoretical constructs and application skills necessary for identifying and framing problem areas, collecting data, and organizing feedback to client systems. Real-time examples will inform our discussions as we consider the relationship between diagnosis, organizational reflection, and appropriate action.
Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. Weekends vary by term. There is a $150 online course fee.

GAFL 551 Government Relations
In a system of representative government, organizations and individuals with interests at stake often seek the support of a government relations professional. This course addresses government relations from the varying perspectives of the current or aspiring professional, the client, and the government official.
Course not offered every year
Activity: Lecture
1 Course Unit

GAFL 555 Using the Political Process to Effect Organizational Change
Course usually offered in spring term
Prerequisites: Course permits must be requested at https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

GAFL 556 Organizational Diagnosis
This course will help participants learn the skills involved in conducting a systemic, organizational diagnosis. Applying organizational diagnosis skills can help organizations make more effective, evidence-based decisions; increase an organization's ability to learn and to apply these learnings; increase organizational effectiveness; and, often, save organizations from flawed and detrimental actions. The course places an emphasis on systems thinking, psychodynamic organizational theory, and appreciative inquiry as ways into understanding organizational issues and problems. Frequently, when organizations find themselves in trouble, e.g. problems in the system about such things as lack of leadership, poor communication, diminished productivity, low morale, etc., there is a tendency to frame the problem(s) simplistically and/or locate blame on a few difficult individuals or groups. However, upon closer examination, problematic issues are often found to be symptomatic and/or symbolic of multiple issues within the organization. This course will help participants to understand how problems, which appear, at one level of the system, (e.g. at the personal or interpersonal level) often represent problems at other levels of the system (e.g. at the group and/or institutional level), or signify a range of inter-related issues. Emphasis will be placed on the diagnostic skills needed to examine government agencies, non-profits, and bureaucracies. It will provide participants with the theoretical constructs and application skills necessary for identifying and framing problem areas, collecting data, and organizing feedback to client systems. Real-time examples will inform our discussions as we consider the relationship between diagnosis, organizational reflection, and appropriate action.
Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. Weekends vary by term. There is a $150 online course fee.

GAFL 557 Using the Political Process to Effect Organizational Change
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Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. Weekends vary by term. There is a $150 online course fee.

GAFL 561 Media Relations
This course is designed to help you better understand the role and practice of media relations and messaging in corporate, non-profit, and government organizations in this new media era. You will learn how to research media and reporters, develop messages, build strategic media plans, generate media coverage, serve as spokespeople, handle crisis situations, and use new media strategies. You will hear from public relations professionals on such topics as working with reporters, developing PR campaigns, and creating effective web outreach programs. Class discussions, reading assignments, research and writing projects, group projects, and case studies offer an engaging and interactive learning environment to expand and apply your knowledge of media relations and messaging. Summer 2017 On-Campus Meetings are 9:30am-1:00pm on Fridays–May 19, June 23, and July 21 and Saturdays–May 20, June 24, and July 22
Taught by: Frank Igwe
Course usually offered summer term only
Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee.

GAFL 569 The Politics of Housing and Urban Development
This course offers an exploration of how legislative action, government policymaking, and citizen advocacy influence plans for the investment of public capital in distressed urban neighborhoods. Course topics this semester will include an evaluation of the results of City of Philadelphia development policies under the administration of former Mayor Michael A. Nutter, as well as consideration of plans being undertaken by the administration of Mayor James F. Kenney, who took office in January. The course will also include an assessment of a large-scale property acquisition and development strategy being implemented by the Philadelphia Housing Authority in North Philadelphia and a review of recent and current reinvestment proposals for Camden's waterfront and downtown-area neighborhoods.
Taught by: Kromer
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GAFL 599 Local Planning, Development, & Preservation in Pennsylvania
Activity: Independent Study
1 Course Unit

GAFL 612 Quantitative Methods for Policy Analysis
This course will help students learn how to make evidence-based decisions in a public sector context. The course will introduce important data analysis skills and help students evaluate the quality of studies undertaken to measure the impact of public policies and programs. The class will meet on campus on the following Fridays and Saturdays: September 7-8, October 12-13, November 9-10, December 7-8. Friday classes will meet 9:30am-1:00pm, and Saturday classes will meet 2:00-5:30pm. The class will meet online weekly on Mondays 6:30-7:30pm.
Taught by: Robertson-Kraft, Claire
Course usually offered in spring term
Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. Weekends vary by term. Please read the course description for further information.
GAFL 621 Public Economics
This course provides students with the knowledge required to understand government operations in relation to the market economy. In theory of supply and demand, students explore the pricing mechanism, price elasticity, and the effects of price controls on markets. Efficiency is examined in connection with competition and again in connection with equity, and market failure is considered as a reason for government intervention. Cost-benefit analysis is examined in the context of selecting among public investment alternatives. The course also assists students in addressing issues connected with local public goods and economic development.
Taught by: Sieg, Holger Wolfgang
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GAFL 623 Leading People
This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee. On-campus meetings for Spring 2018 will be on the following Friday afternoons (2-5:30pm) and Saturday mornings (9:30am-1pm): January 12-13, February 9-10, March 16-17, April 20-21. The class will meet online weekly Mondays 6:30-7:30pm. Leading People focuses on Strategic Human Resource Management (SHRM), the combination of human resource management (HRM) and the strategic direction of the organization, whether public or non-profit. This course will examine the theory and principles of SHRM as they relate to job analysis, recruitment and selection, compensation, benefits, training and career development, performance management, and labor-management relations. Learning to deal with the daily SHRM challenges makes leaders and managers more effective and more valuable to the organization.
Taught by: Jones
Course usually offered summer term only
Activity: Hybrid Course
1 Course Unit

GAFL 631 Policy Making & Public Institutions
This course introduces students to the theories and practice of the policy-making process. There are four primary learning objectives. First, understanding how the structure of political institutions matter for the policies that they produce. Second, recognizing the constraints that policy makers face when making decisions on behalf of the public. Third, identifying the strategies that can be used to overcome these constraints. Fourth, knowing the toolbox that is available to participants in the policy-making process to help get their preferred strategies implemented. While our focus will primarily be on American political institutions, many of the ideas and topics discussed in the class apply broadly to other democratic systems of government. The class will be a mix of lecture and cases. Cases are on a diverse set of policy topics, with a goal of illustrating broad themes about the policy-making process rather than the specifics of certain policy areas.
Taught by: Meredith, Marc
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: This course is a core requirement for the full-time MPA program at the Fels Institute of Government. Permits will not be issued to non-Fels students.

GAFL 640 Program Evaluations and Data Analysis
One of the trademarks of the 21st century public management is the usage of data and analysis in the decision-making process. A successful public leader will use empirical evidence to guide her decisions. She knows what types of data and analysis she should ask her analysts to collect and conduct, how to consume the results they generate, and how to transform the analytical results into effective communication with stakeholders. This class will help you become that 21st century public leader. At the end of this course, you will understand key principals of performance measures and program evaluation. In addition, you will be able to process, manage, and analyze quantitative data using R, a modern programming language optimized for statistical analysis. I picked R for many reasons: it is free, has many open-source visualization techniques and statistical models, and many statistical and quantitative method courses on campus use it as the language of choice. More importantly, knowing how to use R can be a unique and attractive skill for your employer.
Taught by: Lim, Nelson
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: This course is a requirement for MPA full-time students who started in Fall 2015 or later. It is an elective for MPA full-time students who started Fall 2014 or earlier.

GAFL 641 Program Evaluations & Data Analysis--Hybrid Format
This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee. On-campus meetings for Spring 2018 will be on the following Friday mornings (9:30am-1pm) and Saturday afternoons (2-5:30pm): January 12-13, February 9-10, March 16-17, April 20-21. The class will meet online weekly on Mondays 7:45-8:45pm. This course introduces program evaluation in the context of research methods. Students learn about design and the application of data collection skills to all phases of program/service delivery from needs assessment to analysis of findings to implementation of changes. Students learn to appreciate how these skills can be used as practical tools for identifying problems to developing and implementing programs. This applied course provides students with practical experiences to apply guidelines of evaluation and research methods in actual program evaluation projects in Philadelphia.
Taught by: Claire Robertson-Kraft
Course usually offered summer term only
Prerequisites: GAFL 612 Quantitative Methods for Policy Analysis with grade of B or higher. First-Year Exec MPA Students ONLY
Activity: Hybrid Course
1 Course Unit

GAFL 642 Program Evaluations & Data Analysis--Hybrid Format
This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee. On-campus meetings for Spring 2018 will be on the following Friday mornings (9:30am-1pm) and Saturday afternoons (2-5:30pm): January 12-13, February 9-10, March 16-17, April 20-21. The class will meet online weekly on Mondays 7:45-8:45pm. This course introduces program evaluation in the context of research methods. Students learn about design and the application of data collection skills to all phases of program/service delivery from needs assessment to analysis of findings to implementation of changes. Students learn to appreciate how these skills can be used as practical tools for identifying problems to developing and implementing programs. This applied course provides students with practical experiences to apply guidelines of evaluation and research methods in actual program evaluation projects in Philadelphia.
Taught by: Claire Robertson-Kraft
Course usually offered summer term only
Prerequisites: GAFL 612 Quantitative Methods for Policy Analysis with grade of B or higher. First-Year Exec MPA Students ONLY
Activity: Hybrid Course
1 Course Unit

GAFL 643 Program Evaluations & Data Analysis--Hybrid Format
This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee. On-campus meetings for Spring 2018 will be on the following Friday mornings (9:30am-1pm) and Saturday afternoons (2-5:30pm): January 12-13, February 9-10, March 16-17, April 20-21. The class will meet online weekly on Mondays 7:45-8:45pm. This course introduces program evaluation in the context of research methods. Students learn about design and the application of data collection skills to all phases of program/service delivery from needs assessment to analysis of findings to implementation of changes. Students learn to appreciate how these skills can be used as practical tools for identifying problems to developing and implementing programs. This applied course provides students with practical experiences to apply guidelines of evaluation and research methods in actual program evaluation projects in Philadelphia.
Taught by: Claire Robertson-Kraft
Course usually offered summer term only
Prerequisites: GAFL 612 Quantitative Methods for Policy Analysis with grade of B or higher. First-Year Exec MPA Students ONLY
Activity: Hybrid Course
1 Course Unit
GAFL 651 Public Financial Management
This course provides an introduction to the fundamentals of accounting and budgeting for government and nonprofit organizations. The course is designed for students with little or no background in financial reporting, budgeting, and financial management. "Accounting and budgeting must be recognized as separate systems that must interact in a complementary manner if managers are to exercise control of the financial resources of their organizations" (Garner, 1991).
Taught by: Levine, Carolyn
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: This course satisfies a core requirement in the Master of Public Administration and the Certificate of Public Finance.

GAFL 652 Financial Management of Public and Nonprofit Organizations
This course provides an introduction to financial management principles for public and nonprofit organizations. The primary objective of this course is to demystify financial information and improve students ability to effectively engage in financial discussions, regardless of their role in the organization. This course will be focused on the vocabulary and tools necessary to interpret, analyze, and properly communicate financial information in order to develop and execute an appropriate financial strategy. This course meets online on Mondays 6:30-7:30pm EST. the course meets in personfrom 2:5-30pm on the following Fridays and Saturdays: May 18-19, June 22-23, July 27-28.
Taught by: Dingley, Julie
Course usually offered in spring term
Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee.

GAFL 710 Negotiations
To influence public policy you need analytical skills to discover optimal solutions to problems, and good negotiation skills to tailor implementable solutions that address the needs and priorities of multiple stakeholders. What resources you want to invest, whom you engage in discussions, and what you expect to receive in return are open to explicit and implicit negotiations. This course will provide a working understanding of key negotiations concepts, including: Strategic elements of negotiations - interests, goals, positions, rights, power, value creation, high stakes, disputes; Preparation for and the details of negotiation processes; Ethical encounters and conundrums; Leveraging your strengths/understanding your negotiating personality. You will learn cooperative and competitive strategies, have a solid grasp of the decision-making science of negotiation, and better understand cognitive processes and emotional dynamics that affect the ways people negotiate. This course will meet in-person from 9:30am-1:00pm on the following Fridays and Saturdays: September 7-8, October 12-13, November 9-10, December 7-8. The course will also meet online each week on Mondays 7-8pm.
One-term course offered either term
Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. Weekends vary by term. There is a $150 online course fee.

GAFL 719 Advanced Budgeting
The course will build on the fundamentals taught in the introductory budgeting unit to help build students' competence in budgetary analysis. Using detailed data from a major city as a course-long case study, and incorporating excel skill-building exercises, students will develop hands-on understanding of budgets by working through such factors as economic drivers of fiscal performance, revenue analysis and forecasting, including tax policy considerations; expenditure analysis and projection, with an emphasis on workforce costs; and capital budgeting and financing. Students will also be introduced to key fiscal policies, budget monitoring and performance measurement, and the development of effective budget communications for various audiences.
Taught by: Nadol and Westerman
Course usually offered in fall term
Activity: Seminar
1 Course Unit

GAFL 732 Public Management
This core MPA course is intended to help each student to learn more than he or she already knows about public management both as a profession and as a field of academic study and to enjoy the company of supportive peers, instructors, and special guests as he or she contemplates a post- MPA career in governance. This course satisfies a core requirement in the Master of Public Administration full-time program.
Taught by: Dilulio/Mulhern
Two terms. student may enter either term.
Activity: Seminar
1 Course Unit
GAFL 733 Public Management (MPA Executive Section)
Overview—Public managers must have technical expertise in planning, staffing, and budgeting; however, technical skills alone are not sufficient to become an effective public manager. You must understand the socio-political context of your organization and your success will be dependent on your ability to analyze policy options and persuade stakeholders and supervisors, through effective communications, to pursue the policy options you recommend. Public managers in the 21st century must also understand the ever increasing diversity of their constituents and stakeholders. Economic globalization and international migration continue to increase the racial and ethnic diversity of our workforce. Diversity begets complexity and tension. Effective public managers must learn to lead inclusive organizations that leverage diversity and defuse tensions among heterogeneous constituents and stakeholders. Learning objectives: The goal for this class is to expand your knowledge about public management, both as a profession and as a field of study. At the end of this course, you will understand key competencies of an effective public manager, demonstrate your understanding through class discussions, weekly reading notes, a group case study analysis and presentation, and a policy memo that analyzes management dilemmas and proposes responses. To accomplish this goal, we will go beyond passive learning from classroom lectures. We will have a few guest speakers whose expertise will complement readings. We expect you to be prepared and to participate in classroom discussions, engage practicing public administrators and accomplished researchers in seminars/workshops, and learn to draft policy briefs and policy memos completing scenario-based assignments.

Taught by: Jones, Darrell D.
Course usually offered in spring term
Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings in Philadelphia, PA. On-campus meetings vary by term. Please read the description for dates and times. Also, please note there is an additional $150 online course fee.

GAFL 735 The Performance Imperative
The course will explore the critical role of performance measurement in improving management, particularly for public sector entities. This will include the examination of fundamental principles of performance measurement, the identification and application of different performance measurement techniques and strategies, and the evaluation of best practices within the field. Topics to be covered will include the evolution and adaptation of "Stat-ing" (e.g., CompStat, CitiStat, StateStat), the relationship between performance measurement and financial management, and how performance measurement can be used to inform different analytic techniques. On-campus meetings for Spring 2018 will be on the following Friday mornings (9:30am-1pm) and Saturday afternoons (2:30-5:30pm): January 12-13, February 9-10, March 16-17, April 20-21. The class will meet online weekly on Mondays 7:45 to 8:45pm.

Taught by: Gallagher & Blauer
One-term course offered either term
Activity: Hybrid Course
1 Course Unit
Notes: This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings at the Fels Institute of Government in Philadelphia, PA. Weekends vary by term. Please read the course description for further information.

GAFL 797 Capstone Fieldwork
Activity: Masters Thesis
0 Course Units

GAFL 799 MPA Capstone
Successful completion of a Capstone project is one of the academic requirements for the Master of Public Administration (MPA) at the University of Pennsylvania's Fels Institute of Government. The capstone project represents a way for graduate students to apply their multidisciplinary learning from the program to a specific public administration challenge(s) or issue(s). To successfully complete a capstone project, a student must receive a passing grade for her capstone paper and the associated briefing. The student's capstone paper resembles a policy memo that an administrative staff writes to decision makers and stakeholders. The paper integrates and deepens the student's learning from the program. More importantly, the capstone paper provides a way for a student to bring her/his learning and knowledge from the program back into her/his chosen career. The research focus should be one that is of great interest to the students as well as one a potential organization will benefit from.

Taught by: Nelson Lim--MPA Full-Time Format; Claire Robertson-Kraft--MPA Exec Format
One-term course offered either term
Activity: Independent Study
0 Course Units
Notes: In Summer ONLY, This is a "hybrid" course, with synchronous, online meetings and once-monthly, on-campus meetings in Philadelphia, PA. Also, please note there is an additional $150 online course fee. This course meets online on Mondays 6:30-7:30pm. The course meets in person from 2:00-5:30pm on the following Fridays and Saturdays: May 18-19, June 22-23, July 27-28.
GAS 600 English Language Skills
For prospective International Teaching Assistants seeking English fluency certification, this course emphasizes the development of oral academic discourse skills and practices prominent features of spoken English that promote successful communication in academic settings, including intelligibility, active listening skills, grammar.
Taught by: Potter
Course usually offered in fall term
Activity: Lecture
1 Course Unit
GREEK (GREK)

GREEK 015 Elementary Modern Greek I
This course is designed for students with no prior knowledge of the modern Greek Language. Instructions are theme based and is supported by a Textbook as well as other written or audiovisual material. It provides the framework for development of all communicative skills (reading, writing, comprehension and speaking) at a basic level. The course also introduces students to aspects of Modern Greek culture that are close to students' own horizon, while it exposes them to academic presentations of Greek history, arts, and current affairs. Quizzes, finals and short individual work with presentation are the testing tools. The completion of this unit does NOT satisfy the language requirement.
For BA Students: Language Course
Taught by: Tsekoura
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

GREEK 016 Elementary Modern Greek II
Continuation of Elementary Modern Greek I, with increased emphasis on reading and writing.
For BA Students: Language Course
Taught by: Tsekoutra
Course not offered every year
Prerequisites: GREK 015 or equivalent.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

GREEK 017 Intermediate Modern Greek I
This course is designed for students with an elementary knowledge of Demotic Modern Greek, and aims mainly at developing oral expression, reading and writing skills.
For BA Students: Language Course
Taught by: Tsekoura
Course not offered every year
Prerequisites: GREK 015 and 016 or equivalent.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center. this section is reserved for heritage learners or by permission of instructor.

GREEK 018 Intermediate Modern Greek II
Further attention to developing oral expression, reading, and writing skills for students with knowledge of Demotic Modern Greek.
For BA Students: Last Language Course
Taught by: Tsekoura
Course not offered every year
Prerequisites: GREK 015, 016, and 017 or equivalent.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

GREEK 101 Elementary Classical Greek I
Intensive introduction to Classical Greek morphology and syntax. This course includes exercises in grammar, Greek composition, and translation from Greek to English. Emphasis is placed upon developing the ability to read Greek with facility.
For BA Students: Language Course
Taught by: Nishimura-Jensen
Course usually offered in fall term
Activity: Seminar
1 Course Unit

GREEK 102 Elementary Classical Greek II
Students complete their study of the morphology and syntax of Classical Greek. We begin the semester with continuing exercises in grammar and translation, then gradually shift emphasis to reading unadapted Greek texts.
For BA Students: Language Course
Taught by: Nishimura-Jensen
Course usually offered in spring term
Prerequisites: GREK 101 or equivalent.
Activity: Seminar
1 Course Unit

GREEK 105 Modern Greek
Activity: Lecture
1 Course Unit

GREEK 112 Intensive Elementary Classical Greek
An introduction to the ancient Greek language for beginners, with explanation of basic grammatical concepts and intensive exercises in reading and writing. Ideal for undergraduates or graduate students from Penn or elsewhere with some background in learning other languages, or who need to learn Greek rapidly. The course covers the first year of college-level Greek, equivalent to GREK 101 + GREK 102 at more than twice the normal pace. For further information on Penn's Greek curriculum, visit the Classical Studies department website.
Course usually offered summer term only
Activity: Seminar
2 Course Units

GREEK 115 Greek/Heritage Speakers I
This course is intended to help Heritage Speakers or student with prior knowledge of conversational modern Greek (or even Ancient Greek) to refresh or enrich their knowledge of modern Greek and who would not be a good fit for the elementary or intermediate classes. A theme based textbook and instructions along with a comprehensive overview of grammar as a whole is presented while original text, songs, video and other media are used in order to augment vocabulary and increase fluency in modern Greek. Students are expected to properly use the language, do theme-based research on the themes examined and provide written work on various subjects and make conversation in class.
Presentations on researched topics account for final exam.
For BA Students: Language Course
Taught by: Tsekoura
One-term course offered either term
Activity: Lecture
1 Course Unit
GREK 116 Greek/Heritage Speakers II
It is the continuation of GREK 115 with completing Grammar (passive voice as well as unusual nouns and adjectives etc.,) and adding more challenging reading and writing material. The completion of this course satisfies the language requirement. ALL students completing the HSI GREK 115 are eligible to enroll. ALL OTHERS will have to take a placement test.
For BA Students: Last Language Course
Taught by: Tsekoura
Course usually offered in spring term
Activity: Lecture
1 Course Unit

GREK 203 Intermediate Classical Greek: Prose
This course is for those who have completed Ancient Greek 102, Greek 112 or equivalent. You are now ready to begin reading real Greek! We will read a selection of passages from Greek prose authors, focusing on language and style.
For BA Students: Language Course
Course usually offered in fall term
Prerequisites: GREK 102, GREK 112 or equivalent
Activity: Seminar
1 Course Unit

GREK 204 Intermediate Classical Greek: Poetry
We will read a selection of passages from Greek poetic authors, ranging from Homer to tragedy.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisites: GREK 203 or equivalent.
Activity: Seminar
1 Course Unit

GREK 212 Intensive Intermediate Greek
An introduction to the basic history and conventions of Greek prose and poetry, with continuous readings from classical authors accompanied by grammar review and exercises. Ideal for undergraduates or graduate students from Penn or elsewhere who have completed the equivalent of one year Greek (e.g., GREK 112). The course covers the second year of college-level Greek, equivalent to GREK 203 + GREK 204 at more than twice the normal pace.
For BA Students: Last Language Course
Course usually offered summer term only
Activity: Seminar
2 Course Units

GREK 309 Topics in Greek Literature: Socrates
This course is for those who have completed Greek 204, Greek 212, or equivalent. Close reading and discussion of a Greek author or a particular genre of Greek literature. Topics will vary each semester, and the course may be repeated for credit. Socrates wrote nothing; and yet he had an unparalleled influence on classical Athenian culture and the whole later history of western thought. Who was he? Was he a truly wise person, or a smart-alec self-promoter? What were his actual beliefs or teachings, if any? Can we reconcile the characterizations of Socrates in our very different contemporary sources? In this upper-level Greek course, we will read the three main ancient sources: Aristophanes Clouds, which offers a funny and contradictory portrait of an avaricious, self-important sophist; parts of Xenophons Memorabilia and his Apology of Socrates, which suggests a wise, fairly conventional thinker; and selections from Plato, which portray Socrates as a far more challenging and unusual kind of person.
Taught by: Wilson
One-term course offered either term
Prerequisite: GREK 204
Activity: Seminar
1 Course Unit

GREK 401 Greek for Advanced Students
For graduate students in other departments needing individualized study in Greek literature.
For BA Students: Advanced Language Course
Course not offered every year
Activity: Seminar
1 Course Unit

GREK 540 The Greek Text: Language and Style
What do we need to read texts in ancient Greek? In this course we read just one prose text and one poetic text, or a very limited number of texts and passages, with a focus on language and formal analysis (such as diction, grammar, stylistics, metrics, rhetoric, textual criticism). A range of exercises will be used to develop these skills, including composition, lexical studies, recitation, memorization, exegesis, written close-readings, and sight-translation.
Course not offered every year
Activity: Seminar
1 Course Unit

GREK 541 Greek Literary History
Through selected readings from both poetry and prose, we will survey the range and evolution of ancient Greek literary practice and will identify some of Greek literature might be constructed.
Taught by: Murnaghan
Course not offered every year
Activity: Seminar
1 Course Unit

GREK 600 Graduate Greek Seminar: Aeschylus, Oresteia
A close reading of Aeschylus' trilogy, with consideration of its role as an important touchstone for fifth century ideas about justice, political leadership, gender roles, Athenian institutions, and dramatic form.
Taught by: Murnaghan
One-term course offered either term
Activity: Seminar
1 Course Unit
**GREK 602 Graduate Greek Poetry**
This graduate seminar will explore the rich and varied intellectual debates of the Classical period, using early Hippocratic texts to introduce some of the major questions that occupied contemporary thinkers. Such topics include, among others, the nature of matter and the body, the interaction of humans and environment, 'anthropology', empiricism, inference from signs, health and disease. We will focus on selections from the Greek texts of the Hippocratic 'Airs Waters Places', 'Nature of Man', 'Sacred Disease', 'On Ancient Medicine', and Epidemics in their relation to other contemporary authors, such as Herodotus, Thucydides, assorted Presocratics and Sophists, and Plato.

Taught by: Ralph Rosen  
Course not offered every year  
Activity: Seminar  
1 Course Unit

**GREK 609 GREEK AESTHETIC THEORY**
This seminar will explore ancient Greek (and some Roman) approaches to the arts. Greek audiences and critics alike were deeply interested in both theoretical and practical questions about the arts, especially literature. We will consider not only the philosophical tradition, but also popular notions of aesthetic value, including the varieties of audience responses and fandom. Among the authors we will study are various early Greek philosophical and sophistic thinkers, Plato, Aristotle, Hellenistic literary theorists, including Philodemus, Horace, Longinus, and selected theorists of late antiquity.

Taught by: Rosen  
Course not offered every year  
Activity: Seminar  
1 Course Unit  
Notes: Graduate Students only

**GREK 611 Greek Epigraphy**
An introduction to the principles and practices of Greek Epigraphy. Study of selected Greek inscriptions.

Taught by: McInerney  
Course not offered every year  
Activity: Seminar  
1 Course Unit

**GREK 990 Masters Thesis**
One-term course offered either term  
Activity: Masters Thesis  
1 Course Unit

**GREK 998 Supervised Reading**
One-term course offered either term  
Activity: Independent Study  
1 Course Unit

**GREK 999 Independent Study**
For doctoral candidates.  
One-term course offered either term  
Activity: Independent Study  
1 Course Unit
GUJARATI (GUJR)

GUJR 402 Beginning Gujarati Part I
During the first year of Gujarati, major emphasis is placed on acquiring phonetics, grammatical patterns, and basic vocabulary. These goals are accomplished through guided drills and conversations accompanied by formal instruction on Gujarati grammar. From the outset, students are also taught the Gujarati writing system, which is used for all materials. By the end of the first year of instruction, students should be able to carry on coherent conversations on selected topics, read simple texts and compose short pieces in Gujarati.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit

GUJR 403 Beginning Gujarati Part II
During the first year of Gujarati, major emphasis is placed on acquiring phonetics, grammatical patterns, and basic vocabulary. These goals are accomplished through guided drills and conversations accompanied by formal instruction on Gujarati grammar. From the outset, students are also taught the Gujarati writing system, which is used for all materials. By the end of the first year of instruction, students should be able to carry on coherent conversations on selected topics, read simple texts and compose short pieces in Gujarati.
For BA Students: Language Course
Course usually offered in spring term
Prerequisites: Beginning Gujarati Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

GUJR 422 Intermediate Gujarati Part I
This course is designed as a continuation of beginning Gujarati. The course objectives are to expand the mastery of sentence patterns and augment vocabulary and its usage through intensive grammar and comprehension exercises. A special emphasis will be placed on greater cultural awareness. Upon completion of this course students should be able to interact socially with added confidence and greater expressiveness. Students should also experience a great improvement in their comprehension of spoken and written language. During the second year of Gujarati, students are introduced to progressively more difficult reading selections, along with additional instructions in the formal grammar of the language. To maintain and develop oral and aural command of the language, readings are discussed in Gujarati. To develop their writing abilities, students are also expected to compose short essays on their readings.
For BA Students: Language Course
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

GUJR 423 Intermediate Gujarati Part II
This course is designed as a continuation of intermediate Gujarati I. Course objectives are to expand the mastery of sentence patterns and augment vocabulary and its usage through intensive grammar and comprehension exercises. A special emphasis will be placed on greater cultural awareness. Upon completion of this course students should be able to interact socially with added confidence and greater expressiveness. Students should also experience a great improvement in their comprehension of spoken and written language. During the second year of Gujarati, students are introduced to progressively more difficult reading selections, along with additional instructions in the formal grammar of the language. To maintain and develop oral and aural command of the language, readings are discussed in Gujarati. To develop their writing abilities, students are also expected to compose short essays on their readings.
For BA Students: Last Language Course
Taught by: Desai, R
Course usually offered in spring term
Prerequisites: Intermediate Gujarati Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Lecture
1 Course Unit

GUJR 442 Advanced Gujarati
A follow up semester to Advanced Gujarati I, focused on the comprehensive study in reading, writing, speaking, and comprehension to gain advanced knowledge of Gujarati. Instructor may use poetry and/or prose as tools to engage students while having them create their own written works. Contact instructor for details.
For BA Students: Advanced Language Course
Taught by: Suthar
Course usually offered in spring term
Prerequisites: Proficiency in Gujarati. Contact instructor if you have questions about your proficiency level.
Activity: Lecture
1 Course Unit
**HEALTH & SOCIETIES (HSOC)**

**HSOC 000 Study Abroad**
Activity: Lecture  
1 Course Unit

**HSOC 001 Emergence of Modern Science**
During the last 500 years, science has emerged as a central and transformative force that continues to reshape everyday life in countless ways. This introductory course will survey the emergence of the scientific world view from the Renaissance through the end of the 20th century. By focusing on the life, work, and cultural contexts of those who created modern science, we will explore their core ideas and techniques, where they came from, what problems they solved, what made them controversial and exciting and how they relate to contemporary religious beliefs, politics, art, literature, and music. The course is organized chronologically and thematically. In short, this is a "Western Civ" course with a difference, open to students at all levels.  
For BA Students: Hum/Soc Sci or Nat Sci/Math Sector  
Taught by: Kucuk  
Course usually offered in fall term  
Activity: Lecture  
1 Course Unit

**HSOC 002 Medicine in History**
This course surveys the history of medical knowledge and practice from antiquity to the present. No prior background in the history of science or medicine is required. The course has two principal goals: (1) to give students a practical introduction to the fundamental questions and methods of the history of medicine, and (2) to foster a nuanced, critical understanding of medicine’s complex role in contemporary society. The course takes a broadly chronological approach, blending the perspectives of the patient, the physician, and society as a whole—recognizing that medicine has always aspired to "treat" healthy people as well as the sick and infirm. Rather than history "from the top down" or "from the bottom up," this course sets its sights on history from the inside out. This means, first, that medical knowledge and practice is understood through the personal experiences of patients and caregivers. It also means that lectures and discussions will take the long-discredited knowledge and treatments of the past seriously, on their own terms, rather than judging them by today’s standards. Required readings consist largely of primary sources, from elite medical texts to patient diaries. Short research assignments will encourage students to adopt the perspectives of a range of actors in various historical eras.  
For BA Students: History and Tradition Sector  
Taught by: Barnes  
Course usually offered in fall term  
Activity: Lecture  
1 Course Unit

**HSOC 003 Technology & Society**
Technology plays an increasing role in our understandings of ourselves, our communities, and our societies, in how we think about politics and war, science and religion, work and play. Humans have made and used technologies, though, for thousands if not millions of years. In this course, we will use this history as a resource to understand how technologies affect social relations, and conversely how the culture of a society shapes the technologies it produces. Do different technologies produce or result from different economic systems like feudalism, capitalism and communism? Can specific technologies promote democratic or authoritarian politics? Do they suggest or enforce different patterns of race, class or gender relations? Among the technologies we’ll consider will be large objects like cathedrals, bridges, and airplanes; small ones like guns, clocks and birth control pills; and networks like the electrical grid, the highway system and the internet.  
For BA Students: Society Sector  
Taught by: Benson  
Course usually offered in spring term  
Activity: Lecture  
1 Course Unit

**HSOC 010 Health and Societies**
"Two fundamental questions structure this course: (1) What kinds of factors shape population health in various parts of the world in the twenty-first century? and (2) What kinds of intellectual tools are necessary in order to study global health? Grasping the deeper "socialness" of health and health care in a variety of cultures and time periods requires a sustained interdisciplinary approach. "Health and Societies: Global Perspectives" blends the methods of history, sociology, anthropology and related disciplines in order to expose the layers of causation and meaning beneath what we often see as straightforward, common-sense responses to biological phenomena. Assignments throughout the semester provide a hands-on introduction to research strategies in these core disciplines. The course culminates with pragmatic, student-led assessments of global health policies designed to identify creative and cost effective solutions to the most persistent health problems in the world today."  
For BA Students: Humanities and Social Science S  
Taught by: McKay  
Course usually offered in spring term  
Activity: Lecture  
1 Course Unit  
Notes: Also fulfills General Requirement in Science Studies for Class of 2009 and prior
HSOC 032 Risky Business
This freshman seminar on medical decision making will focus on personal and public medical and health decisions - how we make them and how they can be improved. While in theory medical decisions are in large part both informed and constrained by scientific evidence, in reality they are much more complex. Drawing upon a range of information sources including original research and popular media, the seminar will introduce students to the challenges of making personal and public (i.e., policy) decisions under conditions of inherent uncertainty and resource constraint. We will examine how research and scholarship can inform and improve such decisions and decision making processes. Using a variety of approaches (class discussions, examination of primary research, popular media, simple experiments, expert guests) this highly interactive seminar will provide a strong introductory foundation to medical decision making specifically and, by extension, to decision making under conditions of uncertainty more generally.
Taught by: Schwartz
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 050 Mad, Bad and Sad: The Construction, Prevention and Treatment of Mental Illness
This freshmen seminar is designed to introduce students to research and debates surrounding the concept of mental disorder and to help them to think critically about these disorders’ biological and social construction. In addition to learning about the presentation and treatment of mental illness, they will also be introduced to concepts in epidemiology, psychology, psychiatry and health services research, and learn about the history of the science surrounding psychiatry and how different beliefs at different times have influenced policy, systems, services and treatment.
Taught by: Mandell
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 052 Autism Epidemic
The CDC estimates that 1 in 150 children have autism. Three decades ago, this number was 1 in 5,000. The communities in which these children are identified in ever increasing numbers are ill prepared to meet their needs. Scientists have struggled to understand the causes of this disorder, its treatment, and why it appears to be rapidly increasing. Families, policy makers, schools and the healthcare system have argued bitterly in the press and in the courts about the best way to care for these children and the best ways to pay for this care. In this class, we will use autism as a case study to understand how psychiatric and developmental disorders of childhood come to be defined over time, their biological and environmental causes identified, and treatments developed. We will also discuss the identification and care of these children in the broader context of the American education and healthcare systems.
Taught by: Mandell
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 059 Medical Missionaries and Partners
Global health is an increasingly popular goal for many modern leaders. Yet critics see evidence of a new imperialism in various aid programs. We will examine the evolution over time and place of programs designed to improve the health of underserved populations. Traditionally categorized as public health programs or efforts to achieve a just society, these programs often produce results that are inconsistent with these goals. We will examine the benefits and risks of past programs and conceptualize future partnerships on both a local and global stage. Students should expect to question broadly held beliefs about the common good and service. Ultimately we will examine the concept of partnership and the notion of community health, in which ownership, control, and goals are shared between outside expert and inside community member.
Taught by: Bream
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 100 Introduction to Sociological Research
One of the defining characteristics of all the social sciences, including sociology, is a commitment to empirical research as the basis for knowledge. This course is designed to provide you with a basic understanding of research in the social sciences and to enable you to think like a social scientist. Through this course students will learn both the logic of sociological inquiry and the nuts and bolts of doing empirical research. We will focus on such issues as the relationship between theory and research, the logic of research design, issues of conceptualization and measurement, basic methods of data collection, and what social scientists do with data once they have collected them. By the end of the course, students will have completed sociological research projects utilizing different empirical methods, be able to evaluate the strengths and weaknesses of various research strategies, and read (with understanding) published accounts of social science research.
Taught by: Armenta, Harknett, Koppel, Park, Smith, Wilde
One-term course offered either term
Activity: Lecture
1 Course Unit

HSOC 102 Bioethics
This course is intended to introduce students to the fundamental principles of bioethics and the many ethical issues that arise in the rapidly changing fields of biomedicine and the life sciences. The first half of the course will provide an overview of the standard philosophical principles of bioethics, using clinical case studies to help illustrate and work through these principles. In the second half of the course we will focus on recent biomedical topics that have engendered much public controversy including diagnostic genetics, reproductive technologies and prenatal screening, abortion, physician assisted suicide, human experiments, and end of life decision making. We will use the principles learned in the first half of the course to systematically think through these bioethical issues, many of which affect our everyday lives.
Taught by: Crnic,M
Course not offered every year
Activity: Lecture
1 Course Unit
HSOC 107 Science, Technology & Medicine in Colonial India
In this course we will explore the broad contours of the histories of Science, Medicine and Technology in Colonial India (c. 1757-1947). This broad overview will be developed each week through a case study based on any one particular scientific discipline, technological project or medical event. Overall the course will attempt to locate the development of science, technology and medicine within the social, political and cultural context of colonial India. It is also worth noting that 'Colonial India', will include discussions of regions which today make up the Republic of India, Pakistan and Bangladesh.
Taught by: P. Mukarji
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 110 Science and Literature
This course will explore the emergence of modern science fiction as a genre, the ways it has reflected our evolving conceptions of ourselves and the universe, and its role as the mythology of modern technological civilization. We will discuss such characteristic themes as utopias, the exploration of space and time, biological engineering, superman, robots, aliens, and other worlds--and the differences between European and American treatment of these themes.
For BA Students: Arts and Letters Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HSOC 111 Health of Populations.
This course develops some of the major measures used to assess the health of populations and uses those measures to consider the major factors that determine levels of health in large aggregates. These factors include disease environment, medical technology, public health initiatives, and personal behaviors. The approach is comparative and historical and includes attention to differences in health levels among major social groups.
Taught by: Kohler
One-term course offered either term
Activity: Lecture
1 Course Unit

HSOC 134 Public Health: From Biology To Policy
Activity: Lecture
1 Course Unit

HSOC 135 The Politics of Food
In this ABCS and Fox Leadership Program course students will use course readings and their community service to analyze the institutions, ideas, interests, social movements, and leadership that shape "the politics of food" in different arenas. Service sites include: the Agatston Urban Nutrition Initiative; the Greater Philadelphia Coalition Against Hunger; the West Philadelphia Recess Initiative; the Vetri Foundation's Eatiquette Program; and Bon Appetit at Penn. Academic course work will include weekly readings, Canvas blog posts, several papers, and group projects. Service work will include a group presentation (related to your placement) as well as reflective writing during the semester. Typically one half of each class will be devoted to a discussion of the readings and the other either to group work and discussion of service projects, or to a course speaker. This course is affiliated with the Communication within the Curriculum (CWIC) program, and student groups are required to meet twice with speaking advisors prior to giving presentation.
Taught by: Summers
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 140 History of Bioethics
This course is an introduction to the historical development of medical ethics and to the birth of bioethics in the twentieth-century United States. We will examine how and why medical ethical issues arose in American society at this time. Themes will include human experimentation, organ donation, the rise of medical technology and euthanasia. Finally, this course will examine the contention that the current discipline of bioethics is a purely American phenomenon that has been exported to Great Britain, Canada and Continental Europe.
Taught by: Linker
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 145 Comparative Medicine
This course explores the medical consequences of the interaction between Europe and the "non-West." It focuses on three parts of the world Europeans colonized: Africa, South Asia, and Latin America.
Today's healing practices in these regions grew out of the interaction between the medical traditions of the colonized and those of the European colonizers. We therefore explore the nature of the interactions. What was the history of therapeutic practices that originated in Africa or South Asia? How did European medical practices change in the colonies? What were the effects of colonial racial and gender hierarchies on medical practice? How did practitioners of "non-Western" medicine carve out places for themselves? How did they redefine ancient traditions? How did patients find their way among multiple therapeutic traditions? How does biomedicine take a different shape when it is practiced under conditions of poverty, or of inequalities in power? How do today's medical problems grow out of this history? This is a fascinating history of race and gender, of pathogens and conquerors, of science and the body. It tells about the historical and regional roots of today's problems in international medicine.
For BA Students: History and Tradition Sector
Taught by: Mukharji
Course usually offered in fall term
Activity: Lecture
1 Course Unit
HSOC 150 American Health Policy
"American Health Policy" places the success or failure of specific pieces of U.S. health care legislation into social and political context. The course covers the time period from the U.S. Civil War to the 2010 Affordable Care Act (ACA), addressing two central questions: 1) Why was the United States one of the only industrialized nations to, until recently, have a private, non-nationalized, non-federalized health care system? 2) Why has U.S. health insurance historically been a benefit given through places of employment? Some topics addressed include: private health insurance, industrial health and workmen's compensation, the welfare state (in Europe, Canada, and the U.S.), maternal and infant care programs, Medicare and Medicaid. One of the main take-home messages of the course is that 20th-century U.S. health care policies both reflected and shaped American social relations based on race, class, gender, and age. This course is a combination lecture and "SAIL" class. SAIL stands for "Structured, Active, In-Class Learning." During many class periods, students will work in small groups on a specific exercise, followed by a large group discussion and/or brief lecture. Students who choose to take this course, therefore, must be fully committed to adequately preparing for class and to working collaboratively in class. (Note: the 2015 format will be somewhat different from the 2014 format).

Taught by: Johnson
Course not offered every year
Activity: Lecture
1 Course Unit

HSOC 152 Technology and Medicine in Modern America
Medicine as it exists in contemporary America is profoundly technological; we regard it as perfectly normal to be examined with instruments, to expose our bodies to many different machines; and to have knowledge produced by those machines mechanically/electronically processed, interpreted and stored. We are billed technologically, prompted to attend appointments technologically, and often buy technologies to protect, diagnose, or improve our health: consider, for example, HEPA-filtering vacuum cleaners; air-purifiers; fat-reducing grills; bathroom scales; blood pressure cuffs; pregnancy testing kits; blood-sugar monitoring tests; and thermometers. Yet even at the beginning to the twentieth century, medical technologies were scarce and infrequently used by physicians and medical consumers alike. Over the course of this semester, we will examine how technology came to medicine's center-stage, and what impact this change has had on medical practice, medical institutions and medical consumers - on all of us!

Taught by: Johnson
Course usually offered summer term only
Activity: Seminar
1 Course Unit

HSOC 179 Environmental History
This course provides an introduction to environmental history—the history of the interrelationship between humans and the rest of nature. In the words of historian J.R. McNeill, "Human history has always and will always unfold within a larger biological and physical context, and that context evolves in its own right. Especially in recent millennia, that context has co-evolved with humankind." In this course we will study this co-evolution between human actors and non-human actors in global history, analyzing political, social, cultural and economic factors that affect ideas about nature and material effects on nature. We will consider the concept of the Anthropocene and study current environmental changes and challenges.

Taught by: Greene, A
Course not offered every year
Activity: Lecture
1 Course Unit

HSOC 202 Scientific Revolution
During the 16th and 17th centuries, something that resembled modern science emerged from something that did not. Though the nature and cause of that transition are contested, there were unquestionably many pivotal developments in the content and conduct of science, and it is in this period that many of the 'founding' figures of science, from Copernicus to Galileo to Newton, are identified. This course will examine the many elements that went into the transition, including the revolution in cosmology, the revolt against ancient natural philosophy, the rise of experimentalism, the new philosophies of inquiry, new social structures for natural inquiry and the conceptual foundations of classical physics.

Taught by: VOELKEL
Course not offered every year
Activity: Lecture
1 Course Unit

HSOC 206 Doing Good?: Humanitarianism and Global Health
This course will explore the current context of health policy, health reform, and health service delivery in the developing world. After examining global economic and political context of health care, students will analyze the role that economic development plays in promoting or undermining health. Students will examine key disease challenges such as tuberculosis, malnutrition, and HIV/AIDS.

Taught by: McKay
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 209 Race and Gender in Global Science
This course critically examines the creation of scientific conceptions of 'race' and 'sex' in the modern era and their global impact. How did 'race' and 'sex' come to be the primary categories through which human variation has been classified in the modern West? What concepts of "race" and "sex" did colonial scientists, doctors, naturalists, and other experts invent, and how and why did they do this? How have scientific conceptions of 'race' and 'sex' been adapted to fit the sociopolitical projects of formerly colonized regions? And how have recent developments in genomic science sought to reinvent these categories? With these questions in mind, this course challenges us to think critically about the political contexts in which conceptions of 'race' and 'sex' have been crafted as well as how they have been contested and re-defined.

Taught by: Gil-Riano
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSOC 212 Science Technology and War
In this survey we explore the relationships between technical knowledge and war in the nineteenth and twentieth centuries. We attend particularly to the centrality of bodily injury in the history of war. Topics include changing interpretations of the machine gun as inhumane or acceptable; the cult of the battleship; banned weaponry; submarines and masculinity; industrialized war and total war; trench warfare and mental breakdown; the atomic bomb and Cold War; chemical warfare in Viet Nam; and "television war" in the 1990s.

For BA Students: Humanities and Social Science S
Taught by: Lindee
Course not offered every year
Activity: Lecture
1 Course Unit
HSOC 216 Gender and Health
Women's health is a constant refrain of modern life, prompting impassioned debates that speak to the fundamental nature of our society. Women's bodies are the tableaux across which politicians, physicians, healthcare professionals, activists, and women themselves dispute issues as wide-ranging as individual versus collective rights, the legitimacy of scientific and medical knowledge, the role of the government in healthcare, inequalities of care, and the value of experiential knowledge, among many others. Understanding the history of these questions is crucial for informed engagement with contemporary issues.
Taught by: Linker
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 219 Race, Science, and Globalization
This course examines how the practice of sorting humans into distinct races is connected to the rise of modern science and to the economic globalization sparked by Columbus' arrival in the Americas in 1492. By examining the trajectory of race in science from the Iberian conquest of the Americas until the present, we will examine the ways in which colonial logics and structures persist into the present and the ways they've been disrupted by various revolutionary, anti-colonial, and anti-racist movements. Along the way, we will observe how cultural ideas about race have been woven into the conceptual fabric of modern scientific disciplines such as anthropology, biology, psychology, and sociology and how these disciplines have sought to redeem themselves from their racist pasts.
Taught by: GIL-RIANO
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 230 Fundamentals of Epidemiology
This course introduces students to the basic tenets of epidemiology and how to quantitatively study health at the population level. Students learn about measures used to describe populations with respect to health outcomes and the inherent limitations in these measures and their underlying sources of data. Analytic methods used to test scientific questions about health outcomes in populations then are covered, again paying particular attention to the strength and weaknesses of the various approaches. Multiple large epidemiologic research and field studies are used as in-class exemplars.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSOC 232 Social Epidemiology
Illness, crime, and other instances of social dysfunction do not happen in a vacuum, nor are they distributed randomly throughout society. The field of social epidemiology examines the influence of workplace, neighborhood, social relationships, and other nonbiological factors on health outcomes. This course gives students the skills to explore and assess complex health challenges that are seen in popular media and public discourse by examining such factors as healthcare access, social inequality, racism and discrimination, and trust and social capital. Using readings, videos and interactive discussions with a focus on emergent health issues, this course equips students to diagnose and interpret underlying reasons for poor health using social epidemiological tools and to consider practical interventions to address those fundamental causes of illness.
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 238 Introduction to Medical Anthropology
Introduction to medical anthropology takes central concepts in anthropology – culture, adaptation, human variation, belief, political economy, the body – and applies them to human health and illness. Students explore key elements of healing systems including healing technologies and healer-patient relationships. Modern day applications for medical anthropology are stressed.
For BA Students: Humanities and Social Science S
Taught by: Barg
One-term course offered either term
Activity: Lecture
1 Course Unit

HSOC 239 Global Health: Anthropological Perspectives
In some parts of the world spending on pharmaceuticals is astronomical. In others, people struggle for survival amid new and reemerging epidemics and have little or no access to basic or life-saving therapies. Treatments for infectious diseases that disproportionately affect the world's poor remain under-researched and global health disparities are increasing. This interdisciplinary seminar integrates perspectives from the social sciences and the biomedical sciences to explore 1) the development and global flows of medical technologies; 2) how the health of individuals and groups is affected by medical technologies, public policy, and the forces of globalization as each of these impacts local worlds. The seminar is structured to allow us to examine specific case material from around the world (Haiti, South Africa, Brazil, Russia, China, India, for example), and to address the ways in which social, political-economic, and technological factors – which are increasingly global in nature – influence basic biological mechanisms and disease outcomes and distribution. As we analyze each case and gain familiarity with ethnographic methods, we will ask how more effective interventions can be formulated. The course draws from historical and ethnographic accounts, medical journals, ethical analyses, and films, and familiarizes students with critical debates on globalization and with local responses to globalizing processes.
Taught by: Petryna
Course not offered every year
Activity: Seminar
1 Course Unit
HSOC 251 Foundations of Public Health
Many factors have shaped, and continue to shape, population health and public health policy. This course will explore the concept, mission, and core functions of public health. Students will have a chance to learn about its key methodological (epidemiology, biostatistics) and content (environmental health, social and behavioral sciences, health policy) areas. In addition, we will focus on topics of particular relevance to the current health of the public; topics likely will include the basics of life (food, water, and shelter) and topics of current interest (e.g., motor vehicle crashes, mental health, violence).
Taught by: Sorenson
One-term course offered either term
Activity: Lecture
1 Course Unit

HSOC 260 Social Determinants of Health
Over the last century, we have witnessed dramatic historical change in population health, e.g. rising numbers of obese Americans and dramatic declines in death from stomach cancer. There has also been highly visible social patterning of health and disease, such as socio-economic disparities in AIDS, substance abuse, and asthma in the U.S. to day or the association of breast cancer with affluence around the world. This course will explore the way researchers and others in past and present have tried to make sense of these patterns and do something about them. The course is historical and sociological. We will examine evidence and theories about how poverty, affluence and other social factors influence health AND we will examine how social and historical forces shape the ways in which health and disease are understood.
Taught by: Johnson,A
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 262 Environments and Public Health
This course explores the relationship between local environmental conditions and health. Using historical case studies, we will consider a variety of questions: What factors (employment, pollution, local flora and fauna, racism, etc.) influence citizens’ environment and health? How have insects, landscapes, and diseases shaped cultures or events in history? Was eighteenth-and nineteenth-century Philadelphia actually a good place to live? What was going on with all those basements and cobblestone streets in Old City? Would you rather work in a coal mine or a uranium mine? You will examine these issues through a mixture of readings, lectures, class discussion, short essays and a research project.
Taught by: Womack,J
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSOC 271 Greek & Roman Medicine
The history of Western medicine is remarkably recent; until the nineteenth century prevailing theories of the body and mind, and many therapeutic methods to combat disease, were largely informed by an elaborate system developed centuries earlier in ancient Greece, at a period when the lines between philosophy, medicine, and what we might consider magic, were much less clearly defined than they are today. This course will examine the ways in which the Greeks, and then the Romans, conceptualized the body, disease, and healing, and will compare these to medical culture of our time. We will consider sources from Hippocrates, Plato, and Aristotle to Galen and Soranus, and will juxtapose these writings with modern discourse about similar topics. We will also pay some attention to ancient pharmacology and religious healing, and will visit the Penn Museum to see their collection of ancient medical instruments. All readings will be in English and no previous background in Classical Studies is required. This course will be especially appealing (and useful) to Pre-med and Nursing students, and to students interested in the History of Science, Ancient Philosophy, and Classics.
Taught by: Rosen
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Fulfills History Tradition Distribution Requirement

HSOC 273 Law, Medicine, and Public Policy
First the course will develop a perspective for viewing social problems drawn largely on my own work as well as that of Gusfelds and Edelman. Next we will explore the domains to which a physician’s expertise is limited using Weber, Rosenberg and others. We will then develop a perspective from anthropological and sociological literature on the courts as public arenas for articulating Durkheimian collective conscience. All of this theory building is in the first half of the seminar. The second half of the course will involve intensive case study of a few dilemmas which have wended their way through the courts. I intend to look at “Baby Doe Regulations” and the Intensive Care Nursery; the problem of the half of the course will involve intensive case study of a few dilemmas which have wended their way through the courts. I intend to look at “Baby Doe Regulations” and the Intensive Care Nursery; the problem of the HSOC 275 Medical Sociology
This course is designed to give the student a general introduction to the sociological study of medicine. Medical sociology is a broad field, covering topics as diverse as the institution and profession of medicine, the practice of medical care, and the social factors that contribute to sickness and well-being. While we will not cover everything, we will attempt to cover as much of the field as possible through four central thematic units: (1) the organization of development of the profession of medicine, (2) the delivery of health-care, (3) social cultural factors in defining health, and (4) the social causes of illness. Throughout the course, our discussions will be designed to understand the sociological perspective and encourage the application of such a perspective to a variety of contemporary medical issues.
For BA Students: Society Sector
Taught by: Schnittker
One-term course offered either term
Activity: Lecture
1 Course Unit
HSOC 279 Nature's Nation: Americans and Their Environment
The United States is "nature's nation." Blessed with an enormous, resource-rich geographically diverse and sparsely settled territory, Americans have long seen "nature" as central to their identity, prosperity, politics and power, and have transformed their natural environment accordingly. But what does it mean to be "nature's nation? This course describes and explores how American "nature" has changed over time. How and why has American nature changed over the last four centuries? What have Americans believed about the nation's nature, what have they known about the environment, how did they know it and how have they acted on beliefs and knowledge? What didn't or don't they know? How have political institutions, economic arrangements, social groups and cultural values shaped attitudes and policies? How have natural actors (such landscape features, weather events, plants, animals, microorganisms) played roles in national history? In addition to exploring the history of American nature, we will look for the nature in American history. Where is "nature" in some of the key events of American history that may not, on the surface, appear to be "environmental?"
Taught by: Greene, A
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 299 Independent Study
Approved independent study under faculty supervision.
Activity: Independent Study
1 Course Unit

HSOC 302 Stem Cell Science in Schools: History, Ethics, and Education
This course will provide University of Pennsylvania and a local Philadelphia High School students with the opportunity to learn fundamental biology concepts and apply them in a hands-on, inquiry-based approach that is also attentive to society, history and social context. Biological sciences have long been deeply engaged with social issues, and our topics for this course reflect their relevance to everyday life. Topics of this course will include, but are not limited to, cell development and stem cell biology, which form the basis of the emerging field of Regenerative Medicine. Penn students will reinforce their learning of these concepts by mentoring high school students, demonstrations by Penn scientists, and a co-teaching method involving Penn faculty and a partnering high school teacher. A primary goal of this course is to expose both Penn and high school students to cutting edge science and its societal impact. Through this course Penn students will learn critical skills that can help them bring scientific ideas to professionals, and important to any educated professional.
Taught by: Shuda
Course not offered every year
Activity: Lecture
1 Course Unit

HSOC 312 Weapons of Mass Destruction
The course explores the historical development of traditional weapons of mass destruction such as chemical, nuclear and biological agents, in addition to newer and seemingly non-traditional weapons such as land mines and civilian aircraft that can also be employed to cause large numbers of injuries and deaths among civilian and military populations. Through case studies in technology and public health, students will evaluate the medical, scientific, environmental, and cultural ramifications of these weapons and their effect on human health and society by analyzing the rise of the military-industrial-academic-complex in twentieth century America.
Taught by: Lindee
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 334 Birth Culture and Medical Technology
How we are born and give birth can vary more than most people realize. Until the rise of medical technology, women gave birth at home surrounded by other women. Now, the majority of Americans are born in hospitals, and a large percentage of those birth are the result of surgical interventions. This course will explore the medicalization of birth, as well as the movements dedicated to promoting home birth, natural birth, and midwifery. Many of the readings will examine birth from an unapologetically feminist and/or holistic perspective, and we will discuss the psychological, political, cultural and spiritual dimensions of birth practices. We will also consider the impact of increasingly sophisticated medical technology on conception and pregnancy, including in vitro fertilization, surrogate mothers, and extending the childbearing years well into late life. An important theme throughout will be the concept of "appropriate technology" — which technologies are appropriate and who decides? Readings will be drawn from a number of sources, principally midwifery, nursing, and medical journals.
Taught by: Mackenzie
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 335 Healthy Schools
This academically based community service research seminar will develop a pilot program to test the efficacy of using service-learning teams of undergraduates and graduate students to facilitate the development of School Health Councils (SHCs) and the Center for Disease Control's School Health Index (SHI) school self-assessment and planning tool in two elementary schools in West Philadelphia. This process is intended to result in a realistic and meaningful school health implementation plan and an ongoing action project to put this plan into practice. Penn students will involve member of the school administration, teachers, staff, parents and community member in the SHC and SHI process with a special focus on encouraging participation from the schools' students. In this model for the use of Penn service-learning teams is successful, it will form the basis of ongoing partnership with the School District's Office of health, Safety & Physical Education to expand such efforts to more schools.
Taught by: Summers
Course not offered every year
Activity: Seminar
1 Course Unit
HSOC 337 Race and Medicine in the Global South
Racialized medical provisions under Apartheid in South Africa, theories of racial immunity to malaria in the Philippines and contemporary investigations of caste-based disease risks in India are some of the topics to be covered in this course. From the more straightforward issues of racial discrimination in medicine, to more complex issues of racial immunity or racial susceptibility to disease, medicine and race have been entangled together in multiple ways. More importantly these issues are far from being matters of the past. Genomic medicine and risk society have combined to make race and medicine one of the most potent contemporary issues. Outside the Western World, in the Global South, these issues are further refracted through local cultural, historical and political concerns. This course will take a long-term view of these contemporary issues.

Taught by: Mukharji
Activity: Seminar
1 Course Unit

HSOC 338 Hybrid Science: Nature, health, and society in Latin America
What role did science and medicine play in the creation and growth of the Spanish and Portuguese empires? And why was the creation of science and health institutions crucial to the revolutionary movements for independence in Latin America? This course examines science and medicine in Latin America by attending to the ways that knowledge of nature and health has been central to the political struggles of the countries in this region. A crucial dynamic shaping the history and culture of this region is the interplay between the healing practices and cosmologies of European settlers, indigenous Americans, and the descendants of African slaves. Bearing this interplay in mind, this course explores how Latin America has been a fertile site of scientific creativity. It also examines the ways in which Latin American scientists and medical experts have refashioned concepts and practices from Europe and North America to fit local circumstances.

Taught by: Gil-Riano
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSOC 339 Women in Medicine
Today in the US almost half of all medical students are women and female physicians comprise roughly one-third of the workforce. However, some statistics are still troubling, including the number of African American women who pursue advanced medical degrees. This course will trace the evolution of women practicing medicine over several centuries, exploring how various cultural, societal, and intellectual norms differed over time while challenging the assumption of linear progress towards equality. While the focus will be on American medicine, including field trips to archives and historical landmarks within Philadelphia, the coursework also includes international case studies and cultural comparisons to help position local issues within a wider and more complicated narrative. Considering both the historical and contemporary contexts for interconnected issues such as bias, motherhood, and burnout, we will analyze challenges and strategize potential solutions for the next generation of women seeking careers in medicine.

Taught by: DiMeo
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 348 Current Issues in Global Health
This course examines current world events through the lens of public health. The course will focus on six key questions: 1) What does health infrastructure look like in different parts of the world, and how is it working or failing different groups of people? 2) What public health opportunities and challenges are created by the rise of megacities? 3) What unique public health challenges are created by modern-day proxy wars and refugee flows, and what is the role of health professionals in responding to human disasters? 4) How are fertility patterns and changes in life expectancy impacting different societies? 5) How is climate change altering the global health landscape? 6) What might the next global pandemic look like? We will discuss these questions in class using a mixture of scholarly and popular texts, and you will conduct and present your own secondary research into one of these topics.

Taught by: Womack,J
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 352 Medical Mestizaje: Health and Development in Contemporary Latin America
Latin American nations as we know them today emerged in the nineteenth century after violent independence struggles against the Spanish Empire. Since independence, mestizaje has been an influential ideology that seeks to portray the identity of Latin American nations as comprised of a unique cultural and racial fusion between Amerindian, European, and African peoples. Through historical, anthropological, and STS approaches this course examines how concerns with racial fusion and purity have shaped the design and implementation of public health programmes in Latin America after independence and into the 20th century. Topics include: tropical medicine and race; public health and urbanization; toxicity and exposure in industrialized settings; biomedicine and social control; indigenous health; genomics and health; food and nutrition.

Taught by: GIL-RIANO
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 359 Nutritional Anthropology
This course will explore the significance as it relates to food behaviors and nutritional status in contemporary human populations. The topics covered will be examined from a biocultural perspective and include 1) definition and functions of nutrients and how different cultures perceive nutrients, 2) basic principles of human growth and development, 3) methods to assess dietary intake, 4) food taboos, 5) feeding practices of infants and children, 6) food marketing, 7) causes and consequences of under- and over-nutrition, and 8) food insecurity and hunger.

Course not offered every year
Activity: Seminar
1 Course Unit
HSOC 370 The Many Lives of Data: Population, Environment, and Planning in the United States, 1850 to the Present
This is a class about the live(s) and afterlives of information from 1850 to the present. Not only can information be reproduced (in a variety of material conditions); it can be repurposed and funneled through a variety of different applications, some of them serving radically different purposes than the first purpose of gathering it. Thoreau’s journals of plant flowering, for instance, have become important indicators of climate change. More controversial is the sale of biomedical information by personal genomics services for drug discovery, or the construction of forensic databases consisting of the DNA of suspects arrested as a result of racial profiling. We will study the ways in which data has become a way for us to understand and define change, stability, place, and time, beginning in the mid-nineteenth century, a period of accelerated and increasingly systematic gathering of data, particularly medical, forensic, and environmental data. The class will proceed both chronologically and thematically in three units, from the gathering and use of biomedical data as a way to make patient populations “legible” (to borrow from James Scott), to data as a way to make the environment understandable, and finally to data as a tool for producing and reproducing social relations. As a final project, students will trace a particular data set from its original gathering to its latest usage. Students will also have an opportunity to create their own course content in the final three weeks of class.
Taught by: Bergman
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 379 Animals in Science Medicine Technology
This course explores human-animal relationships: the wide range of these relationships, why they originated and how they have changed over time. How have humans classified, valued, utilized, consumed, behaved toward and understood animals? Where is the boundary between humans and other animals, and how do we know, since humans are also animals? How is that boundary been maintained and redefined? Are humans part of the animal “natural” world or apart from it? How are humans similar to and different from other kinds of animals? How do we know about animals and what is it we know? To what extent are questions about animals really questions about humans? How has the meaning of animal changed over time? The course focuses in particular to the roles and relationships of animals within science and medicine, and as biotechnologies.
Taught by: Greene, A
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 382 Public Health & Violence
This course will address two health concerns of long-standing controversy: the role of guns in population health and violence in relationships. We will adopt a healthy skepticism about the assumptions and ideologies that currently dominate formal and informal discourse about these topics. A life span perspective - guns from design through use, and abuse from childhood through late life - will be grounded in a public health injury prevention framework. As a function of this approach, we will examine key aspects of the social context in which guns and abuse exist and within which related policies are formulated. Students are encouraged to examine their perceptions about these issues so that they can become more effective members of a society that appears to maintain a deep ambivalence about guns and about violence in relationships.
Taught by: Sorenson
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 391 Bioethics and National Security
At least since Augustine proposed a theory of "just war," armed conflict has been recognized as raising ethical issues. These issues have intensified along with the power and sophistication of weapons of war, and especially with increasing engineering capabilities and basic knowledge of the physical world. The life sciences have had their place in these developments as well, perhaps most vividly with the revelations of horrific experiments conducted by the Nazi and Imperial Japanese militaries, but with much greater intensity due to developments in fields like genetics, neuroscience and information science, and the widely recognized convergence of physics, chemistry, biology and engineering. The fields of bioethics and national security studies both developed in the decades following World War II. During the cold war little thought was given to the fact that many national security issues entail bioethical questions, but this intersection has been increasingly evident over the past two decades. In spite of the overlapping domains of bioethics and national security, there has been remarkable little systematic, institutional response to the challenges presented by these kinds of questions: - What rules should govern the conduct of human experiments when national security is threatened? - Is it permissible to study ways that viruses may be genetically modified in order to defeat available vaccines, even for defensive purposes? - What role may physicians or other health care professionals play in interrogation of suspected terrorists? - Must warfighters accept any and all drugs or devices that are believed to render them more fit for combat, including those that may alter cognition or personality? - What responsibilities does the scientific community have to anticipate possible "dual purpose" uses of other unintended consequences of its work? Deploying the resources of ethics, philosophy, history, sociology and theory, this course will address these and other problems.
Taught by: Moreno
Course usually offered in spring term
Activity: Seminar
1 Course Unit
HSOC 411 Sports Science Medicine Technology
Why did Lance Armstrong get caught? Why do Kenyans win marathons? Does Gatorade really work? In this course, we won’t answer these questions ourselves but will rely upon the methods of history, sociology, and anthropology to explore the world of the sport scientists who do. Sport scientists produce knowledge about how human bodies work and the intricacies of human performance. They bring elite (world-class) athletes to their laboratories or their labs to the athletes. Through readings, discussions, and original research, we will find out how these scientists determine the boundary between “natural” and “performance-enhanced,” work to conquer the problem of fatigue, and establish the limits and potential of human beings. Course themes include: technology in science and sport, the lab vs. the field, genetics and race, the politics of the body, and doping. Course goals include: 1) reading scientific and medical texts critically, and assessing their social, cultural, and political origins and ramifications; 2) pursuing an in-depth The course fulfills the Capstone requirement for the HSOC/STSC majors. Semester-long research projects will focus on “un-black-boxing” the metrics sport scientists and physicians use to categorize athletes’ bodies as “normal” or “abnormal.” For example, you may investigate the test(s) used to define whether an athlete is male or female, establish whether an athlete’s blood is “too” oxygenated, or assess whether an athlete is “too” fast (false start). Requirements therefore include: weekly readings and participation in online and in-class discussions; sequenced research assignments; peer review; and a final 20+page original research paper and presentation.

Taught by: Johnson
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 420 Research Seminar Health and Society
This course is designed to provide HSOC students with the tools necessary to undertake original research, guiding them through the research and writing process. Students will produce either a polished proposal for a senior thesis project, or, if there is room in the course, a completed research paper by the end of term. Students work individually, in small groups and under the close supervision of a faculty member to establish feasible research topics, develop effective research and writing strategies, analyze primary and secondary sources, and provide critiques of classmates’ drafts. Students must apply for this course by December 1.

Taught by: Cnnc
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSOC 421 Medicine and Development
This course is devoted to readings and research about medicine and development in resource-poor countries. The focus is on medical institutions and practices as seen within the broader context of development. We try to understand changing interpretations of how development takes place—and its relationship to technical knowledge, power and inequality. The course gives students the opportunity to do intensive original research.

Taught by: McKay
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 429 The Neurological Condition
Few aspects of our physical makeup are as closely linked to who we are as people as the nervous system. We define our selves by our capacity to think, to react, by our memories. In large part, we believe we are our brains. Yet such perceptions have a history far deeper than our current neuro-obsessed moment. In this course we explore the neurological condition as the human condition: the growing sense since the nineteenth century that we are defined by our nervous systems, and the science that has fostered this vision. From theories of diminishing “nerve force” and the electric cures of the Victorian era, to fMRIs and Obama’s 2013 BRAIN Initiative, we explore how science, medicine, and technology have shaped our understanding of the brain and nervous system as the center of human identity. Course topics include the rise of professional neurology and neuroscience, cultural meanings of nerves and the brain, and the intimate role of patients and human subjects in formulating this science from the nineteenth century to the present.

Taught by: Elder
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSOC 430 Disease & Society
What is disease? In this seminar students will ask and answer this question by analyzing historical documents, scientific reports, and historical scholarship (primarily 19th and 20th century U.S. and European). We will look at disease from multiple perspectives—as a biological process, clinical entity, population phenomenon, historical actor and personal experience. We will pay special attention to how diseases have been recognized, diagnosed, named and classified in different eras, cultures and professional settings.

Taught by: Aronowitz
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 432 Medical Activism and the Politics of Health
During the second half of the twentieth century, overlapping waves of social reform movements agitating for civil rights, women’s rights, peace, environmentalism, and gay rights reshaped the U.S. political and cultural landscape. Physicians, other health care professionals, and organized patient groups played important roles in all of these movements. This seminar investigates the history of this medical activism, making special use of the Walter Lear Collection in Penn Libraries’ Kislak Center. Readings, discussions, and student research projects analyze the relationships between this history and the political dimensions of individual and population health in the late twentieth century.

Taught by: Barnes
One-term course offered either term
Activity: Seminar
1 Course Unit
HSOC 436 Biopiracy: Medicinal Plants and Global Power
Biopiracy has emerged as the name of conflict between multinational pharmaceutical companies attempting to get genetic patents on medicinal plants and indigenous communities in the Global South who have long known and used these plants for medicinal purposes. Today the story of Biopiracy is an unfolding story of plants, patents and power. The extraction and commercial exploitation of plants and knowledge about them from the Global South however is not new. It has been happening at increasing pace for at least the last two centuries. Both the anti-malarial drug quinine and the cancer drug vincristine for instance have their plant-origins in the Global South where local communities used them medicinally long before their discovery by biomedicine. This course will put the current debates around Biopiracy in context and explore how the entanglements of plants and power have changed or not changed.

Taught by: Mukharji
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 439 Women in Medicine
Today in the US almost half of all medical students are women and female physicians comprise roughly one-third of the workforce. However, some statistics are still troubling, including the number of African American women who pursue advanced medical degrees. This course will trace the evolution of women practicing medicine over several centuries, exploring how various cultural, societal, and intellectual norms differed over time while challenging the assumption of linear progress towards equality. While the focus will be on American medicine, including field trips to archives and historical landmarks within Philadelphia, the coursework also includes international case studies and cultural comparisons to help position local issues within a wider and more complicated narrative. Considering both the historical and contemporary contexts for interconnected issues such as bias, motherhood, and burnout, we will analyze challenges and strategize potential solutions for the next generation of women seeking careers in medicine.

One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 441 Cross Cultural Approaches to Health
This course will explore the ways that health and illness-related beliefs and behaviors develop within communities. We will identify the forces that shape these beliefs and behaviors and ultimately affect who gets sick, who gets well, and the very nature of the illness experience. Emphasis will be given to the relationships among sociocultural, political and biological factors and the ways that these factors interact to produce the variation that we see in health and illness related attitudes, behaviors and outcomes across cultures.

Taught by: Barg
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSOC 442 Hospital as Curing Machine
This course examines the technological, scientific, and spatial evolution of the modern hospital from the miasmatic, vermin-infested medieval European hospital-as-alms house, to the late twentieth-century ideal of the modern hospital as a condenser of sophisticated technologies, scientific expertise, and Taylorist efficiencies. In so doing, we will see how designers of hospital space, consciously or not, have striven to realize the mechanized, technological vision of the hospital as curing machine a phrase first invoked by 18th century French surgeon and anatomist Jacques Tenon. While the early nineteenth-century hospital had been a locus for fears about contagion, death, and disease in a pre-germ theory world, through its eventual integration of antiseptic practices, spatially produced zones of medical expertise (the operating suite, the laboratory, pediatric and maternity wards), novel technologies (incubators, hyperbaric chambers, x-rays, ultrasounds) and factory-like efficiencies the hospital came into its own as the epitome of rational modernist space. But, over the course of its evolution, the modern hospital other change as well: as an incubator for super-bugs, as an engine for projects of renewal, and as a site for the cultural transformation of the meaning of birth, death, and health itself.

Taught by: Greene, G
Activity: Lecture
1 Course Unit

HSOC 448 Bodies, Gender, Science, and Medicine
Americans’ ideas about gender and sex have changed dramatically since the 19th century-But what roles have science and medicine played in these changes? How have shifting biological, psychological, cultural and political ideas about femininity and masculinity shaped our experiences of health, illness, sex and reproduction? How have these ideas about gender and sexuality influenced the creation of, participation in, institutions, technologies and experiences of our modern healthcare system? Drawing from the history of science, medicine and technology as well as gender studies, bioethics and disability studies, students in this class will examine a wide array of topics that address these questions, exploring how deeply rooted historical, political and social forces have shaped the relationship between gender and medicine.

One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 458 Environments and Health
Do classrooms’ fluorescent lights give you headaches? Have you ever felt invigorated by a mountain’s breeze? Have you ever sought to get a "healthy" tan at the beach? Throughout history people have attributed their health -- good and bad-- to their physical surroundings. In this class we will explore how medical professionals, scientists and the general population have historically understood the ways in which the environment impacts different people, in different places, in different ways. We will interrogate medical theories that underpinned popular practices, like health tourism, public health campaigns, and colonial medical programs. We will also consider how people constructed and understood the physical environment, including farms and factories, cemeteries and cities, to be healthy or not. This course is designed to foster a collaborative atmosphere in which students will complete an original research paper through critical reading and step-wise assignments that will culminate in a final project.

Taught by: Crnic
Course not offered every year
Activity: Seminar
1 Course Unit
HSOC 461 The Child in the City
This course examines the problem of the child in urban space in 19th and 20th century European and American discourses. This course does not propose to recover the subjective experience of the child but, rather, views the child as an object around which numerous adult anxieties connected to industrialization, urbanization, and modernity itself cohered. Discourses on public health, environmental pollution, sexuality, criminality, and racial degeneration all focused their attention, anxieties, and energies on how to deal with the unique vulnerability of the child in modern urban space. This interdisciplinary course focuses specifically on atmospheres, environments, and architectures in urban settings as diverse as Chicago, New York, Paris, and London. We will examine how the built environment was envisioned as part of a set of critical technologies for resolving the threat that urban space posed to the child. We will explore objects and envir as diverse as tenement babycages, wartime floating hospitals, open-air schools, adventur playgrounds in post-WWII London, car-less communities in Radburn, NJ, and American chil books about urban blight and renewal.
Taught by: Greene, G
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 462 Seeking Health: Tourism, Medicine in America 1800-2000
Summer camps, spring break, and trips to the beach, mountains, and national parks: vacations are an integral part of American culture. Often we talk and think about traveling for its ability to rejuvenate our tired bodies and spirits. Although tourism only developed over the past 100 years, the tradition of traveling for health has a much deeper history. This course will examine how different people in different times have understood the connections between travel and health, and how technologies have and continue to mediate those experiences. Over the course of the semester students will complete an original research paper through critical reading and step-wise assignments that will culminate in a final project. By the end of the semester, students will have honed their skills in primary and secondary source research, the construction of an academic argument and paper, and will continue to develop skills in critical analysis through weekly reading assignments.
Taught by: Crnic
Course not offered every year
Activity: Seminar
1 Course Unit

HSOC 471 Guns and Health
The purpose of this course is for students to gain an understanding of the role of guns in health, and population and prevention approaches to violence. The course will include a focus on policies and regulations related to firearms, the primary mechanism by which violence-related fatalities occur in the U.S. We will address the life span of a gun, from design and manufacture through to use. In addition, we will address key aspects of the social context in which firearms exist and within which firearm policy is made.
Taught by: Sorenson
One-term course offered either term
Activity: Seminar
1 Course Unit

HSOC 482 Invisible Labor in the Human Sciences
This course looks at those disciplines that take people as their subjects of research--including biology and biomedicine as well as anthropology, linguistics, and sociology--to explore the contributions of a wide range of research participants. We will focus on the sciences of human behavior, information, and medicine to analyze the labors of behind-the-scenes actors including tissue donors, survey respondents, student subjects, patients, translators, activists, ethics review boards, data curators, and archivists. Our job will be to analyze the experiences of these technoscientific laborers with a view to systems of knowledge and power in the production and maintenance of knowledge about humans and their bodies.
Taught by: Kaplan, J
Course not offered every year
Activity: Seminar
One-term course offered either term
1 Course Unit

HSOC 498 Honors Thesis
Research and writing of a senior honors thesis under faculty supervision.
One-term course offered either term
Activity: Independent Study
1 Course Unit

HSOC 499 Capstone Independent Study
Independent primary research under faculty supervision to fulfill the capstone research requirement.
One-term course offered either term
Activity: Independent Study
1 Course Unit
HCIN 600 The American Health Care System
This course surveys the historical development of the American health care system from the turn of the Twentieth Century to the present. We examine the logic, economics, and implementation of the system's basic structural components from insurance, to hospitals, to models for compensating physicians and nurses. We review many attempts at reform, and discuss why they failed. We analyze in detail the passage of the Affordable Care Act, the Supreme Court’s rulings, and its provisions on access, cost control, quality, workforce, and financing. And we begin to consider some of the directions in which the American health care system may evolve next.
Course usually offered in fall term
Activity: Online Course
1 Course Unit

HCIN 601 Health Care Operations
The word "operations" derives from the Latin "opus," and opus means work. So by definition, operations is about work. This course offers an introduction to operations management: after completing the course, you will be able to use a systematic approach for analyzing and improving your work in health care settings. This will benefit patients, teams of care providers, and staff. The course includes an examination of inefficiencies resulting from the three system inhibitors: waste, variability, and inflexibility. And it provides strategies for engaging in the ongoing process of reducing these negative impacts without sacrificing quality of care. This course offers an introduction to operations management, examining inefficiencies from waste, variability, and inflexibility and providing strategies for engaging in the ongoing process of reducing these negative impacts without sacrificing quality of care. After completing the course, learners will be able to use a systematic approach for analyzing and improving their work in health care settings.
Activity: Online Course
1 Course Unit

HCIN 602 Behavioral Economics and Decision Making
Behavioral economics is a relatively new field at the intersection of economics and psychology. This course offers an introduction to behavioral economics and its applications to health and health care. In it, we will examine the key conceptual underpinnings of the field. We will discuss in detail the structure of the choice environment and the ways that people are influenced by how choices are structured. We will consider the design of incentives and various approaches used to "supercharge" incentive programs using behavioral economics principles. We will consider the use of social incentives and social comparisons as a way of achieving better physician performance. We will conclude with a description of how behavioral economics is used in public policy, as well as the interesting question of when a "nudge" becomes a shove.
Activity: Online Course
1 Course Unit

HCIN 603 Evaluating Health Care Policy and Programs
This course serves as an overview of fundamental concepts and empirical methods in the analysis of health policies and programs. It offers a pragmatic, applied approach to the subject, focusing on how the learner can use evaluation methods in practice. This course surveys key concepts in evaluation, such as confounding, selection bias, non-random assignment, the counterfactual, and matching. It examines the notions of internal versus external validity, and their influence on methodological choice. And it covers empirical methods including randomized controlled trials, regression discontinuity design, difference-in-differences or interrupted time series methods, matching, and instrumental variables. Real-world policies and evaluation examples illustrate concepts and applications of methods.
Activity: Online Course
1 Course Unit

HCIN 604 Health Economics
Health economics applies economic principles to the health care sector. By recognizing the importance of scarcity and incentives, it focuses on the critical economic issues in producing, delivering, and financing health care. It analyzes determinants of demand for medical care, the unique role of physicians in resource allocation, the role of health insurance, and competition in medical care markets.
Activity: Online Course
1 Course Unit

HCIN 605 Lab: Applying Behavioral Economics
Activity: Online Course
0.5 Course Units

HCIN 606 Health Care Operations Lab: Applying Operations Mgmt
Activity: Online Course
0.5 Course Units

HCIN 607 Translating Ideas into Outcomes
This course applies state-of-the-art innovation methodologies to improve health care delivery for providers, and outcomes and experience for patients. It begins with an extended discussion of how we might apply principles of analytical and scientific thinking including rhetorical analysis and behavioral economics to operational problems in health care. And it examines strategies for identifying and solving those problems; including ethnographic research to reveal what others have missed; problem reframing to enable high-impact solution directions; intentional divergence to unlock teams from initial, less productive concepts; rapid hypothesis validation to learn quickly at low cost whether and how best to invest in scaling; and designing delightful experiences, which drive word-of-mouth and catalyze the spread of desirable behaviors.
Activity: Online Course
1 Course Unit
HCIN 608 Analyzing Incentives and Health and Benefit Design
Recent efforts to increase the amount of health produced through health insurance benefits relative to the cost have utilized a number of strategies. These have included high deductible plans, price transparency, value-based insurance design, simplifying health plan designs, and providing incentives geared to influencing utilization. In this course, we will discuss some of the major challenges facing health insurers, efforts to reduce growth in entitlement spending, and research that focuses on the effectiveness of different strategies to modify behavior through the use of incentives embedded within health insurance design. This course will emphasize both understanding and practical applications of this knowledge through a combination of lectures and interviews with expert practitioners. Following completion of this course, students will have a deeper understanding of some of the tradeoffs inherent in the approaches insurers are taking to provide greater value and health improvement for their beneficiaries.
Activity: Online Course
0.5 Course Units

HCIN 609 Becoming a More Persuasive Person
Learn to deal more effectively with the internal, external, business, work-life, political, and other issues facing medical professionals today. Being right often is not enough—one must deal with the emotional issues of patients, siloed departments, lawyers, and myriad stakeholders. This highly interactive course teaches a process that one can master to meet goals in any situation, including kids, family, friends, hard-bargainers, and different cultures. Participants will negotiate throughout the class, including trying to solve their own real-life problems. This course has been used by Google, U.S. Special Operations, hospitals, doctors, nurses, pharmaceutical firms, and everything in between. The Wall Street Journal's career site called the book that outlines the model, Getting More, the "#1 book to read for your career."
Activity: Online Course
0.5 Course Units

HCIN 610 Case Studies in Clinical Innovation
To become future leaders of health care innovation, students must gain skills in diagnosing the roadblocks to an optimally functioning, high-value health care delivery system and designing actionable solutions that can chart the path forward. This course uses case studies in health care innovation to foster the development of skills that undergird clinical innovation: health systems analysis, strategic problem-solving, clinical care re-design, implementation assessment, and policy development. We will explore a complex network of factors influencing health systems performance, the key ingredients for change, and how to integrate these factors to solve real-world problems. Upon completion, students will be able to decompose complex problems in clinical care to identify nodal points for change; recognize the complex array and interplay of factors that influence clinical care outcomes; diagnose pivotal points for innovative solutions; build models for change that target pivotal points to reset care delivery; embrace complex solutions and develop sustainable plans to change course; and work nimbly in multi-disciplinary teams to potentiate problem solving and innovative solutions to enduring problems.
Activity: Online Course
0.5 Course Units

HCIN 611 Driving Value in the System
Engage in understanding the current goals of improving value—defined by quality over costs—in the health care system and drivers of improved value. Most policy experts agree that by focusing on value then we will be able to unite the different groups within the health care delivery system to help fix our current issues. Students who successfully complete this course will be able to discuss the payers drivers to increase value, measure quality, measure cost, deliver an elevator speech for resources to improve value, and select tools to implement a project to improve value.
Activity: Online Course
0.5 Course Units

HCIN 612 Ethics in Health Care Innovation and Research
This course explores a framework for conducting research, including process improvement experiments, in health care. We will review the history of research ethics and traditional guidelines and codes, and will describe federal regulations governing biomedical and behavioral research. We will then delineate a commonly accepted framework for evaluating the ethics of research and how this framework applies to several systems research projects. Upon completing this course, students will be able to critically evaluate the ethics of their specific research proposals, and will be prepared to justify their proposals to participants, funders, and institutional review boards or research ethics committees.
Course usually offered in fall term
Activity: Online Course
0.5 Course Units

HCIN 614 Health Law Fundamentals
Examine the legal and regulatory aspects of the United States health care delivery and financing systems. This course explores how statutes, regulations, common law, and market forces help or hinder three major goals of policy makers: increasing access, reducing cost, and improving quality. We will examine the Supreme Court's rulings on the ACA and other legal aspects of modern health care reform. Casebook readings are supplemented by government publications, academic articles, and policy materials. The course also includes extensive additional readings on the Patient Protection and Affordable Care Act. Students who successfully complete this course will be able to describe the laws, regulations, common law, and market forces that shape our health care system and identify areas where ideas and innovation are needed; explain the malpractice system and how it influences medical practice; and analyze legal aspects of the ACA.
Activity: Online Course
0.5 Course Units

HCIN 615 Policymaking in Health Care
How is health policy developed, decided, and executed? We are cognizant of legislation in its final, enacted form—what precedes it, and how is it shaped? This course will take students from the offices of policymakers to the floor of the House and Senate, to the offices of physicians and providers. The course will examine what foundational elements are necessary to pass any piece of legislation and the process through which a law comes to fruition. Key health care legislation—Medicare, "Clinton Care," CHIP, and the ACA—will all be examined through the lens of policy development. Upon completing the course, students will be able to define the specific decisions, actions, and agendas in order to, ultimately, propel health care policymaking.
Activity: Online Course
0.5 Course Units
**HCIN 616 Improving Global Health**

This course will review major issues related to the delivery of health services in low- and middle-income countries. The course will examine trends in health-related foreign aid; assess the performance of major donor-funded health initiatives; and review efforts of countries such as Brazil, India, and South Africa to improve the health of their populations through initiatives such as expanded health insurance. In addition, this course will analyze the demand- and supply-side barriers to improving health in low-income countries while also reviewing innovative service delivery models and behavioral interventions. Upon completing the course, students will have a better understanding of prominent health initiatives in developing countries, the financing and delivery of health services, and innovative solutions that have the potential to be implemented at scale in the future.

Activity: Online Course
0.5 Course Units

**HCIN 617 Transformation of Health Care in the Real World**

A number of best practices show promise in improving care, including open access scheduling, care coordinators, physician extenders, medical homes, and connected technologies. But there are two forces that keep these best practices from spreading and from having the transformative results they are capable of delivering. First, health care is complex and a best practice that works well for hip replacement might not be right for the management of a chronic condition. Second, implementation in the real world is more than identifying a best practice and declaring it as the new standard for care delivery. An organization has to first understand the new practice and how it should be applied to a new setting, involving both technical solutions and changes to management systems. Finally, a successful transformation requires a change in providers’ mindsets and behaviors. The purpose of this course is to teach participants about successful transformative practices in various parts of the health care system, enabling them to lead initiatives to transform their own medical organization. Students will hear from practitioners what works, learn from academics why the practice works and what are alternatives, and discuss with practitioners how the practice was rolled out. Topics will include scheduling and appointment management, welcoming the patient, care delivery in the process flow paradigm, care delivery with more complex patients, discharge and follow-up, and financial viability.

Activity: Online Course
0.5 Course Units

**HCIN 990 Master of Health Care Innovation Capstone Planning**

In the planning phase of the Master of Health Care Innovation capstone project, students begin to prepare a project plan. They will meet with a faculty advisor, confirm the project topic, identify relevant source materials, and consider evaluation and obtaining buy-in. If relevant, students will conduct a literature or policy review, hold initial conversations with stakeholders, and begin the IRB approval process. Students will complete a deliverable, agreed upon with the faculty advisor, to be submitted at the end of the planning phase.

Course usually offered in spring term
Activity: Online Course
0.5 Course Units

**HCIN 991 Master of Health Care Innovation Capstone Review**

In the review phase of the Master of Health Care Innovation capstone project, students will develop a concrete project plan. The plan includes the project protocol, milestones, and metrics for success. Throughout this phase, students will meet with their faculty capstone advisor to discuss objectives, choose evaluation mechanisms, and troubleshoot foreseeable problems.

Course usually offered in fall term
Activity: Online Course
0.5 Course Units

**HCIN 992 Capstone Implementation**

During this course, Master of Health Care Innovation students carry out their summative capstone projects, executing the plan they laid out in Phase 2: Capstone Review. At the end of the course, students will be required to submit a final report on the project, and to lead a presentation about the project to faculty and fellow classmates.

In the implementation phase of the Master of Health Care Innovation capstone project, students will execute the project plan they developed in the review phase. Throughout this phase, students will run their intervention, collect and analyze data, and submit a final report and presentation to faculty and fellow students.

Course usually offered in fall term
Activity: Online Course
1 Course Unit
HEALTH CARE MANAGEMENT
(HCMG)

HCMG 101 Health Care Systems
This introductory course takes a policy and politics angle to healthcare's three persistent issues - access, cost and quality. The roles of patients, physicians, hospitals, insurers, and pharmaceutical companies will be established. The interaction between the government and these different groups will also be covered. Current national health care policy initiatives and the interests of class members will steer the specific topics covered in the course. The course aims to provide skills for critical and analytical thought about the U.S. health care system and the people in it.
Taught by: Harrington/Polsky
One-term course offered either term
Activity: Lecture
1 Course Unit

HCMG 202 The Economics and Financing of Health Care Delivery
The course provides an application of economic models to demand, supply, and their interaction in the medical economy. Influences on demand, especially health status, insurance coverage, and income will be analyzed. Physician decisions on the pricing and form of their own services, and on the advice they offer about other services, will be considered. Competition in medical care markets, especially for hospital services, will be studied. Special emphasis will be placed on government as demander of medical care services. Changes in Medicare and regulation of managed care are among the public policy issues to be addressed.
Taught by: Candon
One-term course offered either term
Prerequisites: Economics 1 or consent of instructor. Students who take HCMG 202 may not also take HCMG 352 for further credit.
Activity: Lecture
1 Course Unit

HCMG 203 Clinical Issues in Health Care Management: Doctors, Patients and Managers in Modern Society
This course will explore the effects of the changing health care environment on the physician, patient and health care manager. It is intended for any undergraduate with an interest in how 1/6th of the American economy is organized as well as those planning careers as health care providers and managers. The course complements other health care courses (that take a societal perspective) by focusing on the individuals who participate in the health care enterprise. There are no prerequisites, as the course will stand on its own content. The course will be divided into modules that focus on the participants of the health care process and the process itself. We will analyze the patient, the doctor, and manager in light of the patient-doctor interaction, the turbulent health care marketplace, expensive new technologies, resource allocation, and ethics.
Taught by: Asch
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HCMG 204 Comparative Health Care Systems
This course examines the structure of health care systems in different countries, focusing on financing, reimbursement, delivery systems and adoption of new technologies. We study the relative roles of private sector and public sector insurance and providers, and the effect of system design on cost, quality, efficiency and equity of medical services. Some issues we address are normative: Which systems and which public/private sector mixes are better at achieving efficiency and equity? Other issues are positive: How do these different systems deal with tough choices, such as decisions about new technologies? Our main focus is on the systems in four large, prototypical OECD countries—Germany, Canada, Japan, and the United Kingdom—and then look at other countries with interesting systems— including Italy, Chile, Singapore, Brazil, China and India. We draw lessons for the U.S. from foreign experience and vice versa.
Taught by: TBA
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HCMG 212 Health Care Quality and Outcomes: Measurement and Management
This course will familiarize students with methods used to assess the quality of hospital or provider health care using outcomes data, and to understand and evaluate studies involving health care outcomes. Students are exposed to the mechanics of hospital quality evaluation and challenged to evaluate the medical and health services research literature on health care evaluation, as well as to make inferences regarding hospital quality and the comparison or rankings of hospitals or providers. Topics will include the history of health care outcomes analysis; the conceptual framework for outcome studies; consumer demand for information; an overview of medical data and data collection systems; a description of outcome statistics and severity adjustments currently in use; the study of excess variation in outcomes; and the use of guidelines to assess outcomes. By the end of the course, students will have developed a thorough appreciation of the current methods used by policy makers, researchers, and health care providers to evaluate medical outcomes, as well as those used by consumers to choose hospitals and providers.
Taught by: Silber
Course usually offered in spring term
Prerequisite: Introductory Statistics or permission of instructor
Activity: Lecture
1 Course Unit
HCMG 213 Health Care Strategy and Management: the Business of Health Care
This course presents an overview of the business of health and how a variety of health care organizations have gained, sustained, and lost competitive advantage amidst intense competition, widespread regulation, high interdependence, and massive technological, economic, social and political changes. Specifically, we evaluate the challenges facing health care organizations using competitive analysis, identify their past responses, and explore the current strategies they are using to manage these challenges (and emerging ones) more effectively. Students will develop generalized skills in competitive analysis and the ability to apply those skills in the specialized analysis of opportunities in producer (e.g. biopharmaceutical, medical product, information technology), purchaser (e.g. insurance), and provider (e.g. hospitals, nursing homes, physician) organizations and industry sectors. The course is organized around a number of readings, cases, presentations, and a required project.
Taught by: Kimberly.Swanson
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HCMG 215 Management and Economics of Pharmaceutical and Biotech Industries
This course provides an overview of the management, economic and policy issues facing the pharmaceutical and biotechnology industries. The course perspective is global, but with emphasis on the U.S. as the largest and most profitable market. Critical issues we will examine include: R&D intensive cost structure and rapid technological change; biotech startups and alliances with the pharma industry; pricing and promotion in a complex global marketplace where customers include governments and insurers, as well as physicians, pharmacists and consumers. We use Wharton and industry experts from various disciplines to address these issues.
Taught by: Alpert
Course usually offered in spring term
Prerequisite: One undergraduate Health Care Management course or Economics course
Activity: Lecture
1 Course Unit

HCMG 216 Health Insurance and Health Care Strategy
This course combines the insights of health economics with a strategic perspective on the business of health. The first section will consider the costs and benefits of medical interventions, while the second considers insurance theory and places special emphasis on the challenges facing firms in the face of the rising costs of health benefits as well as opportunities for private insurers operating in publicly financed markets. The third section will analyze strategies of vertical and horizontal integration and their effect on the balance of power in local healthcare markets. Finally, the course will cover the effects of reform on firm incentives. The course will be taught using a mix of lectures and cases.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HCMG 250 Health Policy: Health Care Reform and the Future of the American Health System
This course will provide students a broad overview of the current U.S. healthcare system. The course will focus on the challenges facing the health care system, an in-depth understanding of the Affordable Care Act (ACA) and of its potential impact upon health care access, delivery, cost, and quality as well as its effect on firms within the health care sector. The course will examine potential reforms, including those offered by liberals and conservatives and information that can be extracted from health care systems in other developed countries. The course will also explore key facets of the ACA, including improving access to care and health insurance exchanges, improving quality and constraining costs through health care delivery system reforms, realigning capacity through changes in the health care workforce and in medical education, the potential impact on biomedical and other innovations, and the impact on economic outcomes such as employment, wage growth, and federal budget deficits. The course will also examine the political context and process of passing major legislation in general and health care legislation in particular, including constitutional arguments surrounding the Affordable Care Act. Throughout the course, the key lessons will integrate the disciplines of health economics, health and social policy, law and political science to elucidate key principles.
Taught by: Emanuel
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HCMG 302 Economics and Financing of Health Care Delivery
This course provides an application of economic principles to the health care sector. By recognizing the importance of scarcity and incentives, this course will focus on the critical economic issues in producing, delivering, and financing health care. In particular, the course will analyze determinants of demand for medical care, such as health status, insurance coverage, and income; the unique role of physicians in guiding and shaping the allocation of resources in medical care markets; and competition in medical care markets, especially among hospitals. Special emphasis will be placed on the evaluation of policy instruments such as government regulation, antitrust laws, ‘sin taxes’ on cigarettes and alcohol, and public health programs. This course is similar to HCMG 202, but uses more advanced quantitative methods and formal economic theory; knowledge of calculus and basic microeconomics is recommended. Students who take HCMG 302 may not also take HCMG 202 (ECON 039) for further credit.
Taught by: David
Course usually offered in fall term
Prerequisites: ECON 001 and ECON 002 OR BEPP 250
Activity: Lecture
1 Course Unit
HCMG 352 Health Services Delivery: A Managerial Economic Approach
The purpose of this course is to apply economics to an analysis of the health care industry, with special emphasis on the unique characteristics of the US healthcare markets, from pre-hospital to post-acute care. This course focuses on salient economic features of health care delivery, including: the role of nonprofit providers, the effects of regulation and antitrust activity on hospitals, the degree of input substitutability within hospitals, the nature of competition in home health care, public versus private provision of emergency medical services, the effect of specialty hospitals and ambulatory surgery centers, the economics of direct-to-consumer advertising and its effect on drug safety, defining and improving medical performance in hospitals, specialization and investment in physical and human capital, and shifting of services between inpatient and outpatient settings and its effect on health care costs and quality.
Taught by: David
Course usually offered in spring term
Prerequisite: Students who took HCMG 202 may not take 352 for further credit
Activity: Lecture
1 Course Unit

HCMG 391 Health Care Entrepreneurship
Delivering basic health care advances worldwide and continuing to increase lifespan and quality (in an affordable manner) represent some of the major societal challenges of our time. Addressing these challenges will require innovation in both medical technology and the ways in which health services are delivered. Through readings, cases, guest lectures, and your own entrepreneurial work outside of class, we will examine the environment facing prospective health care entrepreneurs: (1) sources of health care innovation; (2) the many "customers" in health care: patients, doctors, hospitals, insurers, and regulators; (3) the powerful established firms with developed clinical and sales expertise; (4) the investing community. Along the way we will develop a framework for thinking about what is different (and what is not) about the challenges of health care entrepreneurship.
Taught by: Grennan
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HCMG 841 Health Services System
This course provides an overview of the evolution, structure and current issues in the health care system. It examines the unique features of health care as a product, and the changing relationships between patients, physicians, hospitals, insurers, employers, communities, and government. The course examines three broad segments of the health care industry: payors, providers and suppliers. Within the payor segment, the course examines the sources and destinations of spending, managed care (HMOs, PPOs), employer based health insurance, technology assessment, payor strategy, and efforts to pay for the elderly, the poor & the medically indigent. Within the provider segment, the course examines the impact of cost containment and competition on hospitals and integrated delivery systems, long term care and disease management, and the important role of epidemiology in assessing population health needs and risks. Within the supplier segment, the course will examine developments in the biotechnology, pharmaceutical, medical devices, genomics and IT industries. NOTE: This is a required course for Wharton Graduate Health Care Management majors; it counts as an elective course for all other Wharton Graduate students. It is also open to Law School and Nursing School students with a joint Wharton Program.
Taught by: Burns
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HCMG 845 Managed Care and the Industrial Organization of Health Care
This course, co-taught with Brad Fluegel, former Senior Vice President and Chief Healthcare Marketing Development officer at Walgreen Co, will focus on two interrelated topics: managed care and market structure. The section on managed care will cover strategic planning and marketing of managed care services, operational issues in developing a managed care network, actuarial issues, and the management of physician behavior. The section on health care market structure will analyze strategies of vertical integration and horizontal integration (M+As), and their attempt to alter the balance of power in local healthcare markets. The section will also analyze the operational issues in managing cost and quality in an integrated system, integration along the supply chain, and the performance of these systems, and the bargaining and negotiation between hospitals, physicians, and health plans.
Taught by: Gupta, Fluegel
Course usually offered in spring term
Activity: Lecture
1 Course Unit

Notes: Lectures and cases. Weekly reading assignments.
HCMG 849 Financial Management of Health Institutions
This course focuses on health care organizations' financial decisions in the changing health care landscape. Upon completion of the course, students will be able to utilize a range of financial tools and techniques for making value-added financial decisions in a variety of important contexts in the health care sector. The course involves case analyses and lectures, including presentations by practitioners with extensive real world experience. The course is organized around cases dealing with publicly-traded health care company valuation, valuation and return on investment of biopharmaceutical and medical technology development projects, valuation and deal structure for startup and early stage health care organizations, health plan pricing and finance, and health care provider risk-sharing arrangements. Each case is accompanied by background on tools, methods, institutions, and markets. Students seeking careers in health care finance and financial decision making. Students with more background will extend and enhance their analytical skills in a variety of important areas.
Taught by: Harrington
Course usually offered in fall term
Prerequisite: Finance 611 or equivalent coursework or experience
Activity: Lecture
1 Course Unit
Notes: Lecture and cases. Students work in teams to complete 4-5 case write-ups and an oral case presentation. There is also a written exam.

HCMG 850 Health Care Reform and the Future of the American Health System
The objective of this course is to provide students with a rigorous understanding of the health care system in the United States. The course will focus on the historical development of the current health care system; challenges of health care costs, quality, and access; the relationship between market failure and the passage of the Affordable Care Act (ACA); the impact to date of recent health reforms on the organization, structure, delivery and outcomes of the health care system, and future reforms and responses of the health care system. This class will consist of 4 interconnected segments. The first segment will provide an in-depth analysis of the U.S. health care system prior to the passage of the ACA and the factors underlying the failure of this market. The second segment of the course will review the history of attempts to reform the US health care system, the politics of reform, and the story of how the ACA ultimately passed through Congress. The third segment will focus on the effects of the ACA subsequent health reforms, such as the Medicare Access and CHIP Reauthorization Act, over the last 8 years on cost, access, and quality. This will include perspectives from a diverse set of stakeholders, including insurers, health care systems, physicians, private sector entrepreneurs, and others. The final segment of the course will consider the possible long-term outlook for health reform in the United States, including recent pushes for national single payer, or "Medicare for All."
Taught by: Emanuel,Schwartz
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HCMG 852 Health Services Delivery: A Managerial Economic Approach
The purpose of this course is to apply economics to an analysis of the health care industry, with special emphasis on the unique characteristics of the US healthcare markets, from pre-hospital to post-acute care. This course focuses on salient economic features of health care delivery, including: the role of nonprofit providers, the effects of regulation and antitrust activity on hospitals, the degree of input substitutability within hospitals, the nature of competition in home health care, public versus private provision of emergency medical services, the effect of specialty hospitals and ambulatory surgery centers, defining and improving medical performance in hospitals, specialization and investment in physical and human capital, shifting of services between inpatient and outpatient settings and its effect on health care costs and quality, and innovation in primary care from retail clinics to patient-centered medical homes and retainer-based medicine.
Taught by: David
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Written exam and student presentation.

HCMG 853 Management and Strategy in Medical Devices and Technology
Successful medical devices are an amalgamation of creative and innovative thinking, clinical expertise, and engineering know-how that endures intense regulatory and reimbursement scrutiny. This course will provide a foundation for understanding the nuances of the medical device industry. It will cover topics ranging from device design and discovery, regulatory issues, marketing, reimbursement, management, and strategy. Classroom activities will be supplemented with optional tours of hospitals, research and manufacturing facilities, and hands-on demonstrations of devices. Though the course is intended primarily for MBA students, it will be open to medical and engineering students as well as to hospital house staff.
Taught by: Grennan,Solomon
Course usually offered in fall term
Activity: Lecture
1 Course Unit
HCMG 855 Management of Health Care for the Elderly
This mini course is designed to provide students with an appreciation of the good, the bad, and the ugly of how our current health care system cares for one of our nation’s most precious resources - our seniors! This course will review care provided to seniors within a variety of institutional settings (hospitals, nursing facilities, various senior housing levels) as well as outpatient and home care services. Special attention will be paid to nursing homes and senior housing options and their past, present and future role within the overall health care system in the United States. The course will start with an overview of the senior population with special attention to their health and social needs. Several classes will be held off campus at selected nursing facilities and senior housing complexes. In addition, a broad range of special programs and services will be reviewed such as sub-acute care, long term care insurance, Medicare Risk Programs, elderly housing, adult day care, managed care, Medicare Part D, case management, hospice and other recent developments. Throughout the course, emphasis will be placed on entrepreneurial opportunities to serve the senior market at all levels. Students are required to produce a paper for this course that focuses on a specific area impacting the senior market. This is a wonderful opportunity for students to select an area of personal interest and conduct an in depth review of that area including making direct contact with national experts within the topic selected. All student topics must be approved during the first two weeks of class and the depth of research required agreed upon by the student and the instructor. Interested students not in the HCMG major are urged to speak to the instructor before enrolling in the course.
Taught by: Whitman
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

HCMG 857 Healthcare Data and Analytics
In healthcare or anywhere else across science, or business, or sports, the importance of data and analytics ("D&A") is virtually unquestioned. That, however, does not mean that it needs no elucidation. We posit that precisely because of its ubiquity, leaders have fallen into a pattern of both overuse and over dependency on D&A. In this course, we begin with a fundamental understanding of the state of D&A in healthcare and then move onto examples of its use in converting from business questions to implemented solutions. We "sidestep" into the world of algorithms/machine-learning/AI and causal inference, but our focus is on business applications of these tools to the available data in the healthcare industry. As we discuss examples, we always seek to show how human creativity needs to be at the heart of the questions being probed. We highlight today’s data universe in healthcare, the level of integration we have achieved, and the immensity of the remaining task, all with an eye to the business opportunities that exist now. We end with a showcasing of the art of the possible - in 2018 - and with (hopefully) a clear look ahead at what remains to be achieved. A curious mind, enthusiastic contribution to the class discussion (35% of your grade), a single team-based case write-up (15% of your grade), and a final project (50% of your grade) form the bulk of preparation needed for the course.
Taught by: Grennan, Mahadevan
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: Pursuit of MBA - we expect most students to be 2nd years. We assume no prior knowledge of statistical tools/concepts beyond the level of the MBA Core, though of course further training in data science is a plus, and we welcome those with more advanced preparation.

HCMG 859 Comparative Health Care Systems
This course examines the structure of health care systems in different countries, focusing on financing, reimbursement, delivery systems and adoption of new technologies. We study the relative roles of private sector and public sector insurance and providers, and the effect of system design on cost, quality, efficiency and equity of medical services. Some issues we address are normative: Which systems and which public/private sector mixes are better at achieving efficiency and equity? Other issues are positive: How do these different systems deal with the tough choices, such as decisions about new technologies? Our focus first on the systems in four large, prototypical OECD countries - Germany, Canada, Japan, and the United Kingdom - and then look at other developed and emerging countries with interesting systems - including Italy, Chile, Singapore, Brazil, China and India. We will draw lessons for the U.S. from foreign experience and vice versa.
Taught by: TBA
Course usually offered in spring term
Prerequisite: Format: HCMG or ECON course
Activity: Lecture
1 Course Unit

HCMG 860 Managing Health Care Organizations
This course provides an overview of the management, economic, and policy issues facing the pharmaceutical and biotechnology industries. The course perspective is global, but with emphasis on the U.S. as the largest and most profitable market. Critical issues we will examine include: R&D intensive cost structure with regulation and rapid technological change; strategic challenges of biotech startups; pricing and promotion in a complex global marketplace where customers include governments and insurers, as well as physicians and consumers; intense and evolving M&A, joint ventures, and complex alliances; government regulation of all aspects of business including market access, pricing, promotion, and manufacturing. We use Wharton and industry experts from various disciplines to address these issues.
Taught by: Alpert
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HCMG 863 Management and Economics of Pharmaceutical and Biotech Industries
This course provides an overview of the management, economic and policy issues facing the pharmaceutical and biotechnology industries. The course perspective is global, but with emphasis on the U.S. as the largest and most profitable market. Critical issues we will examine include: R&D intensive cost structure with regulation and rapid technological change; strategic challenges of biotech startups; pricing and promotion in a complex global marketplace where customers include governments and insurers, as well as physicians and consumers; intense and evolving M&A, joint ventures, and complex alliances; government regulation of all aspects of business including market access, pricing, promotion, and manufacturing. We use Wharton and industry experts from various disciplines to address these issues.
Taught by: Alpert
Course usually offered in spring term
Activity: Lecture
1 Course Unit
HCMG 866 E-Health: Business Models and Impact
This course will introduce students to the main components of Health Information Technology (HIT) and how HIT currently effects, and in the future, may change health care operating models. Although it will not prepare students for primary technology management positions, it will help them understand the role of information technology in the success of the delivery system and other important healthcare processes. It will provide a foundation that will prepare them as managers, investors and consultants to rely upon or manage information technology to accomplish delivery system objectives. The course will give special attention to key health care processes, and topics such as the drive for provider quality and cost improvements, the potential ability to leverage clinical data for care improvement and product development, the growth of new information technologies for consumer directed healthcare and telemedicine, the strategies and economics of individual HIT companies and the role of government. The course relies heavily on industry leaders to share their ideas and experiences with students.
Taught by: Glaser/Patel
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

HCMG 867 Health Care Entrepreneurship
The course focuses on the creation, funding, and management of biotechnology and health services enterprises. The course is designed to supplement other offerings in the Health Care Systems and Management Departments for those students with entrepreneurial interest in such ventures, and will focus on special issues surrounding the conceptualization, planning, diligence and capitalization, launch, compensation and management of these ventures. In addition, course offers methods for self-assessment & development of business models and plans, techniques for technology assessment and strategy, develops foundation for capitalization and partnering strategies, and creates a basis for best practices in company launch and plan execution. Students must apply to take this course. Please see the Health Care Management Department for the application.
Taught by: Kurtzman/Libson, Heil
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

HCMG 868 Private Sector Role in Global Health
Issues surrounding global health have captivated the attention of the public sector and foundations for many decades. Many of their initiatives are realizing progress on the health-related Millennium Development Goals. The private sector has been less engaged in global health, but has a significant role to play in providing resources and in building infrastructure, human resource capacity and sustainability. This course explores entrepreneurial and other private sector solutions for health services and access to medicines and technologies in the developing world and other underserved areas. The course also encompasses study of creative programs to engage the private sector in development of vaccines and medicines for tropical and neglected diseases. Furthermore, the course addresses novel care systems and therapeutic strategies for the rapidly growing burden of chronic, non-communicable diseases in the developing world. In short, the course builds on the content of conventional global health courses from a managerial and entrepreneurial perspective. Learning is driven through readings, class discussion and a series of guest speakers representing a wide range of global health issues. Evaluation is largely based on a student group project.
Taught by: Sammut
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

HCMG 890 Advanced Study Project: Management of Health Care Service Businesses
HCMG 890-001: This course examines issues related to the Services Sector of the health care industry. For those interested in management, investing, or banking into the health care industry, the services sector will likely be the largest and most dynamic sector within all of health care. We will study key management issues related to a number of different health care services businesses with a focus on common challenges related to reimbursement, regulatory, margin, growth, and competitive issues. We will look at a number of different businesses and subsectors that may have been unfamiliar to students prior to taking the course. We will make extensive use of outside speakers, many of whom will be true industry leaders within different sectors of the health care services industry. Speakers will address the current management issues they face in running their businesses as well as discuss the career decisions and leadership styles that enable them to reach the top of their profession. Students will be asked to develop a plan to both buyout and manage a specific health care services business of their choosing and will present their final plans to a panel of leading Health Care Private Equity investors who will evaluate their analysis. Prerequisites: HCMG 841. Health Care Management MBA majors only
Taught by: Present
Course usually offered in fall term
Prerequisite: HCMG 841
Activity: Seminar
1 Course Unit
HCMG 900 Proseminar in Health Economics
900-001 Proseminar in Health Econometrics: This course will cover empirical methods used in economics research with an emphasis on applications in health care and public economics. The methods covered include linear regression, matching, panel data models, instrumental variables, regression discontinuity, bunching, qualitative and limited dependent variable models, count data, quantile regressions, and duration models. The discussion will be a mix of theory and application, with emphasis on the latter. The readings consist of a blend of classic and recent methodological and empirical papers in economics. Course requirements include several problem sets, paper presentations, an econometric analysis project and a final exam. The course is open to doctoral students from departments other than Health Care Management with permission from the instructor. 900-002 Proseminar in Health Economics: Models and Methods: This course is intended to provide entering doctoral students with information on the variety of health economics models, methods, topics, and publication outlets valued and used by faculty in the HCMG doctoral program and outside of it. The course has two main parts: the first, to acquaint students with theoretical modeling tools used frequently by health economists. This part of the course involves a number of lectures coupled with students presentations of class projects in a workshop environment. The second part of the course will offer presentations from the health economics, management and operations research community at Penn on a research method or strategy they have found helpful and they think is important for all doctoral students to know. Taught by: Gupta 001, David 002
One-term course offered either term
Activity: Lecture
HCMG 900 Proseminar in Health Care Cost Benefit and Cost Effectiveness Analysis
The purpose of this doctoral level course is to investigate the theory and practice of cost-benefit and cost-effectiveness analysis as applied to health care. The three techniques to be examined are cost-effectiveness analysis with single dimensional outcomes, cost effectiveness analysis with multiple attributes (especially in the form of Quality Adjusted Life Years), and economic cost-benefit analysis. Valuation of mortality and morbidity relative to other goods will be emphasized. Students will be expected to develop written critiques of articles in the literature, and to design a new application of one of the techniques as a term project. Taught by: Polsky/Glick
Course usually offered in fall term
Activity: Seminar
HCMG 901 Seminar in Health Care Cost Benefit and Cost Effectiveness Analysis
HCMG 902 Special Topics in Health Economics: The Industrial Organization of Health Care
This advanced PhD seminar will explore topics in the industrial organization of health care and structural econometric approaches in health economics. The focus in this course is the development of advanced econometric tools. The (tentative) topics covered include health insurance and hospital demand estimation, the analysis of hospital competition, insurer competition, quality competition, technology adoption, models of entry and exit and dynamic oligopoly games. The readings will focus on recent advances in economics. Students are required to present recent research from the field and write an empirical research paper that broadly based on the topics covered in the course. With the permission of the instructor, the seminar is open to doctoral students from departments other than Health Care Management. Taught by: Lucarelli
Activity: Seminar
HCMG 903 Economics of Health Care and Policy
This course applies basic economic concepts to analyze the health care market and evaluate health policies. The course begins with a discussion of productivity in health care and of the theoretical and empirical effects of asymmetric information and market failure. The second part of the course explores several topic areas in the health care economics literature: health insurance and the labor market; health policy interventions; and health as human capital. The third part of the course examines competition and the behavior of health care providers, with emphasis on the impact of policy on competition, behavior, and finally, bringing us full circle, health care productivity. Taught by: Swanson
Course usually offered in spring term
Activity: Lecture
HCMG 904 Doctoral Seminar in Organizational Behavior and Theory in Health Care
This course introduces students to organizational behavior and theory (OBT) by examining key issues in OBT, different perspectives on key issues, and how OBT informs health services research and practice. This course examines “micro” theories (i.e., social psychological theories of organizational behavior) and “macro” theories (i.e., theories focused on the structural and environmental aspects of organizations). We will examine the strengths and weaknesses of various theories, how they can be used as a foundation for research, methods used to study them, and the implications for health policy and management. Examples of published health services research grounded in OBT will be discussed so that students become familiar with the theories-in-use and various publication outlets for health care management (HCM) research. Taught by: Nemibhard
Course usually offered in fall term
Activity: Lecture
HEALTH POLICY RESEARCH (HPR)

HPR 501 Economics of Health Care Delivery
How medical care is produced and financed in private and public sectors, economic models of consumer and producer behavior, applications of economic theory to health care.
Taught by: Dr. Mark Pauly
Course usually offered summer term only
Prerequisite: Course only open to Masters of Science in Health Policy Research students
Activity: Lecture
1 Course Unit

HPR 503 Qualitative Methods in Health Research
The purpose of this course is to expose students to a variety of qualitative approaches/methodologies that may be used in health services/policy research. In didactics we will discuss the pros and cons of a range of qualitative Methods, how the method is actually implemented (with multiple experts presenting approaches), and pair the presentation with a broader discussion in which students compare and contrast health oriented articles in which the method was used. Students will have the opportunity to apply the theoretical approaches to their own research interests with direct input from the faculty and their peers.
Taught by: Dr. Frances Barg and Judy Shea
Course usually offered summer term only
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 504 Principles and Practice of Healthcare Quality Improvement
Healthcare delivery is complex and constantly changing. A primary mission of leading healthcare organizations is to advance the quality of patient care by striving to deliver care that is safe, effective, efficient, timely, cost effective, and patient-centered. The goal of this inter professional course is to provide students with a broad overview of the principles and tools of quality improvement and patient safety in health care while also guiding them through the steps of developing a quality improvement project. It will provide a foundation for students or practicing clinicians who are interested in quality improvement and patient safety research, administration, or clinical applications. As part of this course, students will design and plan for a real quality improvement project in their area of interest within healthcare using the methods and tools taught in the course.
Taught by: Jennifer S. Myers and Kathleen G. Burke
Course usually offered in fall term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 505 Clinical Economics and Clinical Decision Making
This course focuses on the application of decision analysis and economic analysis of diagnostic tests using two by two tables, likelihood ratios, and ROC curves. The course continues with the introduction of more general tools for decision analysis, including decision trees and other mathematical models. A major focus of the course is the application of economic principles to the evaluation of health outcomes. During seminars, students will carry out practictical exercises that include problem solving, critically analyzing published articles, and learning to use computer software that facilitates decision and economic analyses.
Taught by: Drs. Sankey Williams and Henry Glick
Course usually offered in spring term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 580 Outcomes Research
This course is divided into two main parts. The first part addresses issues related to the measurement of quality in healthcare. Included is a review of the classical-structure-process-outcome quality paradigm. The paradigm’s strengths and limitations are addressed. This part especially focuses on outcome measures of quality and examines the validity of alternative measures. The second part deals with observational, or quasi-experimental, research studies. It addresses the advantages and limitations of alternative designs, and covers the role of clinical risk adjustment in observational studies of medical interventions. It focuses on the problem of selection bias, and reviews recent methods for dealing with this bias, such as instrumental variables.
Taught by: Dr. Jeffrey Silber
Course usually offered in fall term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 588 Advanced Leadership Skills in Community Health
Grounded in a social justice perspective, this course aims to provide the student with a foundational overview of the field of community health and leadership skills in public health advocacy. The course encourages critical thinking about health outcomes framed by the broad context of the political and social environment. This course analyzes the range of roles and functions carried out by leaders in health care advocacy for marginalized communities; integrates knowledge of health policy and the key influence of government and financing on health outcomes; explores community-based participatory research and interventions as tools for change; and discusses ways to develop respectful partnerships with community organizations. An assets-based approach that draws upon the strengths of communities and their leaders provides a foundation for community-engagement skill building. The course emphasizes the development of skills and techniques to lead effective, collaborative, health-focused interventions for disenfranchised groups, including residents in urban neighborhoods.
Taught by: Heather Klusaritz, Terri Lipman, Walter Tsou
Course usually offered in spring term
Prerequisite: Enrollment in the National Clinician Scholars Program
Activity: Lecture
1 Course Unit
HPR 600 Introduction to Health Policy and Health Services Research
This course will provide students with an introduction to health services and health policy research. First, faculty representing various departments and and schools at the University of Pennsylvania will introduce students to a number of "hot topics," including health disparities, medical decision making, neighborhoods and health, quality of care, access to care, behavioral incentives, and cost effectiveness research. Second, the course will offer an introduction to various career paths in the research and policy domains. Third, the course will provide a brief overview of practical issues such as grant opportunities, data options, publishing, and dissemination.
Taught by: Drs. Marilyn Schapira and Judy Shea
Course usually offered summer term only
Prerequisites: This course is only open to Masters of Science in Health Policy Research students.
Activity: Seminar
1 Course Unit

HPR 603 Health Services and Policy Research Methods I: Primary Data Design and Collection
This course will introduce students to commonly used primary data collection methods and provide multiple examples of how they have been used in health services research. Through the course students will define a primary data collection research project and develop the methods necessary to conduct the project. To get the full benefit of this course, students should use this course to develop the methods they plan to employ in their primary data collection project.
Taught by: Drs. Zachary Meisel and Raina Merchant
Course usually offered in fall term
Prerequisite: This course is only open to Masters of Science in Health Policy Research students.
Activity: Lecture
1 Course Unit

HPR 604 Introduction to Statistics for Health Policy
This is the first semester of a two-semester sequence. It is an introductory statistics course covering descriptive statistics, probability, random variables, estimation, hypothesis testing, and confidence intervals for normally distributed and binary data. The second semester stresses regression models.
Taught by: Dr. Andrew Spieker
Course usually offered in fall term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 605 Fundamentals of Health Policy
While academic researchers often think of health policy in terms of research evidence and outcomes, politics and political processes also play important roles. The purpose of this course is to provide those pursuing careers in health services research and health policy with an understanding of the political context from which U.S. health policy emerges. This understanding is important for researchers who hope to ask and answer questions relevant to health policy and position their findings for policy translation. This understanding is important as well to policy leaders seeking to use evidence to create change. The class provides an overview of the U.S. health care system and then moves on to more comprehensive understanding of politics and government, including the economics of the public sector, the nature of persuasion, and techniques and formats for communication. The course emphasizes reading, discussion and applied policy analysis skills in both written and oral forms. Concepts will be reinforced with case studies, written assignments and a final policy simulation exercise where students will be placed in the position of political advisors and policy researchers.
Taught by: Dr. David Grande
Course usually offered in fall term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 606 Applied Regression Analysis for Health Policy Research
This course deals with the work-horse of quantitative research in health policy research--the single outcome, multiple predictor regression model. Students will learn how to 1) select an appropriate regression model for a given set of research questions/hypotheses, 2) assess how adequately a given model fits a particular set of observed data, and 3) how to correctly interpret the results from the model fitting procedure. After a brief review of fundamental statistical concepts, we will cover analysis of variance, ordinary least squares, and regression models for categorical outcomes, time to event data, longitudinal and clustered data. We will also introduce the concepts of mediation, interaction, confounding and causal inference.
Taught by: Dr. Nandita Mitra
Course usually offered in spring term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 607 Health Services and Policy Research Methods II: Causal Inference Using Secondary Data
Empirical research for health care policy frequently involves the analysis of observational data--information that is not primarily collected for research purposes. With the rapid increase in U.S. health information technology capacity, future opportunities for research using these "secondary data" appear promising. The objective of this course is to teach the skills necessary to conduct quality health policy research using secondary data. These skills include formulating research aims and applying appropriate study designs for achieving these aims. The course will also include a survey of the content and structure of several commonly used administrative and public databases available to researchers and workshops to develop the skills to access and manipulate these valuable resources.
Taught by: Dr. Rachel M. Werner
Course usually offered in spring term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 608 Health Services and Policy Research Methods III: Causal Inference Using Secondary Data
This course deals with the work-horse of quantitative research in health policy research--the single outcome, multiple predictor regression model. Students will learn how to 1) select an appropriate regression model for a given set of research questions/hypotheses, 2) assess how adequately a given model fits a particular set of observed data, and 3) how to correctly interpret the results from the model fitting procedure. After a brief review of fundamental statistical concepts, we will cover analysis of variance, ordinary least squares, and regression models for categorical outcomes, time to event data, longitudinal and clustered data. We will also introduce the concepts of mediation, interaction, confounding and causal inference.
Taught by: Dr. Nandita Mitra
Course usually offered in spring term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit
HPR 611 Implementation Science in Health and Health Care
This course presents a survey of the field of implementation science in health. The structure of the course will include two parts. In the first part, we will introduce the field of implementation science, with an emphasis on theory, design and measurement. In the second part, we will focus on applied implementation science which will include examples of research programs in implementation science as well as applying insights of implementation science to practical implementation. An emphasis on qualitative and mixed methods approaches is included.
Taught by: Drs. Rinad Beidas and Meghan Lane-Fall
Course usually offered in spring term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 620 Community Based Participatory Research and Action
Community engagement is essential for interventional efforts, project development, as well as asking and answering health questions in a variety of settings. As in the use of any tool, community engagement requires both knowledge and skill. This class will focus on the use of community engagement to achieve community health goals through three integrated opportunities: collaboration/partnership, evidence-based principles and organizational development. The objectives of the course are to increase knowledge and skills in the following areas: delineating the types of methods used to establish and enhance collaboration/partnership with community stakeholders, learning the theories, principles, methods and best practices of collaborating with community stakeholders, developing and applying the skills needed to participate in community based collaborative activities and gaining an understanding of organizational development and infrastructure in the non-profit sector.
Taught by: Dr. Charmaine Smith-Wright
Course usually offered in fall term
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 637 Advocacy & Public Health: Turning Knowledge Into Action
This course is designed to provide the foundational context and practical skills necessary to effectively advocate for evidence-based policy change in furtherance of public health objectives. The class will be interactive in nature and will require participation in public health advocacy exercises in order to hone advocacy skills. There will also be a focus on persuasive communication, both oral and written. We will explore the entire advocacy process from the identification of a problem and evaluation of possible policy solutions to utilizing the full range of advocacy tools to promote policy change.
Taught by: Drs. Ahaviah Glaser and Jennifer Gable
Course usually offered in spring term
Prerequisite: Instructor Permission Required
Activity: Lecture
1 Course Unit

HPR 650 Systems Thinking and Patient Safety
This blended online/in-classroom graduate level course integrates principles of systems thinking with foundational concepts in patient safety. Utilizing complexity theories, students assess healthcare practices and identify factors that contribute to medical errors and impact patient safety. Using a clinical microsystem framework, learners assess a potential patient safety issue and create preventative systems. Lessons learned from the science of safety are utilized in developing strategies to enhance safe system redesign.
Taught by: Drs. Kathy N. Shaw, Susan Keim and Catherine Wildenberg
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HPR 660 Applied Predictive Modeling for Health Services Research
This course offers an introduction to the principles and applications of predictive modeling. It is geared toward health services researchers with an emphasis on clinical and policy scenarios and the use of electronic health record and administrative claims data. The primary goals of this course are to help each student understand (1) the fundamental concepts of predictive modeling and what distinguishes it from traditional causal inference approaches in statistics, (2) the different evaluation metrics for model performance and their appropriate use and (3) the role of domain knowledge in developing a statistical plan for model development with the end-user in mind. Students will be building their own predictive models by the end of the course and may elect to use R, STATA or Python for coding exercises. No prior programming experience is required. A background in basic statistical principles would be helpful.
Taught by: Dr. Gary Weissman
Course usually offered summer term only
Prerequisite: Permission needed from Instructor
Activity: Lecture
1 Course Unit

HPR 670 Health Care Strategic Leadership and Business Acumen
The weeklong intensive course aims at developing essential business acumen and leadership skills required to thrive in a constantly changing health care ecosystem. Taught by invited faculty who have experience working with health care leaders, this course will focus on actionable knowledge in financial acumen, strategic decision making, innovation and building high-performance teams. Through interactive mixed-mode delivery methods, faculty will share tools and frameworks, always with a focus on how to apply them, both personally and within an organizational context.
Taught by: Drs. Guy David and David Grande
Course usually offered summer term only
Prerequisite: Instructor permission required
Activity: Lecture
1 Course Unit

HPR 799 Independent Study
This course is designed to provide the student with an opportunity to gain or enhance knowledge and to explore an area of interest related to health policy research under the guidance of a faculty member.
Taught by: Faculty
Course offered summer, fall and spring terms
Prerequisites: Permission of Program Director and Faculty Member
Activity: Independent Study
1 Course Unit
HPR 951 Health Policy Research Thesis I
Each student completes a mentored research project that includes a thesis proposal and a thesis committee and results in a publishable scholarly product.
Taught by: Faculty
Prerequisite: Course only open to Masters of Science in Health Policy Research students
Activity: Masters Thesis
1 Course Unit

HPR 952 Health Policy Research Thesis II
Each student completes a mentored research project that includes a thesis proposal and a thesis committee and results in a publishable scholarly product.
Taught by: Faculty
Prerequisite: Course only open to Masters of Science in Health Policy Research students
Activity: Independent Study
1 Course Unit

HPR 954 Quality Capstone Project
The purpose of the quality capstone project is to provide students with the opportunity to lead and experience each of the 5 phases of quality improvement work: Define - Measure - Analyze - Improve - Control (DMAIC). A quality improvement mentor will be assigned to each student completing this course. Preparation and submission of the quality capstone project as an abstract to a local, regional or national meeting is a requirement for completion of this course.
Taught by: Drs. Kathleen Burke and Jennifer S. Myers
Course offered summer, fall and spring terms
Prerequisite: This course is only open to CHIPS Concentration fellows in the Masters of Science in Health Policy Research
Activity: Masters Thesis
1 Course Unit
HEBREW (HEBR)

HEBR 051 Elementary Modern Hebrew I
An introduction to the skills of reading, writing, and conversing in modern Hebrew. This course assumes no previous knowledge of Hebrew. A grade of B- or higher is needed to proceed to HEBR 052, Elementary Modern Hebrew II.
For BA Students: Language Course
One-term course offered either term
Activity: Lecture
1 Course Unit

HEBR 052 Elementary Modern Hebrew II
A continuation of HEBR 051, First Year Modern Hebrew, which assumes basic skills of reading and speaking and the use of the present tense. Open to all students who have completed one semester of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Language Course
One-term course offered either term
Prerequisite: HEBR 051 or permission of instructor
Activity: Lecture
1 Course Unit

HEBR 053 Intermediate Modern Hebrew III
Development of the skills of reading, writing, and conversing in modern Hebrew on an intermediate level. Open to all students who have completed two semesters of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Language Course
One-term course offered either term
Prerequisites: HEBR 052 or permission of the instructor.
Activity: Lecture
1 Course Unit

HEBR 054 Intermediate Modern Hebrew IV
This course constitutes the final semester of Intermediate Modern Hebrew. Hence, one of the main goals of the course is to prepare the students for the proficiency exam in Hebrew. Emphasis will be placed on grammar skills and ability to read literary texts. Open to all students who have completed three semesters of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Last Language Course
One-term course offered either term
Prerequisite: HEBR 053 or permission of instructor
Activity: Lecture
1 Course Unit

HEBR 059 Advanced Modern Hebrew: Conversation & Writing
After four semesters of language study, it's time to enter the vibrant world of contemporary Israeli culture. In this course students read some of the best plays, poems, short stories, and journalism published in Israeli today. They also watch and analyze some of Israel's most popular films, TV programs, and videos. Themes include Jewish-Arab relations, the founding of the State, family ties and intergenerational conflict, war and society, and the recent dynamic changes in Israeli society. HEBR 054 or permission of instructor. Since the content of this course may change from year to year, students may take it more than once (but only once for credit).
For BA Students: Advanced Language Course
Taught by: Engel
One-term course offered either term
Prerequisite: HEBR 054 or permission of instructor
Activity: Lecture
1 Course Unit

HEBR 151 Elementary Biblical Hebrew I
This course is an introduction to Biblical Hebrew. It assumes no prior knowledge, but students who can begin to acquire a reading knowledge of the Hebrew alphabet before class starts will find it extremely helpful. The course is the 1st of a 4-semester sequence whose purpose is to prepare students to take courses in Bible that demand a familiarity with the original language of the text.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HEBR 152 Elementary Biblical Hebrew II
A continued introduction to the grammar of Biblical Hebrew, focusing on the verbal system, with an emphasis on developing language skills in handling Biblical texts. A suitable entry point for students who have had some Modern Hebrew.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in spring term
Prerequisites: Successful completion of HEBR 151 or permission of the instructor.
Activity: Lecture
1 Course Unit
HEBR 153 Intermediate Biblical Hebrew I
This course will focus on using the grammar and vocabulary learned at the introductory level to enable students to read Biblical texts independently and take advanced Bible exegesis courses. We will also work on getting comfortable with the standard dictionaries, concordances, and grammars used by scholars of the Bible. We will concentrate on prose this semester, closely reading Ruth, Jonah, and other prose selections. We will begin to translate from English into Biblical Hebrew, and there will also be a unit on the punctuation marks used in the Bible. This is a suitable entry point for students who already have strong Hebrew skills.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in fall term
Prerequisites: Successful completion of HEBR 152 or permission of the instructor. This course is the prerequisite for HEBR 154 (no one is "permitted" into that semester; you must take the previous semester course).
Activity: Lecture
1 Course Unit

HEBR 154 Intermediate Biblical Hebrew II
This course is a continuation of the fall semester’s Intermediate Biblical Hebrew I. No one will be admitted into the course who has not taken the fall semester. It will continue to focus on using the grammar and vocabulary learned at the introductory level to enable students to read biblical texts independently and take advanced Bible exegesis courses. We will concentrate this semester on various selections of Biblical poetry, including Exodus 15 and Job 28. We will also continue to translate English prose into Biblical Hebrew.
For BA Students: Last Language Course
Taught by: Carasik
Course usually offered in spring term
Prerequisites: Successful completion of HEBR 153.
Activity: Lecture
1 Course Unit

HEBR 359 Seminar in Modern Hebrew Literature
This course introduces students to selections from the best literary works written in Hebrew over the last hundred years in a relaxed seminar environment. The goal of the course is to develop skills in critical reading of literature in general, and to examine how Hebrew authors grapple with crucial questions of human existence and national identity. Topics include: Hebrew classics and their modern “descendents,” autobiography in poetry and fiction, the conflict between literary generations, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students’ literary understanding.
For BA Students: Arts and Letters Sector
Taught by: Gold
Course usually offered in spring term
Prerequisites: Hebrew 059 or the equivalent, per instructor’s evaluation
Activity: Seminar
1 Course Unit

HEBR 451 Elementary Biblical Hebrew I
This course is an introduction to Biblical Hebrew. It assumes no prior knowledge, but students who can begin to acquire a reading knowledge of the Hebrew alphabet before class starts will find it extremely helpful. The course is the 1st of a 4-semester sequence whose purpose is to prepare students to take courses in Bible that demand a familiarity with the original language of the text.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HEBR 452 Intermediate Biblical Hebrew II
A continued introduction to the grammar of Biblical Hebrew, focusing on the verbal system, with an emphasis on developing language skills in handling Biblical texts. A suitable entry point for students who have had some Modern Hebrew.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in spring term
Prerequisites: Successful completion of HEBR 451 or permission of the instructor.
Activity: Lecture
1 Course Unit

HEBR 453 Intermediate Biblical Hebrew I
This course will focus on using the grammar and vocabulary learned at the introductory level to enable students to read Biblical texts independently and take advanced Bible exegesis courses. We will also work on getting comfortable with the standard dictionaries, concordances, and grammars used by scholars of the Bible. We will concentrate on prose this semester, closely reading Ruth, Jonah, and other prose selections. We will begin to translate from English into Biblical Hebrew, and there will also be a unit on the punctuation marks used in the Bible. This is a suitable entry point for students who already have strong Hebrew skills.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in fall term
Prerequisites: Successful completion of HEBR 452 or permission of the instructor. This course is the prerequisite for HEBR 454 (no one is "permitted" into that semester; you must take the previous semester course).
Activity: Lecture
1 Course Unit

HEBR 454 Intermediate Biblical Hebrew II
This course is a continuation of the fall semester’s Intermediate Biblical Hebrew I. No one will be admitted into the course who has not taken the fall semester. It will continue to focus on using the grammar and vocabulary learned at the introductory level to enable students to read biblical texts independently and take advanced Bible exegesis courses. We will concentrate this semester on various selections of Biblical poetry, including Exodus 15 and Job 28. We will also continue to translate English prose into Biblical Hebrew.
For BA Students: Last Language Course
Taught by: Carasik
Course usually offered in spring term
Prerequisites: Successful completion of HEBR 453.
Activity: Lecture
1 Course Unit
HEBR 486 Rabbinic Writers on Rabbinic Culture
This course traces reflections on rabbinic culture produced within Jewish legal literature of the classic rabbinic period - - Midrash, Mishna, and Talmud - - and in later juridical genres - - Talmudic commentary, codes and responses. Attention will be paid to the mechanics of different genres, the role of the underlying proof text, the inclusion or exclusion of variant opinions, the presence of non-legal information, the balance between precedent and innovation. Reading knowledge of Hebrew is required.
Taught by: Fishman
Course not offered every year
Prerequisite: Reading knowledge of Hebrew
Activity: Seminar
1 Course Unit

HEBR 552 Advanced Modern Hebrew: Conversation & Writing
After four semesters of language study, it's time to enter the vibrant world of contemporary Israeli culture. In this course students read some of the best plays, poems, short stories, and journalism published in Israel today. They also watch and analyze some of Israel's most popular films, TV programs, and videos. Themes include Jewish-Arab relations, the founding of the State, family ties and intergenerational conflict, war and society, and the recent dynamic changes in Israel society. HEBR 054 or permission of instructor. Since the content of this course may change from year to year, students may take it more than once (but only once for credit).
For BA Students: Advanced Language Course
Taught by: Engel
One-term course offered either term
Prerequisite: HEBR 054 or permission of instructor
Activity: Lecture
1 Course Unit

HEBR 557 Studies in Rabbinic Literature: Law and Judaism
Two terms. student may enter either term.
Prerequisites: Knowledge of Hebrew.
Activity: Seminar
1 Course Unit

HEBR 583 Studies in Medieval Jewish Culture
Course examines features of 9th-16th century Jewish culture within their broader historical, regional and cross-cultural contexts, whether Christian or Islamic. Emphasis is placed on primary sources in Hebrew. Topics vary and have included "Reconstructing Rabbinic Judaism prior to the First Millennium"; "Custom in Medieval Jewish Cultures"; "Jewish Culture in the Islamicate World"; "Nature in Medieval Jewish Culture". Students should be able to read unpointed Hebrew. May be repeated for credit.
Taught by: Fishman
Course usually offered in fall term
Prerequisites: Reading knowledge of Hebrew.
Activity: Seminar
1 Course Unit

HEBR 651 Elementary Modern Hebrew I
An introduction to the skills of reading, writing, and conversing in Modern Hebrew. This course assumes no previous knowledge of Hebrew.
For BA Students: Language Course
One-term course offered either term
Activity: Lecture
1 Course Unit

HEBR 652 Elementary Modern Hebrew II
A continuation of HEBR 051, First Year Modern Hebrew, which assumes basic skills of reading and speaking and the use of the present tense. Open to all students who have completed one semester of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Language Course
Prerequisite: HEBR 651 or permission of instructor
Activity: Lecture
1 Course Unit

HEBR 653 Intermediate Modern Hebrew III
Development of the skills of reading, writing, and conversing in Modern Hebrew on an intermediate level. Open to all students who have completed two semesters of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Language Course
One-term course offered either term
Prerequisites: HEBR 652 or permission of the instructor.
Activity: Lecture
1 Course Unit

HEBR 654 Intermediate Modern Hebrew IV
This course constitutes the final semester of Intermediate Modern Hebrew. Hence, one of the main goals of the course is to prepare the students for the proficiency exam in Hebrew. Emphasis will be placed on grammar skills and ability to read literary texts. Open to all students who have completed three semesters of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Language Course
One-term course offered either term
Prerequisite: HEBR 653 or permission of instructor
Activity: Lecture
1 Course Unit

HEBR 659 Seminar in Modern Hebrew Literature
This course introduces students to selections from the best literary works written in Hebrew over the last hundred years in a relaxed seminar environment. The goal of the course is to develop skills in critical reading of literature in general, and to examine how Hebrew authors grapple with crucial questions of human existence and national identity. Topics include: Hebrew classics and their modern "descendents," autobiography in poetry and fiction, the conflict between literary generations, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students' literary understanding.
Taught by: Gold
Course not offered every year
Prerequisites: HEBR 059 or the equivalent, per instructor's evaluation
Activity: Seminar
1 Course Unit
HINDI (HIND)

HIND 400 Beginning Hindi-Urdu Part I
This introductory core proficiency course in Hindi-Urdu up to the intermediate level. It is designed for students with little or no prior exposure to Hindi or Urdu. The course covers all four language skills (speaking, listening, reading, and writing) and all three models of communication (interpersonal, presentational, interpretive). Students will develop literacy skills in the primary script of their choice (Hindi or Urdu script). All written materials will be provided in both scripts. All meetings are interactive and students acquire the language by using it in realistic contexts. Culture is embedded in the activities and is also introduced through various authentic materials.
For BA Students: Language Course
Taught by: Pien
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HIND 401 Beginning Hindi-Urdu Part II
This introductory course core proficiency course in Hindi-Urdu up to the intermediate level. It is designed for students with little or no prior exposure to Hindi or Urdu. The course covers all four language skills (speaking, listening, reading, and writing) and all three models of communication (interpersonal, presentational, interpretive). Students will develop literacy skills in the primary script of their choice (Hindi or Urdu script). All written materials will be provided in both scripts. All meetings are interactive and students acquire the language by using it in realistic contexts. Culture is embedded in the activities and is also introduced through various authentic materials.
For BA Students: Language Course
Taught by: Pien
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIND 420 Intermediate Hindi Part I
In Intermediate Hindi the student continues to develop the four language skills, with an emphasis on real-life situations—through hearing and practicing conversation on everyday topics, reading a variety of authentic texts ranging from advertisements to short stories, watching segments of current films, and carrying out short research projects using Hindi sources. There is a strong emphasis on vocabulary development and on using contextually appropriate styles of spoken and written Hindi.
For BA Students: Language Course
Taught by: Pien
Course usually offered in fall term
Prerequisites: Beginning Hindi or Urdu or equivalent ascertained through placement test or permission of instructor.
Activity: Lecture
1 Course Unit

HIND 421 Intermediate Hindi Part II
In Intermediate Hindi the student continues to develop the four language skills, with an emphasis on real-life situations—through hearing and practicing conversation on everyday topics, reading a variety of authentic texts ranging from advertisements to short stories, watching segments of current films, and carrying out short research projects using Hindi sources. There is a strong emphasis on vocabulary development and on using contextually appropriate styles of spoken and written Hindi.
For BA Students: Last Language Course
Taught by: Pien
Course usually offered in spring term
Prerequisites: Intermediate Hindi Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Lecture
1 Course Unit

HIND 430 Advanced Hindi
Advanced Hindi aims at systematically developing higher level linguistic functions and cultural nuances. Students learn to describe, narrate and support opinions in informal and formal styles. The objective of the course is to promote a meaningful interaction with written literature and with native speakers in a socially acceptable manner in a variety of simple and complicated situations. A variety of authentic materials are used, such as short stories, plays, newspapers, magazines, videos, television and radio broadcasts, and interviews. Every semester the course materials and foci vary depending on the needs and interests of students in the class.
For BA Students: Advanced Language Course
Taught by: Pien
Course usually offered in fall term
Prerequisites: Intermediate Hindi or Urdu or equivalent ascertained through placement test or permission of instructor.
Activity: Lecture
1 Course Unit

HIND 500 Beginning Hindi-Urdu, For Graduate Students ONLY
Beginning in the fall semester of 2014 Beginning Hindi and Beginning Urdu will be merged into a single course, Beginning Hindi-Urdu. At the beginning level spoken Urdu and Hindi are identical except for a few minor points. The broad outline of the course will thus remain the same as that of the current Beginning Hindi and Urdu courses. Students will learn to communicate with the language in a variety of everyday culturally authentic situations. Additional Urdu and Hindi culture will be integrated through authentic materials such as Bollywood film and music clips, and simple written texts. There will be equal emphasis on both scripts and cultures, and parallel written materials will be provided in both scripts. Students will be expected to develop first-year proficiency in one script of their choice, and will be encouraged to learn both. By merging the two courses students will be exposed to a broader range of linguistic and cultural styles, and students will thus have the opportunity to develop a deeper understanding that more closely resembles that of Hindi and Urdu native speakers. Please direct further inquiries to Josh Pien at jpientasas.upenn.edu See schedule and classroom for HIND400/401
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit
HIND 520 Intermediate Hindi I for Graduate Students Only
In Intermediate Hindi the student continues to develop the four language skills, with an emphasis on real-life situations—through hearing and practicing conversation on everyday topics, reading a variety of authentic texts ranging from advertisements to short stories, watching segments of current films, and carrying out short research projects using Hindi sources. There is a strong emphasis on vocabulary development and on using contextually appropriate styles of spoken and written Hindi. Two terms. Student must enter first term. Prerequisites: Beginning Hindi or Urdu or equivalent ascertained through placement test or permission of instructor. Activity: Lecture 1 Course Unit

HIND 530 Advanced Hindi for Graduate Students Only
Advanced Hindi aims at systematically developing higher level linguistic functions and cultural nuances. Students learn to describe, narrate and support opinions in informal and formal styles. The objective of the course is to promote a meaningful interaction with written literature and with native speakers in a socially acceptable manner in a variety of simple and complicated situations. A variety of authentic materials are used, such as short stories, plays, newspapers, magazines, videos, television and radio broadcasts, and interviews. Every semester the course materials and foci vary depending on the needs and interests of students in the class. Two terms. Student may enter either term. Prerequisites: Intermediate Hindi or Urdu or equivalent ascertained through placement test or permission of instructor. Activity: Lecture 1 Course Unit
HISTORIC PRESERVATION (HSPV)

HSPV 521 American Architecture
This course is a survey of architecture in the United States. The organization, while broadly chronological, emphasizes themes around which important scholarship has gathered. The central purpose is to acquaint you with major cultural, economic, technological, and environmental forces that have shaped buildings and settlements in North America for the last 400 years. To that end, we will study a mix of "high-style" and "vernacular" architectures while encouraging you to think critically about these categories. Throughout the semester, you will be asked to grapple with both the content of assigned readings (the subject) and the manner in which authors present their arguments (the method). Louis Sullivan, for instance, gives us the tall office building "artistically considered" while Carol Willis presents it as a financial and legal artifact. What do you make of the difference? Finally, you will learn how to describe buildings. While mastery of architectural vocabulary is a necessary part of that endeavor, it is only a starting point. Rich or "thick" description is more than accurate prose. It is integral to understanding the built environment - indeed, to seeing it at all.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HSPV 528 American Vernacular Architecture
This course explores the form and development of America's built landscape-its houses, farm buildings, churches, factories, and fields—as a source of information on folk history, vernacular culture, and architectural practice.
Course not offered every year
Activity: Seminar
1 Course Unit

HSPV 531 American Domestic Interiors
This course will examine the American domestic interior from the seventeenth century through the twentieth century with emphasis on the cultural, economic, and technological forces that determined the decoration and furnishing of the American home. Topics to be covered include the decorative arts; floor, wall and window treatments; and developments in lighting, heating, plumbing, food preparation and service, and communication technologies. In addition to the identification of period forms and materials, the course will give special emphasis to historical finishes. The final project will involve re-creation of an historic interior based on in-depth household inventory analysis and study.
Several class periods will be devoted to off-site field trips.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HSPV 538 Cultural Landscapes and Landscape Preservation
The course introduces the history and understanding of common American landscapes and surveys the field of cultural landscape studies. Methods of landscape preservation are also surveyed. The cultural-landscape perspective is a unique lens for understanding the evolution of the built environment, the experience of landscapes, and the abstract economic, political and social processes that shape the places where most Americans spend most of their time. The course will focus on the forces and patterns (natural and cultural) behind the shaping of recognizably "American" landscapes, whether urban, suburban, or rural.
Methods for documenting and preserving cultural landscapes will be surveyed. Class discussions, readings, and projects will draw on several disciplines—cultural geography, vernacular architecture, environmental history, historic preservation, ecology, art, and more.
Course not offered every year
Activity: Lecture
1 Course Unit

HSPV 540 Historic Building Technology I
Historic Building Technology is divided into two discreet six week modules conceived in succession and taught during the second half of the first semester and first half of the second semester respectively. Module 1: Building Anatomy will examine traditional construction methods through a typological analysis of construction systems. Module 2: Building Archaeology will address the morphological evolution of a structure and its physical setting, sometimes known as "above ground archaeology." The course is intended to introduce students in Historic Preservation to the physical realities of built form and its analysis through careful observation and description. Note: This course continues in the first half of the spring semester for another 0.5 CU.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

HSPV 541 Historic Building Technology II: Building Archaeology
Built works- be they barns or bridges, gardens or corn fields, palaces or pit houses - all embody something of their makers and users, and the prevailing social and cultural norms of the day. As a form of material culture, things- buildings and landscapes- are made and modified consciously and unconsciously, reflecting individual and societal forces at play. Since the physical fabric and its alteration present one primary mode of evidence, their investigation provides a critical form of research, especially in association (and often in contest) with archival documentary sources and oral histories. This course will examine the theories and techniques used to investigate the morphological evolution of built works, sometimes known as "above ground archaeology". Students will learn and apply methods relevant to the reading of architectural fabric. Methods of investigation will include absolute and relative dating techniques such as dendrochronology, finishes stratigraphy, mortar analysis, and various typological- seriation studies including framing, molding, fastener (nails and screws), and hardware analyses. Students are expected to use this knowledge in combination with the recording skills of HSPV 601 to record their assigned sites.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
HSPV 551 Building Pathology
This course addresses the subject of deterioration of buildings, their materials, assemblies and systems, with the emphasis on the technical aspects of the mechanisms of deterioration and their enabling factors, material durability and longevity of assemblies. Details of construction and assemblies are analyzed relative to functional and performance characteristics. Lectures cover: concepts in durability; climate; psychrometric, soils & hydrologic; conditions; physics of moisture in buildings; enclosure, wall and roof systems; structural systems; and building services systems with attention to performance, deterioration, and approaches to evaluation of remedial interventions.
Course usually offered in spring term
Prerequisites: HSPV 555 or one technical course in architecture.
Activity: Seminar
1 Course Unit

HSPV 552 Building Diagnostics and Monitoring
Building diagnostics pertain to the determination of the nature of a building's condition or performance and the identification of the corresponding causative pathologies by a careful observation and investigation of its history, context and use, resulting in a formal opinion by the professional. Monitoring, a building diagnostic tool, is the consistent observation and recordation of a selected condition or attribute, by qualitative and/or quantitative measures over a period of time in order to generate useful information or data for analysis and presentation. Building diagnostics and monitoring allow the building professional to identify the causes and enabling factors of past or potential pathologies in a building and building systems, thus informing the development appropriate interventions or corrective measures. In the case of heritage buildings, the process informs the selection of interventions that satisfy the stewardship goals for the cultural resource. In the case of recently constructed buildings, the process informs the identification of envelope and systems interventions for improved performance and energy efficiency.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HSPV 555 Conservation Science
This course provides an introduction to architectural conservation and the technical study of traditional building materials. Lectures and accompanying laboratory sessions introduce the nature and composition of these materials, their properties, and mechanisms of deterioration, and the general laboratory skills necessary for field and laboratory characterization. Knowledge of basic college level chemistry is required.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSPV 557 Preservation Through Public Policy
This course explores the intersection between historic preservation, design and public policy, as it exists and as it is evolving. That exploration is based on the recognition that a network of law and policy at the federal, state and local level has direct and profound impact on the ability to manage cultural resources, and that the pieces of that network, while interconnected, are not necessarily mutually supportive. The fundamental assumption of the course is that the preservation professional must understand the capabilities, deficiencies, and ongoing evolution of this network in order to be effective. The course will look at a range of relevant and exemplary laws and policies existing at all levels of government, examining them through case studies and in-depth analyses of pertinent programs and agencies at the local, state and federal level.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HSPV 600 Documentation, Research, Recording 1
The goal of this course is to help students learn to contextualize the history of buildings and sites. In order to gain first-hand exposure to the actual materials of building histories, we will visit a half-dozen key archival repositories. Students will work directly with historical evidence, including maps, deeds, the census, city directories, insurance surveys, photographs, and many other kinds of archival materials. After discussing each type of document in terms of its nature and the motives for its creation, students will complete a series of projects that develop their facility for putting these materials to effective use. Philadelphia is more our laboratory than a primary focus in terms of content, as the city is rich in institutions that hold over three centuries of such materials; students will find here both an exposure to primary documents of most of the types they might find elsewhere, as well as a sense of the culture of such institutions and of the kinds of research strategies that can be most effective. The final project is the completion of an historic register nomination.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HSPV 601 Documentation, Research, Recording II
This course provides an introduction to the survey and recording of historic buildings and sites. Techniques of recording include traditional as well as digitally-based methods including field survey, measured drawings, photography and rectified photography. Emphasis is placed on the use of appropriate recording tools in the context of a thorough understanding of the historical significance, form and function of sites. Required for first-year MSHP students; others by permission.
Course usually offered in spring term
Activity: Studio
1 Course Unit

HSPV 606 Historic Site Management
The course focuses on management, planning, and decision-making for all types of heritage sites from individual buildings to historic sites to whole landscapes. Course material will draw on model approaches to management, as well as a series of domestic and international case studies, with the goal of understanding the practicalities of site management. Particular topics to be examined in greater detail might include conservation policy, interpretation, tourism, or economic development strategies.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
HSPV 620 Seminar in American Architecture
An examination of a specific topic related to the history of American architecture and planning. Following introductory lectures, students participate through detailed reports and informal discussion. The topic under investigation varies each semester the seminar is offered.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSPV 621 Social Justice Seminar
How do historic preservation and other design professionals contribute to more equitable and just societies? How can our work be organized to result in greater equity, access and social justice? This seminar will explore connections between historic preservation (and related design, planning and artistic practices) and the pursuit of social justice. Our investigations will focus on both conceptual and theoretical constructions (how we think about social justice) and practical examples of advancing social outcomes through preservation and design. We’ll draw on work by geographers, anthropologists and other social scientists and theorists; historians; design practitioners; heritage organizations; artists; and more. Subjects will include public interest design, creative placemaking, public art, memorialization, and methods of practice and institutional organization. The course will progress through a series of weekly topics, often including guest practitioners and scholars. Students will bear significant responsibility for helping flesh out the topics and cases we study; final projects (individual and group) will be envisioned as a statement (in the form of a book or exhibit) of how social justice concerns have reshaped practice and how they could reshape our fields in the future.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSPV 624 Digital Media for Historic Preservation
Techniques will be discussed for preservation use including survey, documentation, relational databases, and digital imaging and modeling.
Taught by: Hinchman
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HSPV 625 Preservation Economics
The primary objective is to prepare the student, as a practicing preservationist, to understand the language of the development community, to make the case through feasibility analysis why a preservation project should be undertaken, and to be able to quantify the need for public/non-profit intervention in the development process. A second objective is to acquaint the student with the measurements of the economic impact of historic preservation and to critically evaluate “economic hardship” claims made to regulatory bodies by private owners.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HSPV 626 Advanced Digital Media for Historic Preservation
Advanced Digital Media focuses on the visualization and dissemination of information for historic preservation. Through a combination of lectures, readings and the use of software, the course will explore integrative and engaging methods of generating and communicating data specifically developed by and for historic preservation. Mapping, graphics, video, apps and web-based platforms will be addressed in this course. Students will be expected to bring topics, ideas and discussion, and through a set of projects asked to find new and innovative ways to visualize and share the information using the communication tools of the modern age.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HSPV 638 Topics in Historic Preservation
his seminar concentrates on a selected topic in the social and cultural history of the built environment. Past themes have included photography and the American city and the relationship between cities and sound. Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSPV 640 Contemporary Design in Historic Settings
Thoughtful contemporary design can add value and meaning to historic settings of any scale. Rigorous dialogue with history and context enriches contemporary design. This seminar immerses students in the rewarding yet challenging realm of design with landmarks and existing structures. It will encourage participants to create their own models for design and preservation planning through discussion of source materials that illustrate the political, cultural and aesthetic environments that have shaped regulation and design with heritage throughout the past century. Sketch problems set in Philadelphia and analysis of case studies from around the world will enable students to critique and communicate a range of responses to landmarks and historic contexts, and to explore the roles of significance, physical and intangible conditions in shaping appropriate responses.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

HSPV 650 Contemporary Design in Historic Settings
An examination of a specific topic related to the history of American architecture and planning. Following introductory lectures, students participate through detailed reports and informal discussion. The topic under investigation varies each semester the seminar is offered.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HSPV 656 Advanced Conservation Science
A methodological approach to the examination and analysis of historic building materials is introduced. Experimental design for conducting conservation research plus statistical analysis and modeling of research data will further complete the discussion. Practical analytical techniques appropriate for conservation practice including: classical and advanced instrumental techniques for qualitative and quantitative analysis of organic and inorganic materials will be discussed. Theoretical and practical applications of advanced surface techniques for both elemental and molecular/composition analysis as well as applications of nanotechnology and nanomaterials in conservation will be covered. Students will also learn about deterioration processes and long term effects of conservation treatments through accelerated aging techniques. Course materials will be taught through lectures, invited speakers, lab visits and laboratory sessions by practicing learned techniques and procedures on related masonry samples, along with provided course readings and literature.
One-term course offered either term
Activity Lecture
1 Course Unit
HSPV 660 Theories of Historic Preservation
Theories of historic preservation serve as models for practice, integrating the humanistic, artistic, design, scientific and political understandings of the field. This course examines the historical evolution of historic preservation, reviews theoretical frameworks and issues, and explores current modes of practice. Emphasis is placed on literacy in the standard preservation works and critical assessment of common preservation concepts. In addition to readings and lectures, case studies from contemporary practice will form the basis for short assignments. Professional ethics are reviewed and debated. The instructor’s permission is required for any student not registered in the Graduate Program in Historic Preservation. Note that the course is organized in two parts; the first half, on the basics of preservation theory, is taught in the fall semester while the second half takes place in the spring semester and engages advanced topics. Note: this course continues in the second half of the spring semester for another 0.5 CU.
Course usually offered in fall term
Prerequisites: Instructor’s permission required for any student not registered in the Graduate Program in Historic Preservation.
Activity: Lecture
0.5 Course Units

HSPV 661 Theories of Historic Preservation II
Theories of historic preservation serve as models for practice, integrating the humanistic, artistic, design, scientific and political understandings of the field. HSPV 661 builds on HSPV 660, which examines the historical evolution of historic preservation, reviews theoretical frameworks and issues, and explores current modes of practice. HSPV 661 engages advanced topics such as cultural landscape theory, economics of preservation, sustainability and environmental conservation, social justice, and urban design. In addition to readings and lectures, case studies from contemporary practice will be used to examine theories in practice. The principal assignment will be a term research paper. The instructor’s permission is required for any student not registered in the Graduate Program in Historic Preservation. (Note that the course is the second of two parts; the first half, on the basics of preservation theory is taught in the fall semester while the second half takes place in the spring semester.)
Course usually offered in spring term
Activity: Seminar
0.5 Course Units

HSPV 671 Historic Preservation Law
Introduction to the legal framework of urban planning and historic preservation, with special emphasis on key constitutional issues, zoning, historic districts, growth management, and state and local laws for conserving historic buildings.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HSPV 701 Historic Preservation Studio
The Preservation Studio is a practical course in planning architectural, urban and regional conservation interventions, bringing to bear the wide range of skills and ideas at play in the field of historic preservation. Studio teams undertake documentation and planning exercises for heritage sites and their communities, through research, consultation with stakeholders, analysis of comparables, and policies/project creation. Study sites are often in Philadelphia proper. Students work in teams as well as on individual projects. The preservation studio seeks to demonstrate preservation planning responses to common conflicts between historic preservation, social forces, economic interests, and politics. Recognizing that historical areas are complex entities where communities, cultural and socio-economic realities, land use, building types, and the legal and institutional settings are all closely interrelated, the main goals of the studio are (1) understanding and communicating the cultural significance of the built environment, (2) analyzing its relation to other economic, social, political and aesthetic values, and (3) exploring the creative possibilities for design, conservation and interpretation prompted by cultural significance.
Course usually offered in fall term
Activity: Studio
2 Course Units

HSPV 703 Urban Regeneration in the Americas
This hybrid seminar-studio course will explore advanced topics in urban conservation and landscape preservation through application to the challenges of international case studies. The seminar components of the course will delve into the literature on urban conservation; travel for fieldwork is planned. Permission of department required to enroll.
Course usually offered in spring term
Prerequisites: Permission of department required to enroll.
Activity: Seminar
1 Course Unit

HSPV 705 Topical Studio/Seminar: Interpretation in the Future Tense
The interpretation of heritage places is a core concern of historic preservation professionals, no matter what their area of specialization. Explicit and implicit interpretation is embedded deeply in the field’s theory, history and contemporary practice. In contemporary practice, site interpretation is challenged to draw on traditional preservationist modes of practice (based in historical scholarship and formal analysis) as well as new ideas about representation, communication, visitor experience, and information design shared by other fields (including museum studies, art, exhibit design, educational psychology, community development/social justice, and digital media design). This hybrid seminar-studio explores next-generation ideas and practices of heritage place interpretation: first, by building on a thorough program of research and analysis of contemporary best-practices in site interpretation; second, by experimenting along lines suggested by new audiences and innovative thinkers and designers inside and outside the preservation field. The course will include a series of guest presenters from design, public history, management and other fields; exercises to analyze the theoretical bases, best practices and issues facing contemporary practice; and prototyping of new/experimental approaches.
Course usually offered in spring term
Activity: Seminar
1 Course Unit
HSPV 710 Thesis I
Students are admitted to thesis after completion of two semesters or their equivalent in the graduate program. Theses should be based on original research and relate to each student's elected concentration. Thesis guidelines, available in the Historic Preservation office, describe other details.
Course usually offered in fall term
Activity: Independent Study
1 Course Unit

HSPV 711 Thesis II
Students are admitted to thesis after completion of two semesters or their equivalent in the graduate program. Theses should be based on original research and relate to each student's elected concentration. Thesis guidelines, available in the Historic Preservation office, describe other details.
Course usually offered in spring term
Activity: Independent Study
1 Course Unit

HSPV 713 Topical Studio/Seminar: Professional Practice & Architectural Conservation
This course is intended to introduce students to the professional practice of architectural conservation and illustrate how the technical knowledge gained through their academic studies is applied in the real world. It will include a discussion of the role of the architectural conservator within the larger preservation and restoration fields, as well as the concept of professional leadership. A significant portion of the course will be dedicated to project management—from writing a proposal to developing and implementing a work plan for a conservation project. The project management portion of the course will also review the typical progression of a project through design and construction phases, highlighting the role that the conservator plays in both. The course will include: lectures; site visits to current or recently completed conservation projects; in-class discussions and assignments related to typical tasks and challenges faced by architectural conservators in their daily professional life; and guest lecturers. Permission of department required to enroll.
Course usually offered in spring term
Prerequisites: Permission of the department is required to enroll.
Activity: Seminar
1 Course Unit

HSPV 739 Conservation Seminar: Masonry
This seminar will offer an in-depth study of the conservation of masonry buildings and monuments with a particular focus on American building stone. Technical and aesthetic issues will be discussed as they pertain to the understanding required for conservation practice. Part 1 will address a broad range of building stone, masonry construction technologies, and deterioration phenomenon; Part 2 will concentrate on conservation methodology as well as past and current approaches for the treatment of stone masonry structures. The subject will be examined through published literature and case studies. Students will gain practical experience through lab and field exercises and demonstrations. The subject matter is relevant to interested students of conservation and preservation, architecture, landscape architecture, architectural history, and archaeology.
Course usually offered in fall term
Prerequisites: Pre-requisite: HSPV 555 Conservation Science and permission needed from department.
Activity: Seminar
1 Course Unit

HSPV 740 Conservation Seminar: Finishes
The course will address the technology, analysis, deterioration, and treatment of historic finishes. Students will gain an overview of the materials and technology of which architectural finishes have been most commonly made, the types and causes of deterioration and diagnostic approaches, and treatment. Two categories of treatment will be considered: the replication of paints based on sample analysis and in situ excavation; and the treatment of deteriorated or buried paint intended to be represented as part of the architecture or site. Guest lecturers will elaborate on finishes analysis. A case study site will provide the opportunity for developing skills.
Course usually offered in spring term
Prerequisite: HSPV 555 Conservation Science
Activity: Seminar
1 Course Unit

HSPV 743 Conservation Studio/Seminar
This seminar explores advanced topics in conservation practice and research through detailed examination of archives, literature, material collections, and sites. Specific topics rotate, and have included slate, marble, terra cotta.
One-term course offered either term
Prerequisite: HSPVPV 555 Conservation Science
Activity: Seminar
1 Course Unit

HSPV 747 Conservation of Archaeological Sites and Landscapes
This seminar will address the history, theories, principles, and practices of the preservation and interpretation of archaeological sites and landscapes. The course will draw from a wide range of published material and experiences representing both national and international contexts. Topics will include site and landscape documentation and recording; site formation and degradation; intervention strategies including interpretation and display, legislation, policy, and contemporary issues of descendent community ownership and global heritage. Depending on the site, students will study specific issues leading toward the critique or development of a conservation and management program in accordance with guidelines established by ICOMOS/ICAHM and other official agencies.
One-term course offered either term
Activity: Seminar
1 Course Unit

HSPV 748 Preservation Case Studies
Preservation Case Studies will bring cutting-edge theoretical debates, current issues and the latest work of faculty and guests into the HSPV curriculum. Coordinated by the Chair, but populated with a number of other faculty, practitioners and guest scholars, the course will sample and explore current theoretical, conceptual, political and practical issues facing the historic preservation field.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
HSPV 750 Architectural Conservation Praxis: Traditional Buildings / Traditional Practice

Architectural Conservation Praxis is an intensive 3-week summer course designed for students pursuing studies in architectural conservation and builds on Penn Preservation’s core curriculum and the first-year conservation courses. The syllabus is organized around project fieldwork supplemented by lectures, demonstrations, exercises, and site visits that will allow students to experience firsthand the design and construction of vernacular buildings and the application of traditional craft-based methods to preserve them.

Course usually offered summer term only
Prerequisites: HSPV 540, 541 and 555.
Activity: Studio
1 Course Unit

HSPV 770 Conservation Praxis: Site Analysis, Interpretation, and Management

This course is designed to meet two broad learning outcomes: first, solidify graduate students' basic knowledge of site management and interpretation issues and process; second, document and interpret complex sites using historical research, landscape reading and architectural archaeology methods.

Course usually offered summer term only
Prerequisites: HSPV 540, 541, 660 and 601; 606 preferred; 551 and 555 for conservation-focused students.
Activity: Studio
1 Course Unit

HSPV 790 Historic Preservation Summer Institute

The Summer Institute is a required orientation course designed to prepare incoming, first-year graduate students for the intense coursework of their first semester. Generally, the Institute orients students to the issues and methods of the core MSHP curriculum, begins familiarizing students to the resources of Philadelphia, and begins skill-building exercises, especially in the area of digital media. This non-credit course employs lectures, exercises, and field trips to introduce some of the important skills, questions, and issues that will be at the center of first year’s work in the Program. The Summer Institute also constitutes an extended introduction to the Program’s faculty and the students in first-year and second-year cohorts. Course enrollment is by permit only.

Course usually offered summer term only
Activity: Lecture
0 Course Units
Notes: Course fee: $500

HSPV 999 Independent Study

An opportunity for a student to work on a special project under the guidance of a faculty member.

One-term course offered either term
Activity: Independent Study
2 Course Units
HISTORY & SOCIOLOGY OF SCIENCE (HSSC)

HSSC 502 Public History
Public history, long marginalized and stigmatized in the scholarly world, is undergoing rehabilitation. The continuing, prodigious public demand for history in various media and manifestations, together with many historians’ desire for greater relevance and the persistently disappointing academic job market for new Ph.D.s., has reawakened interest in public history within the academy. This seminar examines the many varieties of public history while giving students hands-on experience, focusing on museums and historic sites.
Taught by: Barnes
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 503 Current Issues in the History of Medicine
This seminar surveys a variety of popular and scholarly approaches to the study of medicine and its history, ranging from traditional physician-centered narratives to more recent cultural and epistemological methodologies. The potential values of journalistic, sociological, anthropological, geographical and other approaches to the historical study of health, disease, and health care will be explored.
Taught by: Barnes
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 504 Reading Seminar in History of Science
Survey of major themes and figures in the history of western science, technology, and medicine since the Renaissance, through reading and discussion of selected primary and secondary sources. Topics include: Kepler, Galileo, Bacon, Newtonainism, Pasteur, the Industrial Revolution, the rise of German science, etc. Concurrent attendance at STSC 1 lectures is recommended.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

HSSC 505 Seminar in the History and Sociology of Science
Seminar for first-year graduate students, undergraduate majors, and advanced undergraduates. Reading will introduce the student to current work concerning the effect of social context on science, technology, and medicine.
Taught by: Linker/Benson
Course usually offered in fall term
Activity: Seminar
1 Course Unit

HSSC 506 Readings in Race and Science
What accounts for the persistence and resilience of racial conceptions in science? In this course we will look for answers to this and other questions by examining the historiography of race, colonialism, and science. The standard historiography has focused on the rise and fall of racial typologies in the north Atlantic and their contributions to troublesome political projects such as the Atlantic slave trade, Jim Crow policies, the eugenics movement, and the Holocaust. More recent histories have taken inspiration from postcolonial studies, standpoint theories, and indigenous studies to insist on a more global reckoning of race and science. If we focus on the southern hemisphere, for instance, we can see scientific racial conceptions enrolled for a different though not necessarily less innocent set of projects: the dispossession of indigenous lands and effacement of indigenous peoples, the glorification of race-mixing as a tool of nation building, and the cultivation of whiteness as a means to modernity. By examining classic and recent approaches to race and science we will grapple with the following questions: Is ‘race’ a product of 18th century French and English science? Or can we find earlier iterations in the idioms of conquest of Spanish America during the early modern period? Do the standard narratives concerning the history of racial conceptions in science change when looked at from the frame of the global south? Does race get "buried alive" after WWII? And do recent developments in human genomics bring "race" back from the dead, albeit in an anti-racist form?
Taught by: Gil-Riano, Sebastian
Course usually offered in fall term
Activity: Seminar
1 Course Unit

HSSC 508 Knowledge in Motion
This course provides a broad, interdisciplinary introduction to the movement of knowledge across space and time. In particular, we will be focusing on the economic models of knowledge movement, on comparative and trans-cultural views on science, on translation, and finally, on the global turn in the history of science. Since the movement of knowledge is inseparable from the production of knowledge, we will also start our discussion by looking back at some of the literature that constitutes the intellectual foundations of the history and sociology of science.
Taught by: Kucuk
Course not offered every year
Activity: Seminar
1 Course Unit
HSSC 517 Gender and Technical Knowledge
In this graduate reading seminar, we explore how technical knowledge systems have historically intersected with identity and social order. The materials emphasize gender, but our discussions and readings will also engage at times with disability, race, class and other social categories that have shaped participation in technical endeavors and been the focus of technical study. Our goal is to understand how embodiment and expertise intersect. We will explore why certain kinds of people have been understood to be unreliable knowers, pathologically embodied, untrustworthy, or dangerously linked to emotion, incompetence or confusion, while other kinds of people have been socially marked as embodying reliability, trustworthiness, or epistemological neutrality. These embodiments bear on the historical development of technical knowledge as a social system for the establishment of consensus about the nature of reliable truth. They are also relevant at many different levels to embodied social experiences of scientific information, personal health, reproduction and everyday technology. This course will give students the tools and insights needed to draw on feminist/gender/queer theory when it is useful to their research. That is the purpose of all of our readings.
Taught by: Lindee/Linker
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 524 Histories of the Cosmos
This course examines histories of “cosmopolitics”: the ways in which scientists, technologists, artists, politicians, artists, architects, and others have planned, labored, and negotiated to build a world or universe in common. Cosmopolitics can be seen as a central topic of all of Science and Technology Studies (STS), history of science, and anthropology—since these fields investigate the ways in which natural and social orders get elaborated, challenged, and defended through concrete material and intellectual practices. The course adds a new tool: the study of “cosmograms”: concrete objects—books, buildings, poems, sculptures, symphonies, narratives, pictures, etc.—through which humans have, in specific times and places, sought to represent to each other the overall structure, content, meaning, order, essence, origin, and future of the universe as a whole. These objects both inscribe and overcome divisions between art, science, and religion. Studying cosmograms in action, as part of specific local histories in which the general and universal order of things are getting worked out, is a way of grasping the processes and implications of controversies over knowledge, in their political, aesthetic, ethical, as well epistemological dimensions.
Taught by: Tresch, J
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 528 Gender and Science
With a special focus on methods, this course explores the rich literature on gender and technical knowledge.
Taught by: Lindee
Course not offered every year
Activity: Seminar
1 Course Unit
HSSC 564 History of Technology
In this course we read influential classic and recent works in the history and the philosophy of technology, tackling the ways in which the fields are analytically structured as well as their relation to each other. We also discuss approaches and methodological questions in general history and general philosophy. We start with Karl Marx, arguably the most influential historian and philosopher of technology of the modern era, and discuss him in relation to what has been one of the most visible debates in the historiography of technology - the question of technological determinism. We then travel in a roughly chronological order through key periods and methodological issues in the fields. During our journey we encounter the Middle Ages and historical theoreticians of the Annales School, the early modern period and questions about gender and microhistory, and the so-called Industrial Revolution and the questions it raises about what's modern about modern technology. Mid-way through the class, we discuss two classics in the philosophy of technology, Martin Heidegger and Jürgen Habermas, who grapple precisely with the question about the modern element in industrial technology. As we enter the nineteenth and twentieth centuries, we expand our methodological horizon to include examples from the cultural history of technology and applications of the social constructivism debate to the history of technology. We end the class with works on the recently emerging fields of biotechnology and nanotechnology and with a set of monographs written in the nascent sub-discipline in the history and philosophy of technology, engineering studies.

Taught by: VOSKUHL_A
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 565 Environmental History
A survey of recent and influential works in environmental history, including works from both within and outside the American environmental history canon. The focus is on situating emerging historiographical trends within the long-term development of the field and in relation to other closely allied fields, including the history of science, technology, and medicine, social and cultural history, urban history, agricultural history, world history, historical ecology, environmental anthropology, and ecocriticism.

Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 567 Industrial and Post Industrial Ages
In this course we are concerned with phenomena surrounding industrialization and de-industrialization, and with post-industrial types of technologies and labor. We start with recent reconceptualizations of the archetypal British "Industrial Revolution" and its close relations to Indian industry and economy, move to the US American South as an example of a global agricultural economy in the industrial age, take North American and Western Europe as lenses for transitions from industrial to post-industrial eras, and discuss the nuclear and computer age of the Cold War from a number of perspectives: the Global South and cybernetics, medicine and isotopes, the recent climate debate and underlying computing, an anthropology of post-industrial labor, and gene-patenting and biological manufacturing in the twenty-first century.

Taught by: Voskuhl
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 588 Humanities Beyond the Human
The humanities are once again influx as scholars experiment with a variety of new techniques and conceptual frameworks. In recent years many of these experiments have involved turning away from longstanding questions of representation, language, epistemology, and human exceptionalism and toward questions of enactment, materiality, ontology, and the nonhuman. In this seminar we will examine a variety of manifestations of this turn as they have emerged in history, anthropology, literary studies, and philosophy under names such as new materialism, multi-naturalism, big/deep history, multispecies ethnography, and object-oriented ontology. We will try to situate these recent turns in longer intellectual genealogies, drawing especially on works in science studies and the history of science that seek to provide contingent, situated accounts of what exists and what we can know about it. Objects of inquiry will include dogs, mushrooms, cyborgs, seeds, mosquitoes, bacteria, stones, jugs, pictures, hormone disruptors, and the cosmos.

Taught by: Benson
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 597 Other Reasons
This course seeks to destabilize a monolithic vision of science as a singular, homogenous body of knowledge by revisiting its plural, heterogeneous histories. This course is particularly interested in exploring the historical entanglements between the sciences and the enchanted world of intangible entities such as spirits, ghosts and gods. The course will look at the theoretical critiques of "Enlightenment Rationality" and "Science" in post colonial theory; at a detailed and loosely chronological examination of the multifaceted entanglements of science and technology with the paranormal in the 19th and 20th centuries; and at the performative aspects of scientific rationality in colonial and postcolonial contexts in a bid to understand the background that led to postcolonial theorization.

Taught by: Mukharji_P
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 611 Reading Seminar History of Medicine
A survey of key issues in the development of Western medicine during the past two centuries. Historiographically oriented, it will emphasize areas of recent historical concern such as the role of the patient, the institutionalization of medical care, and shifting conceptions of disease. The course itself will include some lecture as well as discussion. A paper will be required.

Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 626 Research Seminar in History of Technology
This graduate seminar provides a structured environment in which each student executes an independent research project. Early class meetings focus on the craft of researching and writing scholarly articles. Later meetings are devoted to discussion of students progress on their research projects. Each student defines their own research topic in the history of technology, subject to the Professor's approval.

One-term course offered either term
Activity: Seminar
1 Course Unit
HSSC 629 Genetics and Genomics
This course is called "Genetics and Genomics," but we are defining those terms broadly to potentially encompass historical studies of biomedicine, evolution, race theory, biological anthropology, reproduction, agriculture, animal breeding, psychiatry, social sciences, and so on. We are thinking about knowledges of embodiment and what they teach us about social and technical order—about systems, institutions, technologies, hierarchies, theories, practices, networks, and so on. The goal of the semester will be for each student to produce a first draft of a publishable research paper. Many of our readings are calibrated to complement the available archival collections at the American Philosophical Library, the University of Pennsylvania archives, the Academy of Natural History collections, the Chemical Heritage Foundation, Wagner Free Institute of Science, College of Physicians of Philadelphia, Hagley Museum and Library, and collections held in striking distance of Philadelphia, in New York, Princeton, Baltimore, and Washington DC. While APS will be a special of focus of attention, given the remarkable collections there, students should make a special effort to become familiar with the many other resources that are available in the region, some of which have not been the focus of significant historical attention.

Taught by: Lindee,S
One-term course offered either term
Activity: Seminar
1 Course Unit

HSSC 665 Research Seminar im the History of Medicine
This course is focused on comparing and contrasting ethnographic and historical approaches to health and medicine. We will engage ethnographic and historical approaches to health and medicine to explore the methodological, empirical, and theoretical stakes of thinking medicine, disease, and the body across and within disciplines. Taking a methodological and comparative approach, the course will explore ethnographic and historical approaches to such themes as the body, disease, pharmaceuticals, and biomedical knowledge-production in global and historical context. We aim to develop skills and knowledge for critically reading anthropological, historical, and sociological literatures on medicine, the body, and disease. As such, students will develop a research project, which may be in either the history or anthropology of medicine and/or science, or a project, which combines such approaches, utilizing the comparative and methodological frameworks of the course to develop an original analysis on a topic of their choosing.

Taught by: Aronowitz,R ; McKay,R
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 667 Capitalism: Theorizing economy in sci & med
What are the relationships between capitalism and the practice and experience of medicine? How have historians and anthropologists theorized capitalism and political economy in accounts of health and medicine? What do such theories account for and what is foreclosed? This research seminar examines theories of capitalism as they are taken up in historical and ethnographic accounts of science, health, healing, and medicine. Exploring how contemporary and classic accounts have sought to analyze and unpack the relationship between economy and health, we will examine how political economic approaches to health and medicine have informed historical and ethnographic accounts of health and illness — asking, for instance, how theories of neoliberalism have been used to explain health inequalities (and vice versa) — and will analyze how scholars have linked practices of financialization, speculation, and investment to changing dynamics of health, medicine, healing, and the generation of medical knowledge. Course time will also be devoted to independent research through which students will develop and write up a research paper on an area of interest related to the course theme.

Taught by: Mckay
Course not offered every year
Activity: Seminar
1 Course Unit

HSSC 999 Graduate Independent Study
Available to doctoral students only.
One-term course offered either term
Activity: Independent Study
1 Course Unit
HIST 001 Making of the Modern World
How did the world we now live in come to be? Is globalization a recent development or does it have a history of its own? At what point can we say that a world economy emerged and what sort of relations of production and distribution linked it together? When did people start thinking and acting as citizens of nations rather than as subjects of rulers or members of religious or ethnic communities, and what were the consequences? How should we conceptualize the great revolutions (French, American, Russian, Chinese) that would determine the landscapes of modern global politics? This course is designed to help us think about the "making of the modern," not by means of an exhaustive survey but by exploring a range of topics from unusual perspectives: piracy, patriotism, prophecy, global struggles for political and human rights, drivers of war and peace, capitalism, nationalism, socialism, fascism, fundamentalism; communication and culture.
For BA Students: History and Tradition Sector
Taught by: Cassanelli/Dickinson
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 011 Deciphering America
This course examines American history from the first contacts of the indigenous peoples of North America with European settlers to our own times by focusing on a few telling moments in this history. The course treats twelve of these moments. Each unit begins with a specific primary document, historical figure, image, location, year, or cultural artifact to commence the delving into the American past. Some of these icons are familiar, but the ensuing deciphering will render them as more complicated; some are unfamiliar, but they will emerge as absolutely telling. The course meets each week for two 50-minute team-taught lectures and once recitation session. Course requirements include: in-class midterm and final exams; three short paper assignments; and punctual attendance and participation in recitations.
For BA Students: History and Tradition Sector
Taught by: Brown/Licht
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 023 Intro to Middle East
For BA Students: History and Tradition Sector
Activity: Lecture
1 Course Unit

HIST 024 Introduction to the Ancient Near East
See primary department (NELC) for a complete course description.
For BA Students: History and Tradition Sector
Taught by: Frame
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HIST 030 The Emergence of Modern Europe
This course traces the formation of European society, politics and culture from its earliest days through the era of the Reformation, ca. 1000-1600 CE. Major themes will include: politics and power; law and the state; economics and trade; religion; learning and the rise of universities; social organization; everyday life. The reading and analysis of primary sources from each era will be important in understanding Europe's key features and development.
For BA Students: History and Tradition Sector
Taught by: Moyer
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 031 Making and Breaking European Hegemony
HIST 031 will trace the dramatic rise and fall of Europe's global hegemony during the period roughly from 1450 to 1950. Among the major themes we will examine are: states and power; borders and resistance, race and genocide, economies and oppression, ideas and revolution, the building and change of hierarchies of gender and power. Truly, a dramatic story. The objectives of the course are: 1) To serve as an introduction to the study of history for majors and non-majors alike, and to teach the critical analysis of historical sources; 2) to teach substantive knowledge of European history; 3) to provide a foundation for further study of the European past. No previous background in European or World history is required.
For BA Students: History and Tradition Sector
Taught by: Holquist/Nathans/Safley
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 040 Early Modern Europe, 1450-1750
This course examines those European developments which contributed to the world we understand as modern. Special emphasis will be placed on the transformation of Europe through the advent of new technologies, the creation of a global economy, the consolidation of territorial states, the rise of effective, central governments, the dissolution of religious unity, and the dialect between modern and traditional world views.
For BA Students: History and Tradition Sector
Taught by: Safley
Course not offered every year
Activity: Lecture
1 Course Unit

HIST 046 Portraits of Soviet Society: Literature, Film, Drama
For BA Students: Humanities and Social Science S
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 047 Portraits of Russian Society
For BA Students: Humanities and Social Science S
Course not offered every year
Activity: Lecture
1 Course Unit
HIST 048 The Rise and Fall of the Russian Empire, 1552-1917
How and why did Russia become the center of the world’s largest empire, a single state encompassing eleven time zones and over a hundred ethnic groups? To answer this question, we will explore the rise of a distinct political culture beginning in medieval Muscovy, its transformation under the impact of a prolonged encounter with European civilization, and the various attempts to re-form Russia from above and below prior to the Revolution of 1917. Main themes include the facade vs. the reality of central authority, the intersection of foreign and domestic issues, the development of a radical intelligentsia, and the tension between empire and nation.
For BA Students: History and Tradition Sector
Taught by: Todd
Course not offered every year
Activity: Lecture
1 Course Unit

Out of an obscure, backward empire, the Soviet Union emerged to become the great political laboratory of the twentieth century. This course will trace the roots of the world’s first socialist society and its attempts to recast human relations and human nature itself. Topics include the origins of the Revolution of 1917, the role of ideology in state policy and everyday life, the Soviet Union as the center of world communism, the challenge of ethnic diversity, and the reasons for the USSR’s sudden implosion at the end of the century. Focusing on politics, society, culture, and their interaction, we will examine the rulers (from Lenin to Gorbachev) as well as the ruled (peasants, workers, and intellectuals; Russians and non-Russians). The course will feature discussions of selected texts, including primary sources in translation.
For BA Students: History and Tradition Sector
Taught by: Nathans/Holquist
Course not offered every year
Activity: Recitation
1 Course Unit

HIST 050 England and the British Isles to 1707
The subject of this course is the history of the British Isles from the Roman Conquest in 43AD to the creation of the United Kingdom in 1707. Between these two dates the various societies and cultures in the British Isles were brought into the orbit of the Roman Empire, converted to Latin Christianity, and developed distinctive cultures and strong ties with the Continent. From the twelfth century on, the kingdom of England began to exert its power over Wales, Ireland, and Scotland, although English power waxed and waned in these areas between the twelfth and the seventeenth centuries. The Anglo-Norman continental empire of the Plantagenet dynasty also played a large part in shaping the English monarchy, as did the playing out of the Hundred Years War, the internal divisions in fifteenth-century English society, and the rise of the Tudor-Stuart dynasty.
For BA Students: History and Tradition Sector
Taught by: Todd
Course not offered every year
Activity: Lecture
1 Course Unit

HIST 051 Modern Britain, 1700-present: Empire, Industry and Democracy
In this course, we will investigate the extraordinary story of Britain’s rise to global predominance and the question of its “decline” in the twentieth century. Our readings and discussions will engage with dominant ideas, social processes, and popular beliefs; we will look at the structure of government and the texture of everyday lives. We will encounter Britons in all corners of the world even as we explore the complexities of metropolitan British history. Big ideas were born there: industrial capitalism, political liberalism, and scientific racism. Britain’s political system, with its early form of (limited) democracy, gave shape to party politics around the world. We begin in the early eighteenth century—focusing on the agricultural and social changes that accompanied the onset of the Industrial Revolution. We’ll examine the rise of the Hanoverian fiscal-military state, and its consolidation and transformation in the course of the Napoleonic Wars. We end in the present day, looking at a Britain which may have lost an Empire, but which retains a strong welfare state, a global cultural presence, and a permanent seat on the UN Security Council. Should we understand its rise and subsequent retraction as a store of an ascent and a decline? We will interrogate that narrative throughout the semester. The course moves roughly chronologically, but by way of discrete units that provide different perspectives on British politics, economics, and culture.
For BA Students: History and Tradition Sector
Taught by: Chase-Levenson
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 055 Reading the Classics
In this course we will study the early roots of Western culture—the Biblical, Greek and Roman traditions—as well as how sixteenth- and seventeenth-century European authors reproduced, rethought and reshaped these early traditions. Instead of reading and discussing the required texts according to the date when they were written (first the early traditions and ending with the Renaissance views), we will focus our attention on a few themes that were central concerns to those living in Classic and Renaissance times, and that continue to influence modern ways of thinking and acting in Western societies: conceptions of God and the place of religion in society; nature of power and authority, and individuals’ rights and duties; good, evil, and ethical philosophy; views on women, their nature and roles in society; ethnography and the perception of other cultures and societies. In addition to reading and discussing several of the biblical books—Genesis, Exodus, the Book on Revelation—we will study other seminal classical works—Sophocles’ Antigone, Aristotle’s Politics and Ethics, Herodotus’ The Histories; Plato’s Apology— and works by Michel de Montaigne, Maria de Zayas y Sotomayor, Marie de Gournay, Christopher Marlowe, William Shakespeare, and several others. We will also work with books published in the last decades, analyzing the classics and and their reception in various periods of history, but also books that analyze what the classics tell us today—Dreyfus and Kelly’s All things shining, Reading the Western Classics to find meaning in a secular Age; Anthony Grafton’s Bring Out Your Dead: the Past as Revelation; James Miller, Examined Lives, from Socrates to Nietzsche; and Sarah Bakewell, How to Live: Or a Life of Montaigne in One Question and Twenty Attempts at an Answer.
Taught by: Feros
Activity: Lecture
1 Course Unit

HIST 056 Universal Language: From the Tower of Babel To Artificial Intelligence
Activity: Seminar
1 Course Unit
HIST 070 Colonial Latin America
This course provides an introduction to the broad literature on Latin America's rich colonial history. We will begin by tracing some of the early origins of - and points of contact between - the Indian, Iberian, and African men and women who formed the basis of colonial society. As the course progresses, we will explore the variety of ways in which colonial subjects lived, worked, ate, worshipped, and socialized. Lectures and reading assignments will draw upon a variety of sources, including court cases, artistic renderings, city maps and street plans, travel accounts of visits to the regions, and the material, cultural, and intellectual products made possible by the wealth and dynamism of the seventeenth and eighteenth centuries. The course will conclude with an analysis of the Age of Revolutions, a period of dramatic upheaval that remains at the center of lively scholarly debates. By the end of the semester, students will be able to engage the key questions driving these debates, the most important of which, perhaps, is: what is Latin America's colonial legacy?
For BA Students: History and Tradition Sector
Taught by: Farnsworth-Alvear
Course usually offered in fall term
Activity: Recitation
1 Course Unit
Notes: Fulfills History Tradition Distribution Requirement

HIST 071 Latin American Survey 1782-Present
Surveys Latin American and Caribbean history from the Tupac Amaru Revolt to the present. We will examine the legacy of Spanish colonialism and slavery, movements for national and cultural independence, twentieth-century radicalism, and the politics of race in contemporary Latin America. Readings include fictional as well as analytical representations, and a film series will accompany the course.
For BA Students: History and Tradition Sector
Taught by: Farnsworth-Alvear
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 072 Introduction to Latin American and Latino Studies
Designed to introduce students to the interdisciplinary field of Latin American and Latino Studies, this is a seminar oriented toward first and second year students. Readings will range widely, from scholarly work on the colonial world that followed from and pushed back against the "conquest"; to literary and artistic explorations of Latin American identities; to social scientists' explorations of how Latinos are changing the United States in the current generation.
Taught by: Farnsworth-Alvear
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HIST 075 Africa Before 1800
Survey of major themes and issues in African history before 1800. Topics include: early civilizations, African kingdoms and empires, population movements, the spread of Islam, and the slave trade. Also, emphasis on how historians use archaeology, linguistics, and oral traditions to reconstruct Africa's early history.
For BA Students: History and Tradition Sector
Taught by: Babou
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 076 Africa Since 1800
Survey of major themes, events, and personalities in African history from the early nineteenth century through the 1960s. Topics include abolition of the slave trade, European imperialism, impact of colonial rule, African resistance, religious and cultural movements, rise of naturalism and pan-Africanism, issues of ethnicity and "tribalism" in modern Africa.
For BA Students: History and Tradition Sector
Taught by: Cassanelli
Course usually offered in fall term
Activity: Recitation
1 Course Unit

HIST 081 History of the Middle East Since 1800
A survey of the modern Middle East with special emphasis on the experiences of ordinary men and women as articulated in biographies, novels, and regional case studies. Issues covered include the collapse of empires and the rise of a new state system following WWI, and the roots and consequences of the Palestinian-Israeli conflict, the Iranian revolution and the U.S.-Iraq War. Themes include: the colonial encounter with Europe and the emergence of nationalist movements, the relationship between state and society, economic development and international relations, and religion and cultural identity.
For BA Students: History and Tradition Sector
Taught by: Kashani-Sabet/Troott-Powell
Course usually offered in fall term
Activity: Recitation
1 Course Unit

HIST 084 Topics in 20th C. Middle East
If "the clash of civilizations" is the first image that jumps to mind when thinking about the modern Middle East, then this is the course for you. From the familiar narratives about the creation of modern nation-states to the oft-neglected accounts of cultural life, this course surveys the multi-faceted societies of the twentieth-century Middle East. Although inclusive of the military battles and conflicts that have affected the region, this course will move beyond the cliches of war and conflict in the Middle East to show the range of issues and ideas with which intellectuals and governments grappled throughout the century. The cultural politics and economic value of oil as well as the formation of a vibrant literary life will be among the topics covered in the course. By considering illustrative cultural moments that shed light on the political history of the period, this course will adopt a nuanced framework to approach the Arab/Israeli conflict, the history of the Gulf States, the Iran-Iraq War, and U.S. involvement in the region.
Taught by: Kashani-Sabet
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 091 Modern Japanese History
This course will survey the major political, economic, social and intellectual trends in the making of modern Japan. Special emphasis will be given to the turbulent relationship between state and society from 1800 to the present.
For BA Students: History and Tradition Sector
Taught by: Dickinson
One-term course offered either term
Activity: Recitation
1 Course Unit
HIST 096 Late Imperial China
This lecture course – the first of a two-part sequence – examines the history of late imperial China through the early 19th century. We begin with the Song dynasty transformation: the rise of gentry society and imperial absolutism, the institution of Confucian orthodoxy, the shift of the population and the economic center of gravity to the south, the commercialization of the economy, and change in the relative status of women and men. We then trace China’s subsequent political and social history, including the following themes: inner vs. outer court politics; law, government, and society; intellectuals and political dissent; gender, family, and kinship practices; patterns of peasant life and rebellion; traditional foreign relations and first contacts with the West; internal sources of the decline of imperial order.
Taught by: Fei
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 097 History of Modern China
From an empire to a republic, from communism to socialist-style capitalism, few countries have ever witnessed so much change in a hundred year period as China during the twentieth century. How are we to make sense out of this seeming chaos? This course will offer an overview of the upheavals that China has experienced from the late Qing to the Post-Mao era, interspersed with personal perspectives revealed in primary source readings such as memoirs, novels, and oral accounts. We will start with an analysis of the painful transition from the last empire, the Qing Dynasty (1644-1911), to a modern nation state, followed by exploration of a century-long tale of incessant reform and revolution. The survey will focus on three main themes: 1) the repositioning of China in the new East Asian and world orders; 2) the emergence of a modern Chinese state and nationalistic identity shaped and reshaped by a series of cultural crises; and finally, 3) the development and transformation of Chinese modernity. Major historical developments include: the Opium War and drug trade in the age of imperialism, reform and revolution, the Nationalist regime, Mao's China, the Cultural Revolution, and the ongoing efforts of post-Mao China to move beyond Communism. We will conclude with a critical review of the concept of "Greater China" that takes into account Taiwan, Hong Kong, and the Chinese diaspora in order to attain a more comprehensive understanding of modern China, however defined, at the end of the last century.
For BA Students: History and Tradition Sector
Taught by: Fei
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 098 Introduction to Korean Civilization
This gateway course surveys the history of Korea from early times to the present. We will study the establishment of various sociopolitical orders and their characteristics alongside major cultural developments. Covered topics include: state formation and dissolution; the role of ideology and how it changes; religious beliefs and values; agriculture, commerce, and industry; changing family relations; responses to Western imperialism; and Korea's increasing presence in the modern world as well as its future prospects. Students will also be introduced to various interpretive approaches in the historiography. No prior knowledge of Korea or Korean language is presumed.
For BA Students: History and Tradition Sector
Taught by: Park
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 101 Freshman Seminar: Europe before 1800
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 102 Freshman Seminar: Europe after 1800
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 103 Freshman Seminar: America before 1800
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 104 Freshman Seminar: America after 1800
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 106 Freshman Seminar: The World After 1800
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 107 Comparative Capitalist Systems
The course follows the evolution of industrial capitalism since the beginning of the English industrial revolution in the late 18th century. It ranges from the problems of the industrial revolution in England to problems of building a market economy in eastern Europe today. In particular, it examines industrialization and explores the sources of sustained economic growth from a comparative perspective. Most of the world, especially in so-called emerging economies, is still confronted with the challenge, and often pain, of creating a modern industrial capitalist society. The course attempts to build a conceptual apparatus for understanding models of industrialization and is built around issues such as law, anti-trust, corporate forms, banking institutions, industrial relations, etc. By definition, the course tends to concentrate on successful industrializers around the world, but questions regarding continuing underdevelopment will be addressed.
For BA Students: Humanities and Social Science Sector
Taught by: Drew
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 108 American Origins
The United States was not inevitable. With that assumption as its starting point, this course surveys North American history from about 1500 to about 1850, with the continent's many peoples and cultures in view. The unpredictable emergence of the U.S. as a nation is a focus, but always in the context of wider developments: global struggles among European empires; conflicts between indigenous peoples and settler-colonists; exploitation of enslaved African labor; evolution of distinctive colonial societies; and, finally, independence movements inspired by a transatlantic revolutionary age.
For BA Students: History and Tradition Sector
Taught by: Richter
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 114 America after 1800: Benjamin Franklin Seminar
One-term course offered either term
Activity: Seminar
1 Course Unit
HIST 118 Witchcraft and Possession
This course explores world witchcraft and possession from the persecutions of the early seventeenth century through the rise of Wicca in the twentieth century. The mere mention of these terms, or of such close cousins as demonology, sorcery, exorcism, magic, and the witches Sabbath, raises clear ethnographic and historical challenges. How can the analysis of witchcraft— including beliefs, patterns of accusation, the general social position of victims, the intensity and timing of witch hunts, and its relation to religious practice, law, language, gender, social marginalization, and property—lead us to a more humane understanding of belief and action? Films such as The Exorcist, The Blair Witch Project, The Crucible, and Three Sovereigns for Sarah will focus discussion.
For BA Students: Humanities and Social Science S
Taught by: St. George
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 119 History of the Modern Business Corporation
Over the last two centuries, the modern corporation has emerged as the dominant form of doing business throughout the world. As such, it not only affects people's daily lives, but also influences government policies and larger trends in society. This course looks at the history of the international corporation from the industrial revolution to the present, to consider how corporations have evolved and the varying ways in which they have influenced the history of our times. We will consider the fundamental debates surrounding the responsibility between shareholders, managers, workers, customers, and most importantly, society as a whole. Much of the course will involve the examination of case studies of individual companies, industries or issues, to understand how corporations have functioned in specific instances.
Taught by: Drew
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 123 Economic History of Europe I
This course concentrates on the economy of Europe in the Early Modern Period, 1450-1750. It was a time of great transition. Europe developed from an agriculturally-based to an industrially-based economy, with attendant changes in society and culture. From subsistence-level productivity, the European economy expanded to create great surfeits of goods, with attendant changes in consumption and expectation. Europe grew from a regional economic system to become part—some would say the heart—of a global economy, with attendant changes in worldview and identity. Economic intensification, expansion, globalization, and industrialization are our topics, therefore. Beginning with economic organizations and practices, we will consider how these changed over time and influenced society and culture. The course takes as its point of departure the experience of individual, working men and women: peasants and artisans, merchants and landlords, entrepreneurs and financiers. Yet, it argues outward: from the particular to the general, from the individual to the social, from the local to the global. It will suggest ways in which the economy influenced developments or changes that were not in themselves economic, shaped, and deflected economic life and practice.
For BA Students: Humanities and Social Science S
Taught by: Safley
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 124 Economic History, 1600 to present
Economic affairs dominate much of our daily lives and an appreciation of how our economic world evolved is essential for an intelligent understanding of today's society. This course will survey the world's economic history from 1600 to the present. It will consider the evolution of government policies, the growth of trade, business and industry, the economic inter-relationship between regions, governments and business, and, of course, their effect on ordinary people's economic lives.
Taught by: Drew
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 126 Modern Europe, 1789-1919
It's old, it's new. It's unfamiliar, it's recognizable. This course investigates the collapse of the "old regime" and the birth of something like the Europe we recognize. The long nineteenth century witnessed the development of political, economic, and cultural phenomena we often see as characteristic of modern society. Topics considered include political revolution, industrialization, liberalism, imperialism, and new ideologies of gender, race, and class. Our focus will be consistently transnational. Where did Europe begin and end? How did borders and boundaries operate at the edge of nations, but also within societies? We will investigate these questions as we follow European history from the violence and optimism of the French Revolution to the chaos of the First World War.
Taught by: Chase-Levenson
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 127 The Material Past in a Digital World
The material remains of the human past—objects and spaces—provide tangible evidence of past people's lives. Today's information technologies improve our ability to document, study, and present these materials. But what does it mean to deal with material evidence in virtual context? In this class, students will learn basic digital methods for studying the past while working with the collections of the Penn Museum. As we learn about acquiring and managing data, we will gain valuable experience in the evaluation and use of digital tools. The digital humanities are a platform both for learning the basic digital literacy students need to succeed in today's world and for discussing the human consequences of these new technologies and data. We will discuss information technology's impact on the study and presentation of the past, including topics such as public participation in archaeological projects, educational technologies in museum galleries, and the issues raised by digitizing and disseminating historic texts and objects. Finally, we will touch on technology's role in the preservation of the past in today's turbulent world. No prior technical experience is required, but we hope students will share an enthusiasm for the past.
Taught by: Peter Cobb
One-term course offered either term
Activity: Lecture
1 Course Unit
HIST 128 From Complete Destruction to Superpower: Europe 1945-2013
This course offers a survey of European history, including both eastern and western Europe since World War II until the present. The course examines how Europe in all its complexity and cultures lived under the shadow of the Cold War. It examines the origins and nature of the cold war, not just in its diplomatic and political dimensions, but also its effects on the culture and people of Europe. It explores the reasons for the phenomenon of anti-Americanism and the series of revolts exploding throughout eastern Europe until the fall of the Berlin Wall. Finally, the course examines a number of thematic areas about European political culture, immigration, decolonization, the 1960s revolts and the 1970s terrorism, the resurgence of nationalism, but also the growth of the European community. The course explores the question: what does it mean to be European?
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 130 History of Globalization
Globalization seems the essence of modernity, but it is not a new phenomena. The world has already witnessed several eras of globalization, each of which transformed and changed the world in often similar but sometime unique fashions. This course will look at continuing trends towards globalization and consider its rich history and the contentious arguments that it has always provoked. Although the focus of the course will be on globalization during the 19th and 20th centuries, we will also consider earlier episodes of globalization, to fully appreciate its evolution and importance.
For BA Students: Humanities and Social Science S
Taught by: Drew
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 131 Financial Meltdown, Past and Present
Economic history is increasingly recognized as a crucial source of policy advice and is invoked with growing frequency in public debates. In particular, the subprime crisis in 2008 and after has generated a demand for "historical perspective" that would improve the understanding of the causes of financial turmoil and facilitate the prevention of comparable catastrophes. This course begins with a review of the principal features of the subprime crisis of 2008 and asks, so to speak, "how did we get there?" It answers by providing historical insights that shed light on crucial aspects of financial disasters. This is a history course, engaging with topics pertaining to economics, law and politics (national and international). Students with diverse backgrounds are expected to benefit from this course through acquiring a concrete knowledge of the historical evolution of fundamental institutions of financial capitalism. Ultimately, students enrolling in this course are expected to achieve proficiency in historically informed discussion of the mechanisms that were played out in the subprime crisis and beyond.
For BA Students: Humanities and Social Science S
Taught by: Flandreau
Course not offered every year
Activity: Lecture
1 Course Unit

HIST 133 Free Speech and Censorship
This course will explore the idea of free speech - its justification, its relationship to various forms of censorship, and its proper limits - as a historical, philosophical, legal, and ultimately, political question. In the first half of the course, we will explore the long history across the West of the regulation of various kinds of ideas and their expression, from malicious gossip to heresies, and read classic arguments for and against censorship, copyright protections, and standards of taste and decency and of truth. In the second part of the seminar, after looking at how the idea of freedom of speech came to seem an existential prerequisite for democracy as well as individual liberty, we will take up the historical and philosophical questions posed by such recent dilemmas as whether or not hate speech deserves the protection of the First Amendment, the distinction between art and pornography from the perspective of freedom of expression, speech during wartime, and the transformative effects of the internet on the circulation and regulation of ideas. We will end the semester by thinking about the globalization of the idea of free speech as a human right and its implications, both positive and negative. Readings will range from Robert Darnton’s The Forbidden Best-Sellers of Pre-Revolutionary France, to D. H. Lawrence’s Lady Chatterley’s Lover, to documents concerning the cartoons of Charlie Hebdo and law review articles about Citizens United v. FEC. We will also make considerable use of local resources, from museums to the library.
For BA Students: Humanities and Social Science S
Taught by: Rosenfeld
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 135 Cold War: Global History
The cold War was more than simply a military confrontation between the United States and the Soviet Union; it was the frame within which the entire world developed (for better or worse) for nearly five decades. This course will examine the cold War as a global phenomenon, covering not only the military and diplomatic history of the period, but also examining the social and cultural impact of the superpower confrontation. We will cover the origins of the conflict, the interplay between periods of tension and detente, the relative significance of disagreements within the opposing blocs, and the relationship between the “center” of the conflict in the North Atlantic/European area and the global “periphery”.
For BA Students: Humanities and Social Science S
Taught by: Nathans
One-term course offered either term
Activity: Recitation
1 Course Unit
HIST 137 International Society in the Twentieth Century
Is the world evolving toward a global civil society, and perhaps toward
global government? The course explores this question across the
20th century, focusing on the origins and evolution of transnational
organizations and movements. We will analyze a variety of actors above
and below the level of the nation-state, from the League of Nations to
Amnesty International. At the same time we will pay careful attention
to the many countervailing forces that have resisted the process of
globalization: various forms of nationalism, local ethnic and religious
movements in places as far-flung as Central Africa and Northern
Ireland, and struggles over territories and border control from Arizona
to Kashmir. We will look at the long history of contention between these
opposing trajectories, exploring such topics as Wilsonianism and its
reception in Europe and beyond, transnational human rights norms, the
environmentalist movement, institutions designed to deal with global
threats such as the World Health Organization or the International Atomic
Energy Agency, European integration, political Islam, and the War on
Terror.
Taught by: Ogle
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 139 Jews and Judaism in Antiquity
A broad introduction to the history of Jewish civilization from its Biblical
beginnings to the Middle Ages, with the main focus on the formative
period of classical rabbinic Judaism and on the symbiotic relationship
between Judaism, Christianity, and Islam.
For BA Students: History and Tradition Sector
Taught by: Dohrmann
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 140 Medieval and Early Modern Jewry
Exploration of intellectual, social, and cultural developments in Jewish
civilization from the rise of Islam in the seventh century to the assault on
established conceptions of faith and religious authority in 17th century
Europe, that is, from the age of Mohammed to that of Spinoza. Particular
attention will be paid to the interaction of Jewish culture with those of
Christianity and Islam.
For BA Students: History and Tradition Sector
Taught by: Ruderman
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HIST 141 Jews in the Modern World
This course offers an intensive survey of the major currents in Jewish
culture and society from the late middle ages to the present. Focusing
upon the different societies in which Jews have lived, the course
explores Jewish responses to the political, socio-economic, and cultural
challenges of modernity. Topics to be covered include the political
emancipation of Jews, the creation of new religious movements within
Judaism, Jewish socialism, Zionism, the Holocaust, and the emergence
of new Jewish communities in Israel and the United States. No prior
background in Jewish history is expected.
For BA Students: History and Tradition Sector
Taught by: Wenger
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 142 Foundations of European Thought: from Rome to the
Renaissance
This course offers an introduction to the world of thought and learning at
the heart of European culture, from the Romans through the Renaissance.
We begin with the ancient Mediterranean and the formation of
Christianity and trace its transformation into European society. Along the
way we will examine the rise of universities and institutions for learning,
and follow the humanist movement in rediscovering and redefining the
ancients in the modern world.
For BA Students: History and Tradition Sector
Taught by: Moyer
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 143 Foundations of European Thought
See primary department (HSOC) for a complete course description.
For BA Students: History and Tradition Sector
Taught by: Mukharji
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 144 Comparative Medicine
For BA Students: History and Tradition Sector
Taught by: Moyer
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 145 Transformation of Urban America: From the Mid-Twentieth
Century to the Present
The course traces the economic, social, and political history of American
cities after World War II. It focuses on how the economic problems of
the industrial city were compounded by the racial conflicts of the 1950s
and 1960s and the fiscal crises of the 1970s. The last part of the course
examines the forces that have led to the revitalization of cities in recent
years.
For BA Students: Society Sector
Taught by: Stern
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 146 Introduction to Asian American History
This course will provide an introduction to the history of Asian Pacific
Americans, focusing on the wide diversity of migrant experiences, as well
as the continuing legacies of Orientalism on American-born APA’s. Issues
of race, class, gender, and sexuality will also be examined.
For BA Students: History and Tradition Sector
Taught by: Azuma
Course usually offered in spring term
Activity: Lecture
1 Course Unit
HIST 159 Technology, Policy & War
Comparative and interdisciplinary examination of successful and failed uses of force in international relations, from ancient to modern times, using case studies. Readings will include Clauswitz, Sun Tzu, and a variety of primary and secondary sources for the wars considered each year. Issues of war's fundamental origins, and its many impacts on society, will also be considered.
Taught by: Waldron
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 160 Strategy, Policy and War
Analysis of the political use of force, both in theory and in practice, through analytical readings and study of selected wars. Readings include Sun Zi, Kautula, Machiavelli, Clausewitz and other strategists. Case studies vary but may include the Peloponnesian War, the Mongol conquests, the Crusades, the Crimean War, Russo-Japanese War, World War II, Korea, or the Falklands, among others, with focus on initiation, strategic alternatives, decision and termination. Some discussion of the law of war and international attempts to limit it.
Taught by: Waldron
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 161 American Capitalism
A broad overview of American economic history will be provided by focusing on the following topics: colonial trade patterns, the growth of the market economy, the political economy of slavery, industrial expansion, segmentation in the labor force and changes in work, technological and organizational innovations, business cycles, the rise of the corporate welfare state, the growth of monopoly capitalism, and current economic problems in historical perspective.
For BA Students: Society Sector
Taught by: Licht
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 162 The American West
This course explores the social and cultural history and current views of the many Wests we think we know. In 1872, President Grant established Yellowstone National Park, only the first of many national and state nature reserves in the west. Even while the Parks were widely celebrated, in 1876 Grant allowed miners and land speculators into the Black Hills, or Paha Sapa, land long considered sacred by the Lakota peoples and 'protected' for them as recently as 1868 Treaty of Laramie. From this pairing of events in the 1870s spring the many overlapping themes this course will address: Native peoples, their beliefs and material cultures, pressured by the arrival of scattered industries (gold rushes, silver and copper mining); irregular sources of industrial and banking capital from England, New York, Chicago, and elsewhere; the arrival of the US Army in 1851, then a break removing troops for the Civil War, then their renewed and constant appearance from 1866 on and the making and breaking of other treaties; the irregular scattering of land speculators and dirt farmers, even while the US government insisted the Sioux and Cheyennes, among other peoples, not disturb the passage of planters on the Oregon Trail, even as their hunting grounds were enclosed by the Union Pacific and North Pacific railroads by 1870. Naturalists, hikers, and artists arrived by rail to the western parks: Yellowstone, Yosemite (1890), and the Grand Canyon (1919). By 1900, American tourists went west to see wild West Indian Shows and wonder at the new parks. They ate at restaurants serving western food, wore western ware and cowboy boots, and listened to western music that finally reached its high point when folklorist Hal Cannon founded the National Cowboy Poetry Gathering in Elko, Nevada, in 1984, still active today with offshoots in Durango, Montana, and Texas.
Taught by: St. George
Course usually offered in spring term
Activity: Recitation
1 Course Unit

HIST 163 Modern American Culture
Through the twentieth century, American culture took on new forms and meanings, spurred by technological innovation, commerce, and institutions, and shaped by an ever-changing population. In the process, American culture became self-consciously 'modern'-embraced, contested, repudiated, and continually redefined. This course explores the history of American culture from the 1890s to the 1990s, with a focus on the following questions: Why did culture become such an important part of American economic, social, and political life in the twentieth century? How has culture been created, understood, and mobilized by different groups in American society at different times? What have been the politics of culture over the twentieth century? Topics include the rise of 'culture industries' and mass entertainment, including amusement parks, film, radio, and television; the growth of consumer culture; the impact of gender in such arenas as sports and fashion; the role of working-class peoples, African Americans, and immigrants in American culture; the cultural response to the Depression and World War II; and popular activism. The course emphasizes the study of primary documents-journalism, fiction, letters and diaries, music, photographs, and film-as a means of understanding the past.
For BA Students: History and Tradition Sector
Taught by: Peiss
One-term course offered either term
Activity: Recitation
1 Course Unit
HIST 164 Recent American History
This course examines major developments in United States history since the Great Depression, a tumultuous period that gave birth to many of our contemporary debates about the responsibilities of government, the possibility of radical social change, and the meaning of citizenship. Reading primary documents alongside historical accounts, we will address the building of the New Deal state; the emergence of the United States as a superpower; the domestic and international repercussions of the Cold War; the impact of mass consumption, suburbanization, and new technologies; the civil rights movement and other drives for social change; the cultural and political fallout of the Vietnam War; transformations in gender roles and the family; and the end of the “American century.”
Taught by: Licht
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 166 Arab/Israeli Conflict in Literature and Film
This course will explore the origins, the history and, most importantly, the literary and cinematic art of the struggle that has endured for a century over the region that some call the Holy Land, some call Eretz Israel and others call Palestine. We will also consider religious motivations and interpretations that have inspired many involved in this conflict as well as the political consequences of world wars that contributed so greatly to the reconfiguration of the Middle East after the fall of the Ottoman Empire, and after the revelations of the Holocaust in Western Europe. While we will rely on a textbook for historical grounding, the most significant material we will use to learn this history will be films, novels, and short stories. Can the arts lead us to a different understanding of the lives lived through what seems like unending crisis?
Taught by: Troutt-Powell
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 167 The New African Diaspora
Course not offered every year
Activity: Seminar
1 Course Unit

HIST 168 History of American Law to 1877
The course surveys the development of law in the U.S. to 1877, including such subjects as: the evolution of the legal profession, the transformation of English law during the American Revolution, the making and implementation of the Constitution, and issues concerning business and economic development, the law of slavery, the status of women, and civil rights.
Taught by: Berry
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HIST 169 History of American Law Since 1877
This course covers the development of legal rules and principles concerning individual and group conduct in the United States since 1877. Such subjects as regulation and deregulation, legal education and the legal profession, and the legal status of women and minorities will be discussed.
Taught by: Berry
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 170 The American South
Southern culture and history from 1607-1860, from Jamestown to secession. Traces the rise of slavery and plantation society, the growth of Southern sectionalism and its explosion into Civil War.
For BA Students: History and Tradition Sector
Two terms. student may enter either term.
Activity: Recitation
1 Course Unit

HIST 171 The American South 1860-Present
This course will trace the history of the American South from the end of the Civil War to the present. It will investigate Reconstruction, the New South, Populism, racial disfranchisement and the rise of Jim Crow, the politics of the One-Party South, the South in the Progressive era and its role in the New Deal and World War II, the Civil Rights Movement of the 1950s and 1960s, and the rise of the Republican South. While following the narrative of politics and economic development, we will pay particular attention to race relations and will be more than casually interested in gender roles. In addition, we will take frequent peeks at the evolving Southern identity as reflected in popular culture and literature as well as in other corners of the public sphere.
For BA Students: History and Tradition Sector
Two terms. student may enter either term.
Activity: Recitation
1 Course Unit

HIST 172 Native People of Eastern North America
This course surveys Native American life east of the Mississippi River from earliest times to the present. The diverse histories of Native peoples will be examined both on their own terms and as continuing elements of the continent’s broader story. Topics to be addressed include 16th- and 17th-century demographic, economic, and social consequences of contact with European peoples, 18th century strategies of resistance and accommodation to colonial powers, 19th-century impacts of U.S. government removal and cultural assimilation policies, and 20th-century cultural and political developments among the region’s surviving Native American communities.
Taught by: Richter
Course not offered every year
Activity: Lecture
1 Course Unit

HIST 174 Reform and Revolution in the Americas
The United States and Latin America produced a remarkable series of revolutions and reforms during the postwar period. This course examines efforts in the United States, Guatemala, Cuba, and Brazil to define and address problems around land, labor, and property; nation, empire, and autonomy; and racism, democracy, and citizenship. In studying the US and Latin America together, the class invites students to explore central themes of both regions’ histories as parts of global processes. We will explore exchanges between social movements in the US, Cuba and Africa, for instance, ask how ideas about poverty traversed national borders, and examine the global rise of human rights consciousness. The class, in other words, not only compares national histories but analyzes the relationships between national upheavals and the global significance of events in the hemisphere.
For BA Students: History and Tradition Sector
Taught by: Offner
Course usually offered in fall term
Activity: Lecture
1 Course Unit
HIST 175 History of Brazil: Slavery, Inequality, Development
In the past decade, Brazil has emerged a leading global power. As the world’s fifth-largest country, by size and population, and the ninth-largest by GDP, Brazil exerts tremendous influence on international politics and the global economy, seen in its position as an emerging BRIC nation and a regional heavyweight in South America. Brazil is often in the news for its strides in social welfare, leading investments in the Global South, as host of the World Cup and Olympics, and, most recently, for its political instability. It is also a nation of deep contradictions, in which myth of racial democracy – the longstanding creed that Brazilian society has escaped racial discrimination – functions alongside pervasive social inequality, state violence, political corruption, and an unforgiving penal system. This course examines six centuries of Brazilian history. It highlights the interplay between global events – colonialism, slavery and emancipation, capitalism, and democratization – and the local geographies, popular cultures, and social movements that have shaped this multi-ethnic and expansive nation. In particular, the readings will highlight Brazil’s place in Latin America and the Lusophone World, as well as the ways in which Brazil stands as a counterpart to the United States, especially in terms of the legacy of slavery and race relation. In this lecture, we will also follow the current political and economic crises unfolding in Brazil, at a moment when it has become all the more important to evaluate just how South America’s largest nation has shaped and been shaped by global events.
Taught by: Teixeira
Course not offered every year
Activity: Lecture
1 Course Unit

HIST 176 Afro-American History 1550-1876
This course will study the history of Afro-Americans from their first encounter with Europeans in the 16th century to emancipation during the Civil War. The course will concentrate on the variety of black responses to capture, enslavement, and forced acculturation in the New World. The difference in the slave experience of various New World countries, and the methods of black resistance and rebellion to varied slave systems will be investigated. The nature and role of the free black communities in antebellum America will also be studied.
For BA Students: History and Tradition Sector
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

HIST 177 Afro-American History 1876 to Present
A study of the major events, issues, and personalities in Afro-American history from Reconstruction to the present. It will also examine the different slave experiences and the methods of black resistance and rebellion in the various slave systems.
For BA Students: History and Tradition Sector
Taught by: Savage
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

HIST 178 The Foundations of the Early Modern Atlantic World 1450-1800
The purpose of this course is to provide students with a solid knowledge of Atlantic history during the early modern period (XV-XVIII centuries). Through readings of primary and secondary texts we will discuss the cultural, religious, intellectual, and economic developments of Europe, Africa, and the Americas, as well as the connections, struggles, and mutual influences between the peoples of these three continents. Throughout the semester we will study several important topics: medieval precedents of early modern expansion; theories of empire; ideologies and systems of conquest and colonization; the relevance of race and slavery to the understanding of the early modern Atlantic world; how different peoples perceived others and themselves; how European imperialism and colonization affected the internal development of Africa and America; the role played by religion in the Atlantic world; persistence and continuity of Native cultures and beliefs during an age of expansion; the creation of new identities; the role played by African nations in the creation of the Atlantic world; and the creation of an Atlantic economy.
Taught by: Feros
Course not offered every year
Activity: Lecture
1 Course Unit

HIST 179 The Rise and Fall of the Spanish Empire 1450-1700
This course will provide students with a solid knowledge of the history of early modern Spain (1450-1700). Through readings of primary and secondary texts that offer a complex vision of the cultural, religious, intellectual, and economic contexts and processes, students will be able to appreciate the intricacies of Spain’s historical evolution. The course focuses on the rise and decline of the Spanish monarchy: the conditions that enabled Spain to become the most powerful monarchy in early modern times, and the conditions that led to its decline. This course also touches upon other important aspects critical to understanding early modern Spain: relationships among Christians, Muslims, and Jews in the Iberian Peninsula; the conquest and colonization of the New World; and early modern debates about Spain’s rights to occupy America and the so-called "destruction of the Indies."
For BA Students: History and Tradition Sector
Taught by: Feros
One-term course offered either term
Activity: Recitation
1 Course Unit

HIST 188 Civilizations at odds? The United States and the Middle East
Foe or friend, Satan or saint - America has often been depicted in the Middle East either as a benevolent superpower or an ill-meaning enemy. In America, too, stereotypes of the Middle East abound as the home of terrorists, falafels, and fanatics. This undergraduate lecture course will explore the relationship between the United States and the Middle East by moving beyond such facile stereotypes. Our goal is to understand why a century of interaction has done little to foster greater understanding between these two societies. By reading novels, memoirs, and historical accounts, we will examine the origins of this cultural and diplomatic encounter in the twentieth century. The readings will shed light on America’s political and economic involvement in the Middle East after the Second World War. We will consider the impact of oil diplomacy on U.S.-Middle East relations, as well as the role of ideology and religion, in our effort to comprehend the current challenges that face these societies.
Taught by: Kashani-Sabet
One-term course offered either term
Activity: Lecture
1 Course Unit
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>HIST 201</td>
<td>Major Seminar in History: Europe Before 1800</td>
<td>One-term course offered either term Activity: Seminar 1 Course Unit</td>
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<td>HIST 206</td>
<td>Major Seminar of the World after 1800</td>
<td>One-term course offered either term Activity: Seminar 1 Course Unit</td>
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<td>HIST 209</td>
<td>Industrial Metropolis</td>
<td>Although we no longer think of most U.S. cities as industrial economies,</td>
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<td>metropolitan areas today are all products of industrial</td>
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<td>cities, metropolitan areas today are all products of industrial</td>
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<td>economies, technologies, and social systems. This course explores the</td>
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<td>industrialization and deindustrialization of American cities within their</td>
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<td>evolving global context from the era of European colonization to the</td>
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<td>present. It includes weekly readings and discussion, regular response</td>
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<td>papers and walking tours, in-class exercises, and a research paper</td>
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<td>using primary sources. Themes include energy and ecology, labor and</td>
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<td>production, inner city and suburban development, globalization, and</td>
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<td>economic restructuring. Ultimately, the class aims to give students a</td>
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<td>broad knowledge of 1) the history of industrial capitalism, 2) its effects on</td>
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<td>cities and regions over the past three centuries, and 3) analytical tools</td>
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<td>for understanding the past, present, and future of metropolitan economies,</td>
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<td>geography, and society. For BA Students: History and Tradition Sector</td>
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<td>HIST 211</td>
<td>Europe before 1800: Advanced Benjamin Franklin Seminar</td>
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<td>HIST 212</td>
<td>Europe after 1800: Advanced Benjamin Franklin Seminar</td>
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<td>HIST 214</td>
<td>America after 1800: Advanced Benjamin Franklin Seminar</td>
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<td>HIST 215</td>
<td>The World before 1800: Advanced Benjamin Franklin Seminar</td>
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<td>HIST 216</td>
<td>The World after 1800: Advanced Benjamin Franklin Seminar</td>
<td>One-term course offered either term Activity: Seminar 1 Course Unit</td>
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<td>HIST 219</td>
<td>Medieval Russia: Origins of Russian Cultural Identity</td>
<td>This course offers an overview of the cultural history of Rus from its</td>
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<td>origins to the eighteenth century, a period which laid the foundation</td>
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<td>for the Russian Empire. The course takes an interdisciplinary approach</td>
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<td>to the evolution of the main cultural paradigms of Russian Orthodoxy</td>
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<td>viewed in a broader European context. Although this course is historical</td>
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<td>in content, it is also about modern Russia. The legacy of Medieval Rus</td>
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<td>is still referenced, often allegorically, in contemporary social and cultural</td>
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<td>discourse as the Russian, Ukrainian and Belarusian societies attempt to</td>
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<td>reconstruct and reinterpret their histories. In this course, students learn</td>
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<td>that the study of the medieval cultural and political history explains many</td>
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<td>aspects of modern Russian society, its culture and mentality. Taught by:</td>
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<td>HIST 220</td>
<td>Russia and the West</td>
<td>For BA Students: Humanities and Social Science S Course not offered every</td>
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<td>year Activity: Seminar 1 Course Unit</td>
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<td>HIST 230</td>
<td>Topics in European History</td>
<td>Topics vary Activity: Seminar 1 Course Unit</td>
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<td>HIST 231</td>
<td>Topics in US History</td>
<td>Topics in US History Activity: Seminar 1 Course Unit</td>
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<td>HIST 232</td>
<td>World History: Africa or the Middle East</td>
<td>Topics vary Activity: Seminar 1 Course Unit</td>
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<td>HIST 233</td>
<td>World History: East Asia or Latin America</td>
<td>Topics Vary Activity: Seminar 1 Course Unit</td>
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<td>HIST 234</td>
<td>Topics in Transnational History</td>
<td>Topics vary Activity: Seminar 1 Course Unit</td>
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<td>HIST 238</td>
<td>Spanish Civil War &amp; Postwar</td>
<td>Activity: Seminar 1 Course Unit</td>
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HIST 241 Performing History
This seminar concentrates on the ways that various peoples in the world make their history by means other than relying on written texts alone. Over the course of the semester, we therefore may be examining such different public events and civic rituals as parades, political and religious processions, local historical pageants, carnivals, historic preservation, museums, military reenactments, and history theme parks. The emphasis in each of these forms, places, and semiotic processes will be on their identity and function as key performances that transform consciousness, shift individuals alternately into both actors and spectators, reframe the everyday as the metaphysical, and intensify the status of cultural values in the histories they present to view. Course requirements: a seminar paper, the topic of which you will discuss with me no later than week five of the course; and a working annotated bibliography and statement of your paper’s main thesis. I will say more about these assignments as they approach.
Activity: Seminar
1 Course Unit

HIST 248 The Haitian Revolution
In August 1791, enslaved Africans on the northern plain of Saint Domingue (colonial Haiti) rose up in a coordinated attack against their French colonial masters, launching the initial revolt in what would come to be known as the Haitian Revolution. In the years that followed, their actions forced the abolition of racial discrimination and slavery throughout the French Empire. When Napoleon Bonaparte threatened to return slavery to Saint Domingue, they waged a war for independence, declaring Haiti the world's first "Black Republic" in 1804. This seminar will examine some of the major themes and debates surrounding Haiti's colonial and revolutionary history. We will begin by considering the colonial paradox: France's leading role in the intellectual movement called the "Enlightenment" coincided with its ascent as a slaveholding colonial power. The seminar will also explore parallels and points of connection between the revolutionary movements in France and Saint Domingue: how did increasingly radical ideas in France shape events in the Caribbean? Likewise, how did West African traditions and political ideologies influence insurgents and their leaders? And how, in turn, did revolution in the Caribbean impact the revolution in France? Finally, we will ask how the Haitian Revolution influenced ideas about liberty, sovereignty and freedom throughout the Atlantic World. We will read a combination of primary and secondary materials each week. A final research paper will be required of all students.
Taught by: Fabella
Activity: Seminar
1 Course Unit

HIST 273 Penn Slavery Project Research Seminar
This research seminar provides students with instruction in basic historical methods and an opportunity to conduct collaborative primary source research into the University of Pennsylvania's historic connections to slavery. After an initial orientation to archival research, students will plunge in to doing actual research at the Kislak Center, the University Archives, the Historical Society of Pennsylvania, the American Philosophical Society, the Library Company, and various online sources. During the final month of the semester, students will begin drafting research reports and preparing for a public presentation of the work. During the semester, there will be opportunities to collaborate with a certified genealogist, a data management and website expert, a consultant on public programming, and a Penn graduate whose research has been integral to the Penn Slavery Project.
Taught by: Brown
One-term course offered either term
Activity: Field Work
1 Course Unit

HIST 274 African American Life and Culture in Slavery
This course will examine the lives of enslaved African Americans in the United States, both in the North and the South. We will engage historiographical debates, and tackle questions that have long concerned historians. For example, if slaves were wrenched from families and traded, could they sustain family relationships? If slaves worked from sun-up until sun-down, how could they create music? We will engage with primary and secondary sources to expand our understanding of values, cultural practices, and daily life among enslaved people. Topics will include: literacy, family, labor, food, music and dance, hair and clothing, religion, material culture, resistance, and memories of slavery. Several disciplines including History, Archaeology, Literature, and Music, will help us in our explorations. Written, oral, and artistic texts for the course will provide us with rich sources for exploring the nuances of slave life, and students will have opportunities to delve deeply into topics that are of particular interest to them.
Activity: Lecture
1 Course Unit

HIST 275 Islam and Society in Africa
This course is designed to provide the students with a broad understanding of the history of Islam in Africa. The focus will be mostly on West Africa, but we will also look at developments in other regions of the continent. We will examine the process of islamization in Africa and the interplay between Islam and the African traditional religions and customs. Topics include conversion, Islamic education and literacy, the status of women, Muslim response to European colonial domination, Islamic mysticism, and the contemporary development of Sunni movements.
Taught by: Babou
One-term course offered either term
Activity: Lecture
1 Course Unit
HIST 276 Japan: The Age of the Samuri
This course deals with the samurai in Japanese history and culture and will focus on the period of samurai political dominance from 1185 to 1868, but it will in fact range over the whole of Japanese history from the development of early forms of warfare to the disappearance of the samurai after the Meiji Restoration of the 19th century. The course will conclude with a discussion of the legacy of the samurai in modern Japanese culture and the image of the samurai in foreign perceptions of Japan.
Taught by: Hurst
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 279 Women in Modern South Asia
Taught by: Sreenivasan
Activity: Lecture
1 Course Unit

HIST 308 Renaissance Europe
This course will examine the cultural and intellectual movement known as the Renaissance, from its origins in fourteenth-century Italy to its diffusion into the rest of Europe in the sixteenth century. We will trace the great changes in the world of learning and letters, the visual arts, and music, along with those taking place in politics, economics, and social organization. We will be reading primary sources as well as modern works.
Taught by: Moyer
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 309 Age of Reformation
The Protestant Reformation of the 16th century was a watershed in European history. It marked the culmination of centuries of religious, political and social change and had profound institutional and intellectual consequences. We will examine the central teachings and activities of the Protestant reformers against this broad background. Topics will include: medieval traditions of religious protest and reform; social and political changes in the period of the Reformation; the changing role of the Papacy; and the impact of the new technology of printing. Readings will be both primary texts and secondary sources and discussions will be an integral part of the class.
Taught by: Safley
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 310 Europe in the Age of Baroque
The baroque earns its name from a style of art and architecture, developed in Europe between 1550 and 1700 and typified by elaborate ornamentation and color. The term can be applied well to the history of the period, which was characterized by conflict and complexity.
Taught by: Safley
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 311 The Tudors
This course examines the history of England from the accession of Henry (VII) Tudor in 1485 to the death of Elizabeth I in 1603, with emphases on the political and personal history of this colorful dynasty, the religious revolution known as the protestant Reformation, the arts and literature known as the English Renaissance, imperial and trade ventures overseas, and aspects of popular culture including the witch craze. Unlike most English histories of the period, we will also look closely at the other realms of the British Isles, Scotland, Wales, and Ireland. Readings consist of a textbook with a British scope, and an array of primary sources, some in book form and others (marked with an asterisk on the syllabus) attached to Blackboard or distributed in class. Books are available at the Penn Book Center, except for biographies associated with film critiques. Most of the films noted in the syllabus will be available on PVN; otherwise, they can be viewed at the library or through Netflix. Assignments in square brackets are optional.
Taught by: Todd
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 312 Britain's Century of Revolution
England, Ireland, Wales and Scotland experienced revolutions in the first half of the seventeenth century that abolished monarchy and hereditary aristocracy, and carried out the first judicial execution of a monarch in European history. England was re-constructed as a republic, then with Scotland became the United Commonwealth of Great Britain, then declined into a military dictatorship, and finally invited the king back. In 1688, however, the Glorious Revolution deposed that king and declared Britain a strictly constitutional monarchy. This course will explore what motivated ordinarily obedient British subjects to take up arms against their rulers. The works of Milton and Marvell, Cromwell, Hobbes and Locke, and many lesser-known writers of diaries, autobiographies, sermons, statutes, and letters will illuminate the issues. The focus will be on how law, politics and religion interacted in the onset of war and defining of settlement, but with an eye to the larger social and cultural setting in which revolutions happened: this is also an era of both witchcraze and scientific revolution, puritanism and the slave trade, the near-destruction of London by fire and plague and its re-birth as the capital of a commercial empire.
Taught by: Todd
One-term course offered either term
Activity: Lecture
1 Course Unit
HIST 314 Victorian Britain: Spaces, Places, and Pests
In this course, we will examine the nooks and crannies of Victorian society. It was a period of squalor, but also innovation, devastating diseases, and crucial advances in public health and medical science. Its cities featured depressing slums and lurid crimes, but also new kinds of spectacles, entertainments, and commodities. It was, in many ways, as one of its greatest authors wrote, “the best of times, and the worst of times.” Units under study will include “The Docks,” “The Germs,” “The Empire,” “The Church,” and “the Museum.” We will investigate killer diseases like cholera and typhus, dazzling buildings like the Crystal Palace, imperial wars and crises, and new scientific movements like Darwinism and mesmerism. Along the way, we will encounter proper and eminent Victorians as well as scandalous and marginalized ones. The aim will be to understand Victorian mentalities and ideas by looking at a diverse array of institutions and inventions. Readings will include novels, stories, pamphlets, essays, and cartoons as well as secondary literature. Classes will be a mixture of lecture and discussion, and no previous experience in British history is necessary.
Taught by: Chase-Levenson
Course not offered every year
Activity: Lecture
1 Course Unit

HIST 331 American Diplomatic History Since 1776
Survey course tracing the origins and evolution of the great traditions of U.S. foreign policy, including Exceptionalism, Unilateralism, Manifest Destiny, Wilsonianism, etc., by which Americans have tried to define their place in the world. Three hours of lecture per week, extensive reading, no recitations.
Taught by: McDougall
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 333 Napoleonic Era & Tolstoy
In this course we will read what many consider to be the greatest book in world literature. This work, Tolstoy's War and Peace, is devoted to one of the most momentous periods in world history, the Napoleonic Era (1789-1815). We will study both the novel and the era of the Napoleonic Wars: the military campaigns of Napoleon and his opponents, the grand strategies of the age, political intrigues and diplomatic betrayals, the ideologies and human dramas, the relationship between art and history. How does literature help us to understand this era? How does history help us to understand this great novel? This semester marks the 200th anniversary of Napoleon's attempt to conquer Russia and achieve world domination, the campaign of 1812. Come celebrate this Bicentennial with us! Because we will read War and Peace over the course of the entire semester, readings will be manageable and very enjoyable.
Taught by: Holquist/Vinitsky
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 343 Nineteenth Century European Intellectual History
Starting with the dual challenges of Enlightenment and Revolution at the close of the eighteenth century, this course examines the emergence of modern European thought and culture in the century from Kant to Nietzsche. Themes to be considered include Romanticism, Utopian Socialism, early Feminism, Marxism, Liberalism, and Aestheticism. Readings include Kant, Hegel, Burke, Marx, Mill, Wollstonecraft, Darwin, Schopenhauer, and Nietzsche.
Taught by: Breckman
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 344 Twentieth Century European Intellectual History
European intellectual and cultural history from 1870 to 1950. Themes to be considered include aesthetic modernism and the avant-garde, the rebellion against rationalism and positivism, Social Darwinism, Second International Socialism, the impact of World War One on European intellectuals, psychoanalysis, existentialism, and the ideological origins of fascism. Figures to be studied include Nietzsche, Freud, Woolf, Sartre, Camus, and Heidegger.
Taught by: Breckman
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 345 Sinners, Sex and Slaves: Race and Sex in Early America
This course explores the lost worlds of sinners, witches, sexual offenders, rebellious slaves, and Native American prophets from the seventeenth to nineteenth centuries. Using the life stories of unusual individuals from the past, we try to make sense of their contentious relationships with their societies. By following the careers of the trouble-makers, the criminals, and the rebels, we also learn about the foundations of social order and the impulse to reform that rocked American society during the nineteenth century.
Taught by: Brown
Course usually offered in fall term
Activity: Recitation
1 Course Unit

HIST 346 Gender in Modern American History
This course explores how immigration, industrialization, racial segregation, and the growing authority of science transformed the fundamental conditions of women's lives in the late nineteenth and early twentieth centuries. Building on previous efforts by female reformers to perfect society, women at the turn of the century organized large social movements dedicated to improving the lives of women and children and gaining public access to political power. We will examine the fruits of this activism as well as the consequences of subsequent events for the rise of several important social movements in the latter half of the century -- including civil rights, women's liberation, and gay rights -- in which women played a vital role. The course concludes with an assessment of feminism in the present day, with special emphasis on the responses of younger women to its legacy.
Taught by: Brown
Course usually offered in spring term
Activity: Recitation
1 Course Unit
HIST 349 History of Sexuality in the U.S.
This course introduces students to a relatively new field of inquiry, the history of sexuality in the U.S. It explores the past to consider why sexuality has been so central to American identities, culture, and politics. Primary documents and other readings focus on the history of sexual ideology and regulation; popular culture and changing sexual practices; the emergence of distinct sexual identities and communities; the politics of sexuality; and the relationship between sexual and other forms of social difference, such as gender, race, ethnicity, age, and class. Topics include many with continuing relevance to contemporary public debate: among them, sexual representation and censorship, sexual violence, adolescent sexuality, the politics of reproduction, gay and lesbian sexualities and sexually transmitted diseases.
Taught by: Peiss
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 354 American Expansion in the Pacific
This class will focus on America’s expansion into the Pacific around the turn of the century with the acquisition of Hawaii and the Philippines. It can deal with various issues, including the meaning of “frontier,” colonialism, development of capitalist economies in the region, diplomacy, racism, migration, an American brand of Orientalism in encountering the “natives” and “heathens,” and histories of the West and the Pacific Islands in general.
Taught by: Azuma
One-term course offered either term
Activity: Lecture
1 Course Unit

This course explores significant political and social developments that shaped the final decades of twentieth century U.S. history, an era notable for declining faith in political institutions, ideological and partisan polarization, and a variety of new rights claims by marginalized citizens. Until very recently, scholars have characterized this period as one of conservative political resurgence spurred by its most towering figure, Ronald Reagan, the nation’s 40th president. While Reagan is an essential actor in this class, the course will consider a variety of perspectives, developments, and movements across the political spectrum as well as others that defy easy ideological or partisan categorization. In addition to tracing the transformation of the major political parties and ideologies, topics may include the evolution of the post-1960s civil rights movement and the rise of the incarceration crisis; the rise and transformation of the religious right; the AIDS crisis and the LGBTQ movement; and the emergence of the concept of the “free market” as an idealized way of reordering not just social and political commitments but society itself.
Taught by: Cebul
Course not offered every year
Activity: Lecture
1 Course Unit

HIST 370 North Africa: History, Culture, Society
This interdisciplinary seminar aims to introduce students to the countries of North Africa, with a focus on the Maghreb and Libya (1830-present). It does so while examining the region’s close economic and cultural connections to sub-Saharan Africa, Europe, and the Middle East. Readings will include histories, political analyses, anthropological studies, and novels, and will cover a wide range of topics such as colonial and postcolonial experiences, developments in Islamic thought and practice, and labor migration. This class is intended for juniors, seniors, and graduate students.
Taught by: Sharkey
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HIST 371 Africa and the Mid-East
This seminar will explore the historical relationship between these two regions from the early modern age to the present. We will examine the history of trade, particularly the slave trade, and its cultural and political legacy. We will compare the experiences of European imperialism—how the scramble for Africa dovetailed with the last decades of the Ottoman Empire—with an eye to how this shaped nationalist movements in both regions. The course will also explore the decades of independence with a special eye towards pan-Africanism and pan-Arabism. We will also study the ramifications of the Arab-Israeli conflict on the relationship between African and Middle-Eastern countries, from Uganda to Ethiopia, from OPEC to Darfur. The course will pay close attention to migrations through the regions, whether forced or economic or religious. Whenever possible we will explore, through film and literature, how people in Africa and the Middle East see their connections, and their differences.
Taught by: Truitt-Powell
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 372 The History of Foreign Aid to Africa
This course examines the history, politics, and significance of foreign aid to Africa since the late 19th century. While we do not typically think about the European colonial period in Africa in terms of “foreign aid,” that era introduced ideas and institutions which formed the foundations for modern aid policies and practices. So we start there and move forward into more contemporary times. In addition to examining the objectives behind foreign assistance and the intentions of donors and recipients, we will look at some of the consequences (intended or unintended) of various forms of foreign aid to Africa over the past century. While not designed to be a comprehensive history of development theory, of African economics, or of international aid organizations, the course will touch on all of these topics. Previous course work on Africa is strongly advised.
Taught by: Cassanelli
One-term course offered either term
Prerequisites: AFST/HIST 076, AFST 190, or AFST 256
Activity: Lecture
1 Course Unit

HIST 367 Philadelphia, 1700-2000
Using Philadelphia as a lens, this course will examine the transformation of American cities from the colonial period to the present. Through readings, lectures, and tours, we will consider urbanization and suburbanization, race, class, and ethnicity, economic development, poverty and inequality, housing and neighborhood change, urban institutions, and politics and public policy.
One-term course offered either term
Activity: Lecture
1 Course Unit
HIST 373 America in the 1960s
This course examines the political, cultural, and intellectual history of America between 1954 and 1974. It considers the civil rights movement, the New Frontier and Great Society, the Supreme Court and right politics, the rise of the New Right, the debate over Vietnam, student radicalism, sexual liberation movements, black power, the counterculture, the urban crisis, and white backlash. The course emphasizes the transformation of liberalism and the revitalization of conservatism, and the tensions between integration and separatism, between libertarianism and communitarianism that shaped the social movements of the sixties. Course usually offered in fall term
Activity: Recitation
1 Course Unit

HIST 380 Modern Jewish Intellectual and Cultural History
An overview of Jewish intellectual and cultural history from the late 18th century until the present. The course considers the Jewish enlightenment Reform, Conservative and Neo-Orthodox Judaism, Zionist and Jewish Socialist thought, and Jewish thought in the 20th century, particularly in the context of the Holocaust. Readings of primary sources including Mendelson, Geiger, Hirsch, Herzl, Achad-ha-Am, Baeck, Buber, Kaplan, and others. No previous background is required.
Taught by: Ruderman
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 390 China & USSR Compared
A comprehensive and multi-faceted survey of China and Russia, mostly in the twentieth century, through examining preludes and postludes, but focusing above all on their time as Communist states and sometimes quarreling Cold War allies. Of course we will cover the history, the geography, the economics, the leaders (Stalin, Mao), and the great events - not least the Second World War in each - always comparing, contrasting, and drawing linkages. We will also examine, however, daily life and work for ordinary people, developments in society, and not least their common attempts at revolution, at somehow creating new and unprecedented polities, having populations of radically transformed new people. This informative, fascinating quest will take us from folklore to literature and the arts to dissent and religion and ecology, among other topics. As far as possible we will let their people speak for themselves, by assigning mostly translations of original sources including novels and memoirs, even poetry. A comprehensive assessment of the strategically critical Asian heartland - which at over 14 million square miles is larger than Canada, the United States, and Western Europe combined. Lectures, readings, midterm, short paper, and in-class final.
Taught by: Waldron
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 391 The Vietnam War
A thorough historical, military, and social history of the Vietnam war, which lasted in one form or another from the end of WWII in 1945 to 1975, in which occurred the longest and most humiliating defeat in our history. Since that time the Vietnamese have published hundreds of documents, some in English, which provide an entirely new perspective on what we believed during the war. These, supplemented by other primary and secondary materials, as much as possible written by Vietnamese or by Americans having first-hand knowledge, will form the backbone of the course. The various American and Vietnamese strategies will be scrutinized carefully, and a good deal said about the home front in America. The actual fighting, that determined the outcome, will not be slighted. We expect at least some guest speakers having long diplomatic or military experience in Vietnam. The present will be our conclusion.
Lectures TTH 12:15-1:30; midterm in class, short paper, an irregular final. If you want to understand the world you now live in, this coursea good place to start.
Taught by: Waldron
One-term course offered either term
Activity: Lecture
1 Course Unit

HIST 394 China and the World: Modern Times
History 394 is a comprehensive introduction to the last hundred years of China's relations with the world, with emphasis on American-Chinese relations, but within the necessary context of China's relations with other countries from Asia to Europe to Africa and elsewhere (as well as Washington's changing relations with Beijing). China's role in the world can be understood only when the full background and international context is made clear. This course has no prerequisites: freshmen and others lacking background will find it manageable and interesting. Students who have successfully completed this course will be well positioned to understand some of the most important of current events, and if they like, pursue the topics as careers (there will be no shortage, I assure you). Although much will be said about diplomacy, and Chinese diplomatic strategy in particular, the mile-posts of the course will be a series of wars: World War I and its effects on China; the heroic Chinese war of resistance against Japan (1937-1945) in which, effectively without allies, the Chinese avoided defeat; the bitter Civil War that followed almost immediately (1946-1949) and brought Mao Zedong and his Communists to power while the predecessor Nationalist government fled to the island of Taiwan; then the Korean War (1950-1953) and the close Chinese-Soviet alliance that followed; The Taiwan Straits Crises (1954-1955, 1958, 1964); the Chinese-Indian war (1962) the origin of a situation now heating up; the Sino-Soviet border conflicts (1969); the Vietnam War (1955-1975) which changed the United States profoundly while reorienting China internationally; the (at the time) little noticed Chinese invasion of Vietnam (1979) - and finally the increasingly tense situation today, between Chine and India, and China and her maritime neighbors from Japan to Indonesia, many U.S. allies.
Taught by: Waldron
Activity: Lecture
1 Course Unit
HIST 395 East Asian Diplomacy
This course will survey the history of relations among the great powers in East Asia from 1600 to the present. Special emphasis will be placed upon the peculiarities of cross-national exchange in Asia (as compared to Europe), particularly the difficulties of relations among states possessing fundamentally different cultural traditions. We will explore the many informal, as well as formal, means of diplomacy in Asia over the past 400 years.
Taught by: Dickinson
Course usually offered in fall term
Activity: Recitation
1 Course Unit

HIST 398 Junior Honors in History
Open to junior honors candidates in history. Introduction to the study and analysis of historical phenomena. Emphasis on theoretical approaches to historical knowledge, problems of methodology, and introduction to research design and strategy. Objective of this seminar is the development of honors thesis proposal.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HIST 400 Senior Honors in History I
Open to senior honors candidates in history who will begin writing their honors thesis during this seminar.
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

HIST 411 Introduction to Written Culture, 14th - 18th Centuries
Taught by: Chartier/Stallybrass
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 412 Topics in World History
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 414 Human Rights and History
The idea of universal, inalienable rights—once dismissed by the philosopher Jeremy Bentham as “nonsense upon stilts”—has become the dominant moral language of our time, the self-evident truth par excellence of our age. Human rights have become a source of inspiration to oppressed individuals and groups across the world, the rallying cry for a global civil society, and not least, a controversial source of legitimation for American foreign policy. This seminar asks: how did all this come to be? We will investigate human rights not only as theories embodied in texts, but as practices embedded in specific historical contexts.
Are human rights the product of a peculiarly European heritage, of the Enlightenment and protestantism? How did Americans reconcile inalienable rights with the reality of slavery? Did human rights serve as a “civilizing” mask for colonialism? Can universal rights be reconciled with genuine cultural diversity? Through case studies and close readings, the seminar will work toward a genealogy of human rights.
Taught by: Nathans
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 415 European Intellectual History of the Seventeenth Century
A survey based solely on primary sources of the main currents of seventeenth-century European thought: the criticism of inherited systems and of the authority of the past; skepticism, rationalism; empiricism; and the rise of the new natural philosophy. We will study deep conceptual change as an historical phenomenon, examining works that were both profoundly influential in the seventeenth-century and that are of enduring historical significance. There are no prerequisites, and one of the goals of the course is to make seventeenth-century thought accessible in its context to the twenty-first century student.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HIST 416 European Intellectual History in the 18th Century
A survey based solely on primary sources of the main currents of eighteenth-century European thought: the “Enlightenment,” deism; natural religion; skepticism; evangelical revival; political reform; utilitarianism; materialism; and materialism. The course will focus on works widely-read in the eighteenth century and of enduring historical significance. There are no prerequisites, and one of the goals of the course is to make eighteenth-century thought accessible in its context to the twenty-first century.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 418 European Intellectual History since 1945
This course concentrates on French intellectual history after 1945, with some excursions into Germany. We will explore changing conceptions of the intellectual, from Sartre’s concept of the ’engagement’ to Foucault’s idea of the ’specific intellectual’; the rise and fall of existentialism; structuralism and poststructuralism; and the debate over ’postmodernity.’
Taught by: Breckman
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HIST 420 European International Relations from the Age of Enlightenment to the Great War
This course will examine the international politics of Europe in the 18th and 19th centuries, up to the outbreak of World War I. During these centuries, the European great powers experienced significant internal transformations and also a revolution in their relations, both of which reinforced and accelerated each other. In the process, Europe asserted a dominant position in world politics, but also sowed the seed for the terrible catastrophes of the 20th Century. The course will address this transformation of European diplomacy with special attention to the rivalries between the great powers, the impact of nationalism and emerging mass politics, the interplay between military and economic power, and the relationship between the European powers and the rest of the world.
Taught by: McDougall
Course usually offered in fall term
Activity: Lecture
1 Course Unit
HIST 421 Europe and the World since 1914
This course looks at Europe's interactions with other world regions throughout the twentieth century. Over the course of roughly a hundred years, Europeans have shaped the fates of peoples living beyond the western world, for instance through the impact of two world wars, European colonialism, and the global Cold War. At the same time, European societies 'at home' were not left unaffected by these interactions. Even today, Europeans are facing the legacies of some of these histories in immigration and the politics of religion and secularism for example. The past century also saw a dramatic shift in Europe's position in the world - from dominance to a loss of influence in the shadow of the United States and more recently, China. The course spends significant time covering the histories of world regions other than Europe. It furthermore considers some interactions and exchanges between world regions from a social and cultural point of view. Because the class spans roughly a century, the content has to remain introductory and general, although a very basic familiarity with 20th-century international history is helpful.
Taught by: Holquist
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

HIST 425 World War I
This survey course examines the outbreak, conduct, and aftermath of the First World War. The First World War put an end to the world of the 19th century and laid the foundations of the 20th century, the age of destruction and devastation. This course will examine the war in three components: the long-term and immediate causes of the First World War; the war's catastrophic conduct, on the battlefield and on the home front; and the war's devastating aftermath. While we will discuss military operations and certain battles, this course is not a military history of the war; it covers the social, economic, political and diplomatic aspects that contributed to the war's outbreak and made possible its execution over four devastating years. No preliminary knowledge or coursework is required.
Taught by: Ogle
Two terms. student may enter either term.
Activity: Recitation
1 Course Unit

HIST 430 Rise and Fall of the Third Reich
The meteoric rise of Hitler's NSDAP in Germany, the nature of Nazi rule, and the final collapse of the Third Reich. The first half of the semester analyzes the appeal of the NSDAP - who joined the party, who voted for it, and why. Nazi mobilization tactics, campaign strategy, and grass-roots techniques, the content of the party's social appeals. The second half of the course concentrates on the Nazis in power, their use of terror and propaganda, their ideological objective, everyday life in the Third Reich, the possibilities of resistance to the regime. Special attention will be devoted to Nazi Jewish policy and the step that led to the "Final Solution" and the Holocaust.
Course usually offered in fall term
Activity: Recitation
1 Course Unit

HIST 431 A World at War: World War II in Europe and Asia
This course will examine the diplomatic origins, military course and domestic implications of World War II.
Course usually offered in spring term
Activity: Recitation
1 Course Unit

HIST 441 North American Colonial History
A survey of the development of American colonial society, 1607-1750, with emphasis on the regional differences between life in early New England, the Mid-Atlantic, and the South, as well as the relationships between British colonists, Native Americans, and African Americans.
Taught by: Brown
Course usually offered in fall term
Activity: Lecture
1 Course Unit

HIST 442 America in the Era of the Revolution, 1763-1800
As a number of historians have observed, the American Revolution now may seem to have been the inevitable culmination of political, economic, and cultural changes underway in the eighteenth century. But for many whose lives were altered by its disruptive contours, it was more improbable than inevitable. How, then, are we to make sense of the Revolution? What were its causes? Its progress? Its extended "settlement," or period of resolution and questions during the course of the semester, we will need to keep our eyes open to changes afoot in many social fields: the ascendancy or democratic and egalitarian thought; the widespread development of consumerism and market capitalism; the linked forms processes of rebellion and nation-building; and the economic and strategic progress of the conflict itself.
Taught by: St. George
Course usually offered in spring term
Activity: Lecture
1 Course Unit

HIST 449 God and Nature: Readings on the Encounter between Jewish Thought and Science
God and Nature examines the place of the natural world, medicine, and science in Jewish thought from antiquity to the modern era. It looks especially at a body of primary sources in Hebrew written during the age of the so-called "scientific revolution" and during its aftermath. The course is a seminar open to undergraduate and graduate students with a reading knowledge of classical Hebrew. Students without Hebrew with special interest in the subject might enroll with special permission from the instructor.
Taught by: Ruderman
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 451 The U.S. and the World since 1898
This class examines the emergence of the U.S. as a world power since 1898, and considers both the international and domestic consequences of U.S. foreign relations. In one respect, the twentieth century was a strange time to become a global empire: it was the period when colonial systems centered in Europe, Russia, Japan, and Turkey collapsed, and new nations emerged throughout Africa and Asia. This class explores the changing strategies of military, economic, and political intervention that the U.S. pursued as colonization lost legitimacy. Within that framework, the class invites students to think about several questions: How did the idea and practice of empire change over the twentieth century? How did the United States relate to new visions of independence emerging in Africa, Asia, and Latin America? How did global interactions both inform and reflect racial ideology in the United States? Finally, how did international affairs transform U.S. politics and social movements?
Taught by: Offner
One-term course offered either term
Activity: Lecture
1 Course Unit
HIST 455 Topics in American History
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 463 History of American Education
This course will examine the growth and development of American schools, from the birth of the republic into the present. By 1850, the United States sent a greater fraction of its children to school than any other nation on earth. Why? What did young people learn there? And, most of all, how did these institutions both reflect and shape our evolving conceptions of "America" itself? In an irreducibly diverse society, the answers were never simple. Americans have always defined their nation in a myriad of contrasting and often contradictory ways. So they have also clashed vehemently over their schools, which remain our central public vehicle for deliberating and disseminating the values that we wish to transmit to our young. Our course will pay close attention to these education-related debates, especially in the realms of race, class, and religion. When immigrants came here from other shores, would they have to relinquish their old cultures and languages? When African-Americans won their freedom from bondage, what status would they assume? And as different religious denominations fanned out across the country, how would they balance the uncompromising demands of faith with the pluralistic imperatives of democracy? All of these questions came into relief at school, where the answers changed dramatically over time. Early American teachers blithely assumed that newcomers would abandon their old-world habits and tongues; today, "multicultural education" seeks to preserve or even to celebrate these distinctive patterns. Post-emancipation white philanthropists designed vocational curricula for freed African-Americans, imagining blacks as loyal serfs; but blacks themselves demanded a more academic education, which Taught by: Zimmerman
Course usually offered in spring term
Activity: Seminar
1 Course Unit

HIST 490 Topics in Jewish History
Reading and discussion course on selected topics in Jewish history.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 610 Topics in American History
Reading and discussion course on selected topics in American history.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

HIST 620 Topics in European History
Reading and Discussion course on selected topics in European History.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

HIST 630 Topics in Asian History
Reading and discussion course on selected topics in Asian History.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 640 Topics in Middle Eastern History
Reading and discussion course on selected topics in Middle Eastern history.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 650 Topics in African History
Reading and discussion course on selected topics in African history.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 660 Topics in Latin American and Caribbean History
Reading and discussion course on selected topics in Latin American and Caribbean history.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 668 Colloquium in the History of Law and Social Policy
This is a course in the history of law and policy-making with respect to selected social problems. Discussion of assigned readings and papers will elaborate the role law, lawyers, judges, other public official and policy advocates have played in proposing solutions to specific problems. The course will permit the evaluation of the importance of historical perspective and legal expertise in policy debates.
Taught by: Berry
Course usually offered in fall term
Activity: Seminar
1 Course Unit

HIST 670 Topics in Trans Regional History
Reading and discussion course on selected topics in Transregional History.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 700 Proseminar in History
Weekly readings, discussions, and writing assignments to develop a global perspective within which to study human events in various regional/cultural milieus, c. 1400 to the present.
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

HIST 710 Research seminar in American history.
Research seminar on selected topics in American history.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 720 Research in European History
Research seminar on selected topics in European history.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 740 Research Seminar in Middle Eastern History
Research seminar on selected topics in Middle Eastern history.
One-term course offered either term
Activity: Seminar
1 Course Unit
HIST 750 Research Seminar in African History
Research seminar on selected topics in African history.
One-term course offered either term
Activity: Seminar
1 Course Unit

HIST 770 Res Sem: Transregional
Research seminar on selected topics in Transregional history.
One-term course offered either term
Activity: Seminar
1 Course Unit
IMMUNOLOGY (IMUN)

IMUN 506 Immune Mechanisms
This is an introductory graduate course which surveys most areas of immunology. It is assumed that students have a background in biochemistry and molecular biology, and at least some familiarity with immunological concepts. Topics covered include the major histocompatibility complex, structure of antibodies and T cell receptors, antigen-antibody interactions, the generation of diversity of immunoglobulins and B cells, antigen presentation, and immunological tolerance.
Taught by: Michael May
Course usually offered in fall term
Prerequisite: Permission of instructor
Activity: Lecture
1 Course Unit
Notes: 4 h. 1 c.u. Monday/Wednesday/Friday

IMUN 507 Immunopathology
The relationship between basic immunology and clinical immunologic diseases is emphasized. Course lecturers represent University faculty who are established investigators in immunological research and established clinical immunologists. Course topics include plasma protein systems; B cell, T cell, macrophage immunology; immunohematology; tumor immunology; benign and malignant, immunoproliferative disorders; neuro-immunology; pulmonary immunology; renal immunology; immune complex disease and immunoregulatory abnormalities.
Taught by: Michael May and Erica Stone
Course usually offered in fall term
Prerequisites: IMUN 506 and permission of instructor
Activity: Lecture
1 Course Unit
Notes: 2 h. 1 c.u. Tuesday/Thursday

IMUN 520 Tutorials in Immunology
This tutorial course is designed to provide students with an in-depth knowledge of a specific branch of Immunology. The tutorial can be used to enable students to become more deeply acquainted with the literature related to their thesis projects or to expand on a topic that the student found interesting in one of their basic courses. The course is currently the only immunology elective and is, therefore, required for all Immunology Graduate Group students. It is also open as an elective to BGS students who meet the prerequisite. The tutorial course will be examined by the program director and the tutorial leader and the grade will be based on a written paper on the subject studied (5 to 10 typewritten pages) and by an oral presentation of the paper (15 to 20 minutes).
Taught by: Randy Cron, M.D., Ph.D.
Course usually offered in fall term
Prerequisites: A senior undergraduate, graduate or professional school course in Immunology.
Activity: Seminar
1 Course Unit

IMUN 599 Immunology Faculty Research Seminar
Mandatory attendance at weekly research presentations by graduate group faculty.
Taught by: Laura Su and Gregory Beatty
One-term course offered either term
Prerequisite: Permission of Graduate Group Chair
Activity: Seminar
0.5 Course Units

IMUN 601 Molecular Immunology
The purpose of this course is to provide examples in which the cell biology topics covered in BIOM 600 are studied in the context of immune cells or used to explain immune system function. This course will help students become proficient at reading and critically assessing the published literature and encourage students to actively participate in scientific discussion with their peers.
Taught by: Drs. Paula Oliver and Jan Burkhardt
Course not offered every year
Activity: Lecture
0.5 Course Units

IMUN 607 Grant Writing
This course will introduce the student to basic principles of grant writing. In this regard a primary objective of the course is to teach you how to describe your ideas and experimental objectives in a clear and concise manner within the standard NIH grant format. To accomplish this, you will be required to write an NIH, “RO1” type grant proposal based on your current laboratory project.
Taught by: Andrew Wells, Bruce Freedman, Michael Cancro
Course usually offered in spring term
Prerequisite: IMUN 506/507 and/or permission of instructor
Activity: Seminar
1 Course Unit

IMUN 609 Vaccines and Immune Therapeutics
The goal of the Vaccines course is to expand on student’s general understanding of the immune system and to focus this understanding towards the application of vaccination. Furthermore the course will give the student a sense of how these principles are applied to vaccine and immune therapeutic development. The course covers basic science as well as the Clinical, Ethical & Political implications of Modern Vaccines. Initial lectures will review immune mechanisms believed to be responsible for vaccine induced protection from disease. Subsequent lectures build on this background to explore the science of vaccines for diverse pathogens, including agents of bioterrorism as well as vaccines for cancer. An appreciation for the application of laboratory science to the clinical development of vaccines is provided in the next section of the course along with lectures that focus on the ethical implications of vaccines in different situations. The financial implications of specific vaccines and their impact on the global community, is a specific focus of the course.
Taught by: David Weiner, Ph.D., and Paul Offit, M.D.
Course usually offered in fall term
Prerequisites: The course is intended for graduate students or Medical Students in various MS, Ph.D. or MD/Ph.D. programs on the campus as well as local scientists and professionals in the community. As a prerequisite students should have taken biology, biochemistry or immunology courses at the advanced college level.
Activity: Lecture
1 Course Unit

IMUN 699 Laboratory Rotation
Laboratory research conducted under a faculty advisor. Three different rotations covering usually the fall semester of the first year through the fall semester of the second year are required of all Immunology Ph.D. students. Students will defend the rotation research in their Preliminary Exams
Taught by: Immunology Graduate Group Faculty
One-term course offered either term
Prerequisites: Permission of instructor and immunology chair.
Activity: Laboratory
1 Course Unit
IMUN 799 Independent Study
Activity: Independent Study
1 Course Unit

IMUN 899 Pre-Dissertation Lab
Activity: Laboratory
1 Course Unit

IMUN 995 Dissertation
Activity: Dissertation
1 Course Unit
INTEGRATED PRODUCT DESIGN (IPD)

IPD 500 Product Engineering Basics
The course targets non-engineering majors interested in understanding engineering approaches to product fabrication. The course covers a broad variety of engineering topics including mechanical, electrical, computer and material science. Many of these topics would normally be full courses in themselves. This course intends to teach familiarity with a focus on hands-on practice as applied to products. Students will briefly use equipment such as MTS materials testing machines, mills, lathes, oscilloscopes, laser cutters, photodiodes, motors, servos, microcomputers as well as engineering software such as Solidworks, C compilers, Labview, Matlab, and Cambridge Engineering Selector. The course develops basic design skills through a combination of lectures, hands-on exercises, and a semester design project. General course topics include: fundamental design principles, project definition and needfinding, advanced computer-aided design, rapid prototyping techniques, computer-controlled machining, and an in-depth exploration of the modern analysis and simulation tools that have revolutionized the way in which products are designed. Enrollment is limited.
Course usually offered in spring term
Prerequisites: MEAM 101, MEAM 150, and MEAM 210, or graduate standing in the School of Engineering, Design, or Wharton with similar experience
Activity: Lecture
1 Course Unit

IPD 501 Integrated Computer-Aided Design, Manufacturing and Analysis
The majority of today’s engineered products move through an advanced computer-aided workflow which greatly speeds design and process time. This course will explore the fundamental components of this workflow through a combination of lectures, hands-on exercises, and a semester design project. General course topics include: fundamental design principles, project definition and needfinding, advanced computer-aided design, rapid prototyping techniques, computer-controlled machining, and an in-depth exploration of the modern analysis and simulation tools that have revolutionized the way in which products are designed. Enrollment is limited.
Course usually offered in spring term
Prerequisites: MEAM 101, MEAM 150, and MEAM 210, or graduate standing in the School of Engineering, Design, or Wharton with similar experience
Activity: Lecture
1 Course Unit

IPD 503 Ipd Fundamentals
The creation of a successful product requires the integration of design, engineering, and marketing. The purpose of this intensive studio course is to introduce basic concepts in the design of three-dimensional products. For purposes of the course, design is understood as a creative act of synthesis expressed through various modes of 2-dimensional and 3-dimensional representation. The course develops basic design skills ranging from hand sketching to the use of digital modeling software and rapid prototyping. Fulfills the requirement for a design background course in the interdisciplinary graduate program in Integrated Product Design (IPD).
Activity: Studio
1 Course Unit

IPD 504 Rehab Engineering and Design
Students will learn about problems faced by disabled persons and medical rehabilitation specialists, and how engineering design can be used to solve and ameliorate those problems. The course combines lectures, multiple design projects and exercises, and field trips to clinical rehabilitation facilities. Students will have substantial interaction with clinical faculty, as well as with patients.
One-term course offered either term
Also Offered As: BE 514
Prerequisite: Graduate students or permission of the instructor
Activity: Lecture
1 Course Unit

IPD 509 Needfinding
Needfinding is an approach that puts people and their needs at the center of product development and business strategy creation. Over 90% of new products introduced into the marketplace fail. A good portion of these failures are due to lack of understanding of end consumers and their needs. To develop truly successful new products, it’s not enough just to ask people what they need or want. Designers and engineers need tools and techniques to get beyond what people can explicitly state and determine their implicit needs. Needfinding is an approach for developing deep insights that provide strategic direction for corporations and open up new possibilities for product development. In this class students will gain a toolset from which to develop their own approaches to conducting researching for design: learning how to think about other people, about culture, and about new perspectives. They will also learn tactical skills: how to define research questions, how to conduct observations and interviews, how to interpret results, how to synthesize them into fodder for design, and how to communicate their findings in a way that is compelling and actionable for designers, marketers, and business strategists. This class is designed for graduate students and upper level undergrads with a specific interest in product design or design thinking.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

IPD 511 Creative Thinking and Design.
This is a creative and iterative problem solving course that uses a series of mechanical design challenge projects to move students into the broad realm of unpredictable often incalculable time-constrained problem solving. It explores a wide variety of problem definition, exploration and solving “tools,” and a variety of surrounding “design thinking” topics, such as ethics and the design of experience. Drawing and prototyping are used in the projects for ideation, iteration, speculation and communication.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: It is recommended that undergraduates take MEAM 101 prior to this course.
IPD 514 Design for Manufacturability
This course is aimed at providing current and future product design/development engineers, manufacturing engineers, and product development managers with an applied understanding of Design for Manufacturability (DFM) concepts and methods. The course content includes materials from multiple disciplines including: engineering design, manufacturing, marketing, finance, project management, and quality systems.

Course usually offered in spring term
Prerequisites: MEAM 101 or equivalent, MEAM 210 or equivalent, Senior or Graduate standing in the School of Design, Engineering, or Business with completed product development and/or design engineering core coursework or related experience
Activity: Lecture
1 Course Unit

IPD 515 Product Design.
This course provides tools and methods for creating new products. The course is intended for students with a strong career interest in new product development, entrepreneurship, and/or technology development. The course follows an overall product design methodology, including the identification of customer needs, generation of product concepts, prototyping, and design-for-manufacturing. Weekly student assignments are focused on the design of a new product and culminate in the creation of a prototype, which is launched at an end-of-semester public Design Fair. The course project is a physical good - but most of the tools and methods apply to services and software products.

One-term course offered either term
Activity: Lecture
1 Course Unit

IPD 516 Advanced Mechatronic Reactive Systems
This course combines performance art and advanced mechatronics concepts that include the design and implementation of large-scale actuation, advanced sensing, actuation and control. This course pairs design school and engineering students to form interdisciplinary teams that together design and build electro-mechanical reactive spaces and scenic/architectural elements in the context of the performing arts. The two disciplinary groups will be treated separately and receive credit for different courses (ARCH746 will be taught concurrently and in some cases co-located) as they will be learning different things. Engineering students gain design sensibilities and advanced mechatronics in the form of networked embedded processing and protocols for large scale actuation and sensing. Design students learn elementary mechatronics and design reactive architectures and work with engineering students to build them. The class will culminate in a some artistic performance (typically with professional artists) such as a Shakespeare play, robotic ballet, a mechatronic opera.

Course usually offered in spring term
Prerequisite: MEAM 510 (Mechatronics) or equivalent
Activity: Lecture
1 Course Unit

IPD 519 Real-Time Embedded Systems
The use of distributed wireless sensor networks has surged in popularity in recent years with applications ranging from environmental monitoring, to people- and object-tracking in both cooperative and hostile environments. This course is targeted at understanding and obtaining hands-on experience with the state-of-the-art in such wireless sensor networks which are often composed using relatively inexpensive sensor nodes that have low power consumption, low processing power and bandwidth. The course will span a variety of topics ranging from radio communications, network stack, systems infrastructure including QoS support and energy management, programming paradigms, distributed algorithms and example applications. Some guest lectures may be given.

One-term course offered either term
Also Offered As: ESE 519
Prerequisites: CIS 120, ESE 350 or equivalent, one course in computer networks and Senior or Graduate standing.
Activity: Lecture
1 Course Unit

IPD 521 Designing Smart Objects for Play and Learning
Today's children enjoy a wide array of play experiences, with stories, learning, characters and games that exist as physical stand-alone objects or toys enhanced with electronics or software. In this course, students will explore the domain of play and learning in order to develop original proposals for new product experiences that are at once tangible, immersive and dynamic. They will conduct research into education and psychology while also gaining hands-on exposure to new product manifestations in a variety of forms, both physical and digital. Students will be challenged to work in teams to explore concepts, share research and build prototypes of their experiences in the form of static objects that may have accompanying electronic devices or software. Final design proposals will consider future distribution models for product experiences such as 3D printing, virtual reality and software-hardware integration. Instruction will be part seminar and part workshop, providing research guidance and encouraging connections will subject matter experts throughout the Penn campus.

Course usually offered in fall term
Activity: Seminar
1 Course Unit

IPD 525 Ergonomics/Human Factors Based Product Design
Human Factors and Ergonomics knowledge is a critical component of a product designer or design engineer's toolbox. This course teaches the direct application of existing human factors/ergonomic data to the creation of new product designs. Applying human factors knowledge to problem solving for product design happens throughout the design process. It is a useful input as initial ideas begin to ut and as a way to verify completed concepts through directly documented user testing and design iteration. The course would be a mini-lecture/studio style course in which the students will work in class on assigned projects, finding, analyzing, extrapolating and applying data to design solutions and creating mockups, model and prototypes for user testing of their designs.

One-term course offered either term
Activity: Lecture
1 Course Unit
IPD 526 Contemporary Furniture Design
This course provides a platform, in the form of furniture, to execute and deploy architectural & engineering principles. It will be conducted as a seminar and workshop, and will introduce students to a variety of design methodologies that are unique to product design. The course will engage in many of the considerations that are affiliated with CAD/CAM production, the appropriate and innovative use of materials, and human factors. Students conduct case studies and research into industrial design processes, and will adapt these processes into techniques for designing a chair. Throughout the semester, students will experience first hand structural and material behavior and understand ergonomic constraints by testing their design at different scales. The process will include: the production of a final design, its detailing, prototype development, Color/Material/Finishes (CMF), design for Computer Aided Manufacturing (CAM), the possibility of mass customization, research of materials and fabrication methods, optimization studies, Computer Aided Design (CAD), model making, furniture case studies, and a site visit to a major furniture manufacturer.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

IPD 527 Industrial Design I.
This course provides an introduction to the ideas and techniques of Industrial Design, which operates between Engineering and Marketing as the design component of Integrated Product Development. The course is intended for students from engineering, design, or business with an interest in multi-disciplinary, needs-based product design methods. It will follow a workshop model, combining weekly lectures on design manufacturing, with a progressive set of design exercises.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

IPD 528 Design of Contemporary Products
This course was designed to explore intersections of functionality and performance using an experimental platform to uncover opportunities within the built environment to create domestic products. Provides practical insights into the material manipulation and aesthetic experimentation that are essential for the design and fabrication of products. Lectures and case studies help students to learn from examples and develop their own designs. Through a series of exercises, students design and fabricate a prototype using actual materials. The course addresses problems unique to product design, such as scale, weight, cost and production.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

IPD 529 Designing Connected Objects and Experiences
The objective of this course is to introduce students to a more conceptual, creative, and meaningful approach to creating interactive functional objects utilizing analog, digital, and electronic skillsets acquired through the core engineering curriculum. This course will cover basics of design as an art form, wearables design, electronic sensors, and connecting devices. Students will be challenged to create 3 pieces of work both individually and in teams culminating in a gallery show of the students’ work.
Activity: Lecture
1 Course Unit

IPD 530 Building Product Workshop: Transwall
As Craig Vogel notes in The Design of Things to Come, “we are in a new economic age that is in need of a new renaissance in product development, on that leverages multiple minds working in concert;’ With this mindset, this interdisciplinary workshop guides students through the product design process from design brief to concept generation in one semester, working firsthand with Transwall, a leading manufacturer of demountable wall systems, to focus on a specific product need. The design opportunity looks for the next generation of pre-manufactured wall systems; getting away from field constructed walls and looking at critical issues of mass-produced wall systems; flexibility, mobility, structural stability, acoustics, transparency/opacity, and operability. During the workshop, students will explore the context that creates the unique need for a new product and have an opportunity to conceptualize their design ideas through sketches, scale model studies and partial prototypes. One-term course offered either term
Activity: Lecture
1 Course Unit

IPD 544 Digital Fabrication
A seminar and design workshop that explores associative and parametric CAD-CAM strategies, to enable an interactive continuity between conception and fabrication. Through parametric 3D constructions, students will explore how to link dink different aspects of the architectural projects, such as: (1) design intention; (2) control of variation and adaptation; (3) construction constraints; (4) digital fabrication processes. The course emphasizes the cross-fertilization of formal, technical and performative aspects of the design activity.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

IPD 545 Engineering Entrepreneurship I
Engineers and scientists create and lead great companies, hiring managers when and where needed to help execute their vision. Designed expressly for students having a keen interest in technological innovation, this course investigates the roles of inventors and founders in successful technology ventures. Through case studies and guest speakers, we introduce the knowledge and skills needed to recognize and seize a high-tech entrepreneurial opportunity - be it a product or service - and then successfully launch a startup or spin-off company. The course studies key areas of intellectual property, its protection and strategic value; opportunity analysis and concept testing; shaping technology driven inventions into customer-driven products; constructing defensible competitive strategies; acquiring resources in the form of capital, people and strategic partners; and the founder’s leadership role in an emerging high-tech company. Throughout the course emphasis is placed on decisions faced by founders, and on the sequential risks and determinants of success in the early growth phase of a technology venture. The course is designed for, but not restricted to, students of engineering and applied science and assumes no prior business education.
One-term course offered either term
Also Offered As: EAS 545
Prerequisite: Third or Fourth year or Graduate standing
Activity: Lecture
1 Course Unit
IPD 549 Product Development in Entrepreneurial Ventures
A product is any artifact, service or experience for which a buyer is willing to pay. Product Design and Development is at the core of entrepreneurship. Though in the modern mythology it is a solitary effort by a passionate individual, entrepreneurship is frequently more successful when pursued in an interdisciplinary environment. Though it rarely requires the greatest time investment, concentration of personnel, the majority of the funding or even the greatest depth of expertise to accomplish, excellent product design can be the difference between a successful or failed venture. A poorly designed "product" can prevent a venture from being successful. An excellently designed product can make a competent business plan much more successful. A well defined and designed product solution will create differentiation, and cannot only meet customer expectation, but can create desirability. Through the review and discussion of case studies, lecture subjects, guest lecturers, field trips, and a semester long interdisciplinary team project, this class will provide insight into the problem identification and product design processes, user needs research, intellectual property research, experience design, Industrial Design, Interface Design, brand development and product centric fundraising processes.
Course usually offered in spring term
Also Offered As: EAS 449
Prerequisites: Seniors and Graduate students from the School of Design, Engineering or Business that have an interest in product design and/or integrated product development in an entrepreneurial environment.
Activity: Lecture
1 Course Unit

IPD 551 Design Processes
This studio is structured for IPD students as an intensive, interdisciplinary exploration of Design as purposeful for Integrated Product Design. The goal of the studio is to give students a firsthand experience of various processes involved in creating successful integrated product designs. This first semester of the four-semester studio sequence focuses on giving students experience developing designs based on a range of starting points: form, function, materiality and manufacturing process. Students will practice design through rigorous, consistent processes for thinking through the evolution of their ideas. In this course, they will go through an entire design process from conceptualization to design to producing prototypes. They will be taught to focus on the specifics of their designs, causing them to be conscious of what drives their choices as designers and providing them with a wider range of tools to design from in successive projects. Course work will involve readings, assignments, class participation, in-class exercises, a mid-term presentation and a final submission.
One-term course offered either term
Activity: Lecture
1 Course Unit

IPD 552 Problem Framing
In the second semester of the four-semester studio sequence, we ask students to take a step back from what and how they are designing and ask the question of why they are designing it. We will teach them a rigorous process for understanding stakeholder needs and for translating those needs into implications for product design. They will begin to develop greater awareness of the personal, social, competitive and technological contexts that their products fit into, and to learn how to design for those contexts. They will develop the ability to dive into a topic and frame a design problem, and to understand the implications of how they frame the problem on what they design. Ideally, they will use this process to identify a problem or opportunity to work on for their final project. Course work will involve readings, assignments, class participation, in-class exercises, and a final submission.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

IPD 558 Integration Design Studio: Biological Design
This course is a research-based design studio that introduces new materials, fabrication, and prototyping techniques to develop a series of design proposals in response to the theme: Biological Design. The studio introduces life sciences and biotechnologies to designers, artists, and non-specialists to develop creative and critical propositions that address the social, cultural, and environmental needs of the 21st century. The course will be a pilot study of the first biodesign challenge organized by CUT/PASTE/GROW. The final projects will be submitted to a competition and the winning entry will be featured at Biofabricate in Summer 2017.
One-term course offered either term
Activity: Studio
1 Course Unit

IPD 572 Design Thinking and Making
Creating new product concepts was once a specialized pursuit exclusively performed by design professionals in isolation from the rest of an organization. Today’s products are developed in a holistic process involving a collaboration amount many disciplines. Design thinking - incorporating processes, approaches, and working methods from traditional designers’ toolkits - has become a way of generating innovative ideas to challenging problems and refining those ideas. Rapid prototyping techniques, affordable and accessible prototyping platforms, and an iterative mindset have enabled people to more reliably translate those ideas into implementable solutions. In this course, students will be exposed to these techniques and learn how to engage in a human-centered design process.
One-term course offered either term
Activity: Seminar
1 Course Unit

IPD 599 Master’s Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

IPD 699 IPD Seminar
One-term course offered either term
Activity: Seminar
1 Course Unit

IPD 799 Studio Project Thesis
One-term course offered either term
Activity: Lecture
1 Course Unit
INTEGRATED STUDIES (INTG)

INTG 261 Emerging Technologies and the Future of the World
Also Offered As: EAS 261
Activity: Seminar
1 Course Unit

INTG 344 Curiosity: Ancient and Modern Thinking About Thinking
Also Offered As: EAS 244
Activity: Seminar
1 Course Unit
**INTERNATIONAL MPA (IMPA)**

**IMPA 601 Critical Issues in Public Administration and Global Leadership**
Leaders in virtually every nation in the world are struggling to improve and reform their systems and enhance their capacities for creative, cost-effective, public-private problem-solving on issues ranging from economic development to elder care; energy production to water management; environmental protection to public health. In this course, you study readings and case studies from the US, the Peoples Republic of China and other nations. Specific topics include the theory and practice of what works in the quest for greater productivity; the increased reliance on private markets; enhanced street-level service delivery; devolution to sub-national governments; use of big data and new management and program evaluation technologies; as well as anti-corruption, transparency and accountability protocols. **For I-MPA students only.**
Activity: Lecture
1 Course Unit

**IMPA 602 Concepts and Principles in Economics and Public Finance**
Activity: Lecture
1 Course Unit

**IMPA 603 Quantitative Data: Reasoning, Analysis, and Display**
Many government, business and NPO/NGO leaders around the globe are drowning in numerical and statistical data. With this sometimes-excessive amount of data, their struggle may not just be how to analyze the data effectively but also how to utilize it effectively. This course is uniquely designed to enhance your ability to use data effectively for real-time problem identification, definition, decision-making and problem-solving. **For I-MPA students only.**
Activity: Lecture
1 Course Unit

**IMPA 604 Collaboration Across Sectors: Boundary Spanning Leadership**
Leaders across the world increasingly recognize the necessity of working across boundaries through various forms of collaboration. Collaboration across the government, nonprofit and business sectors has become more prevalent and important, but, at the same time, also more complicated. This course helps graduate students understand the theory, policy and practice of cross-sector collaboration. Students learn the purposes collaborations may serve, the forms they take, what skills and techniques are required and the steps involved in initiating, sustaining and evolving them. Students also learn the characteristics of the three sectors, the roles and contributions each can make to successful collaborations and the competitive forces that are often at work in the collaborative processes as well as their possible implications. **For I-MPA students only.**
Activity: Lecture
1 Course Unit

**IMPA 605 Individual Capstone I: Public Leadership and Biographical Analysis**
Biographical analysis has been increasingly used and accepted by social and behavioral scientists as a way to identify and illuminate the conditions under which a public leader influences others and affects significant, positive and sustainable innovations in organizations and public systems and policy. This course explains the use and application of biographical analysis in relation to a diverse set of past and present global leaders in different sectors. Along with completing and interpreting guided self-study and reflection about your own leadership style, you work independently under the consultation of an assigned academic/capstone advisor to identify a past or present global leader and develop a preliminary bibliography for the biographical analysis. **For I-MPA Students only**
Activity: Lecture
1 Course Unit
INTR 101 Transnational Issues in Global Politics
This course is designed to provide students with an introduction to transnational issues and world politics and to acquaint them with some of the leading issues, theories, concepts and processes, and history that shape and define world events. It is suitable for students embarking on long-term study of international affairs as well as for students with other majors and intellectual interest who simply want to know more about how the world works and how the material covered in this class affects their lives. It is expected that students taking the course will gain an ability to analyze, understand objectively evaluate and appreciate the complex dynamics that affect “global politics” writ large, including issues relating to trade, diplomacy, people-to-people and business transactions, and shifts in demography, borders, international institutions and global governance. In addition to issues of diplomacy, statecraft, and security we will assess some of the major international issues of our time (i.e. climate change, proliferation of weapons of mass destruction, genocide and human trafficking) and debate the prospects for bringing peace and prosperity to a world that is rife with conflict and poverty.
One-term course offered either term
Activity: Lecture
1 Course Unit

INTR 199 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

INTR 250 Political Risk Analysis
This course teaches students to apply social science theories and concepts together with futures methodologies (e.g. Delphi method; country risk assessments used by ratings agencies) to the challenges of addressing international political risks to the continuity, effectiveness and operations of business, government and other organizations in their international transactions.
Taught by: Frank Plantan
One-term course offered either term
Activity: Lecture
1 Course Unit

INTR 290 Topics in International Relations
Topics in International Relations focuses on specialized issues, practical or applied approaches, policy and other topics of contemporary relevance in modern study of international relations. These are experimental or occasionally offered classes. Past topics of included US Foreign Policy and the Arab Spring, the Iraq Wars, Secret Intelligence & American Democracy, Counterintelligence, Homeland Security, the US & South Asia Cold War and New Alignments, and Think Tanks and Global Governance.
One-term course offered either term
Activity: Lecture
1 Course Unit

INTR 350 Research Methods/Practice in IR
International Relations is concerned with both theory and practice so we employ a range of analytical tools to examine actors and events in world politics. The purpose of this course is to introduce students to the various research methods utilized by students and scholars in the field of IR including: case studies, historical - comparative and archival research, survey research, interviewing techniques, simulations, quantitative and statistical analysis.
One-term course offered either term
Prerequisite: PSCI 150
Activity: Lecture
1 Course Unit
Notes: MAJORS ONLY

INTR 390 Senior Seminar for Thesis Research
Seminar in International Relations. A two semester sequence including review of advanced International Relations theory and research methods for the preparation of the senior thesis.
Course usually offered in fall term
Prerequisites: INTR 350 and PSCI 150
Activity: Seminar
1 Course Unit
Notes: MAJORS ONLY

INTR 391 Senior Seminar For Thesis Research
Seminar in international relations. Second semester of a two semester sequence including review of advanced international relations theory and research methods for the preparation of the senior thesis.
Course usually offered in spring term
Prerequisite: INTR 390
Activity: Seminar
1 Course Unit
Notes: MAJORS ONLY

INTR 395 Senior Project I
This seminar will prepare students to plan, implement, and present their senior research project. Students will draw on the experience and insight they have gained in the course of their fieldwork or internship to develop defensible policy recommendations for their target audience. As such, the seminar will introduce students to the policy formation process as they develop the practical skills needed to formulate and produce actionable policy recommendations. Students will produce a formal report and will present their findings to relevant stakeholders at the conclusion of the seminar. This class will ensure that students develop the skills necessary to undertake a substantive research project.
Course usually offered in fall term
Prerequisites: INTR 350 and PSCI 150
Activity: Seminar
1 Course Unit
Notes: MAJORS ONLY

INTR 396 Senior Project II
This course is a continuation of INTR-395, culminating with the production of a policy research paper and presentation.
Course usually offered in spring term
Prerequisite: INTR 395
Activity: Seminar
1 Course Unit
Notes: MAJORS ONLY
INTR 399 Independent Study for Thesis Research
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: MAJORS ONLY
ITALIAN (ITAL)

ITAL 081 Film Music Post-1950 Italy
Activity: Seminar
1 Course Unit

ITAL 100 Topics: Freshman Seminar
Topics vary. See the Department's website at https://www.sas.upenn.edu/italians/courses for a description of current offerings.
One-term course offered either term
Activity: Seminar
1 Course Unit

ITAL 101 Italian Survival Kit: The Language and Culture of getting around in Italy
The following course is delivered in a fully online format in order to allow more flexibility for LPS students. Class sessions are offered through a course website and include live lectures and interactive discussions through both direct messaging and voice-over internet. Between classes, the learning experience is extended through assignments, threaded discussions and office hours. For additional information, please visit http://www.sas.upenn.edu/lps/onlinelearning This online course provides the flexibility of distance-learning and content that is taught efficiently in order to be used practically. If you are going to Italy and questioning how you will survive your total immersion experience, this course will provide you with the linguistic and cultural survival skills you will need to effectively function in Italy and fully enjoy its wonders. In this course, you will learn and practice the language you need to talk about: yourself; others; travel; public transportation; housing; food; shopping; technology; health; money, etc. Class meetings combine original as well as online, authentic content. Adobe Connect allows students to engage in collaborative interaction under the instructor's supervision. Students participate in conversations that replicate day-to-day life in Italy, thereby developing the skills needed for face-to-face and online situations.
Taught by: Dr. Lillyrose Veneziano Broccia
Activity: Seminar
0.5 Course Units

ITAL 105 Sicilian Language and Culture
Occupied over the centuries by the Greeks, Romans, Arabs, Normans, French, and Spaniards, Sicily is a region of many histories and many traditions. Birthplace and crossroad of cultures and artistic movements, the Sicilian land has shaped the imagination of its inhabitants and has never ceased to fascinate its visitors. Its language and culture have also been exported abroad, through the many Sicilians who left the island and settled all over the world. This course is an introduction to Sicilian Language and Culture. We will study spoken Sicilian and cultural artifacts ranging from film to literature, to music and food, in order to learn to recognize and understand the unique sounds and features of "siciliano" and to converse in Sicilian with native speakers and with one another. This course is delivered in an online format, with occasional face-to-face meetings. Class sessions are offered through a course website and include live lectures and interactive discussions. Between classes, the learning experience is extended through assignments, lectures and discussions.
Prerequisites: There are no prerequisites for ITAL 105: Sicilian Language and Culture.
Activity: Seminar
0.5 Course Units

ITAL 110 Elementary Italian I
A first-semester elementary language course for students who have never studied Italian or who have had very little exposure to the language. Students who have previously studied Italian are required to take the placement test. Class work emphasizes the development of spontaneous discourse skills and interactional competence. Out-of-class homework required.
For BA Students: Language Course
One-term course offered either term
Activity: Seminar
1 Course Unit

ITAL 112 Accelerated Elementary Italian
An intensive two-credit course covering the first and second semester of the elementary year for students who have never studied Italian before but have already fulfilled the language requirement in another modern language, preferably a romance language. Students who have fulfilled the language requirement in a language other than a romance language will be considered on an individual basis. All students must have departmental permission to register. Class work emphasizes the development of spontaneous discourse skills and interactional competence. Out-of-class homework required.
For BA Students: Language Course
One-term course offered either term
Prerequisites: Proficiency in another foreign language.
Activity: Seminar
2 Course Units

ITAL 120 Elementary Italian II
This course is the continuation of the elementary-level sequence designed to develop functional competence in the four skills. Class work emphasizes the further development of spontaneous discourse skills and interactional competence. Out-of-class homework required.
For BA Students: Language Course
One-term course offered either term
Prerequisites: Completion of Italian 110 or placement into second-semester Italian.
Activity: Seminar
1 Course Unit

ITAL 130 Intermediate Italian I
Italian 130 is the first half of a two-semester intermediate sequence designed to help you attain a level of proficiency that will allow you to function comfortably in an Italian-speaking environment. The course will build on your existing skills in Italian, increase your confidence and your ability to read, write, speak and understand the language, and introduce you to more refined lexical items, more complex grammatical structures, and more challenging cultural material. You are expected to have already learned the most basic grammatical structures in elementary Italian and to review these. The course materials will allow you to explore culturally relevant topics and to develop cross-cultural skills through the exploration of similarities and differences between your native culture and the Italian world.
For BA Students: Language Course
One-term course offered either term
Prerequisites: Completion of Italian 120 at Penn or a placement score between 450 and 540 on the Achievement Exam (SAT II).
Activity: Seminar
1 Course Unit
ITAL 134 Accelerated Intermediate Italian
Italian 134 is the intensive and accelerated course that combines in one semester the intermediate sequence (130 and 140). It will build on your existing skills in Italian, increase your confidence and your ability to read, write, speak and understand the language, and introduce you to more refined lexical items, more complex grammatical structures, and more challenging cultural material. The course will allow you to explore culturally relevant topics and to develop cross-cultural skills through the exploration of similarities and differences between your native culture and the Italian world.
For BA Students: Last Language Course
One-term course offered either term
Prerequisites: Italian 112 or departmental permit; proficiency in another foreign language.
Activity: Seminar
2 Course Units

ITAL 140 Intermediate Italian II
ITAL 140 is the second half of a two-semester intermediate sequence designed to help you attain a level of proficiency that will allow you to function comfortably in an Italian-speaking environment. The course will build on your existing skills in Italian, increase your confidence and your ability to read, write, speak and understand the language, and introduce you to more refined lexical items, more complex grammatical structures, and more challenging cultural material. The course will allow you to explore culturally relevant topics and to develop cross-cultural skills through the exploration of analogies and differences between your native culture and the Italian world. The course will move beyond stereotypical presentations of Italy and its people to concentrate on specific social issues together with cultural topics.
For BA Students: Last Language Course
One-term course offered either term
Prerequisites: Completion of Italian 130 at Penn or placement into Italian 140.
Activity: Seminar
1 Course Unit

ITAL 180 Italian Conversation in Residence
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/courses All coursework will be in Italian. Currently and previously enrolled students of Italian will be given priority for registration. Please contact the instructor, Dr. Frank Pellicone, or the Undergraduate Chair, Dr. Lillyrose Veneziano-Broccia, for permission to register.
Two terms. student may enter either term.
Activity: Seminar
0.5 Course Units

ITAL 201 Advanced Italian I
ITAL 201 will focus on contemporary Italian culture following its development since the 1960s. Pertinent films, literary texts, articles, as well as material in other media will complement the analysis of films and allow in-depth discussion. The cultural material explored in the course will be also used as a basis for a review of linguistic structures and vocabulary. Audiovisual materials develop students’ comprehension and production in Italian and enable them to function in an academic setting. Class work will center primarily on conversation to improve students’ fluency, vocabulary, and accuracy in speaking. Homework will consist of research and writing assignments in written Italian. Additionally, students will be required to prepare presentations. Students will write a final essay.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: Open to students who have satisfied the language requirement in Italian. ITAL 201 or equivalent is a prerequisite for all other courses taught in Italian at the 200/300 level.
Activity: Seminar
1 Course Unit

ITAL 202 Advanced Italian II
In Italian 202, students will strengthen their communication skills, while continuing to explore significant aspects of contemporary Italian culture and history. Students will take further steps towards being able to understand in depth and to contextualize authentic Italian documents. Films, songs, and a variety of readings, will be used as windows on particular historical periods, cultural movements, political issues, and social customs. They will serve as a tool to investigate the many facets of Italian identity and, at the same time, as a way to prepare those students who will continue their study of Italian literature and culture in higher-level courses. Students are expected to participate in conversations and all other class activities in order to improve their oral and written ability to narrate, express opinion, hypothesize, and discuss a variety of topics, using rich, appropriate vocabulary and grammar, and organizing well-structured discourses, be they oral presentations, weekly compositions or the final essay. To reach these goals, speaking, listening, reading and writing activities – role plays, discussions, oral presentations, journals, grammar reviews – will be based on audio-visual material and written texts and/or proposed by the students themselves, based on their independent explorations and research.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: Open to students who have completed ITAL 201. Please see the Undergraduate Chair if you have any questions.
Activity: Seminar
1 Course Unit
ITAL 203 Masterpieces-Italian Literature
This course surveys the history of Italian literature through its major masterpieces. Beginning with Dante's Divine Comedy, Petrarch's love poems, and Boccaccio's Decameron, we will follow the development of Italian literary tradition through the Renaissance (Machiavelli's political theory and Ariosto's epic poem), and then through Romanticism (Leopardi's lyric poetry and Manzoni's historical novel), up to the 20th century (from D'annunzio's sensual poetry to Calvino's post-modern short stories). The course will provide students with the tools needed for analyzing the texts in terms of both form and content, and for framing them in their historical, cultural, and socio-political context. Classes and readings will be in Italian. ITAL 203 is mandatory for Minors in Italian Literature and Majors in Italian Literature. If necessary, ITAL 201 can be taken at the same time as ITAL 203.
For BA Students: Arts and Letters Sector
One-term course offered either term
Prerequisites: Open to students who have completed ITAL 201 or equivalent.
Activity: Seminar
1 Course Unit

ITAL 204 Italian History on Screen: How Movies Tell the Story of Italy
How has our image of Italy arrived to us? Where does the story begin and who has recounted, rewritten, and rearranged it over the centuries? In this course, we will study Italy's rich and complex past and present. We will carefully read literary and historical texts and thoughtfully watch films in order to attain an understanding of Italy that is as varied and multifacted as the country itself. Group work, discussions and readings will allow us to examine the problems and trends in the political, cultural and social history from ancient Rome to today. We will focus on: the Roman Empire, Middle Ages, Renaissance, Unification, Turn of the Century, Fascist era, World War II, post-war and contemporary Italy. Lectures and readings are in English.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Seminar
1 Course Unit

ITAL 208 Business Italian
The course is conducted entirely in Italian and should be taken after completion of Italian 201 or equivalent. It is designed to enable students to acquire language proficiency in the current Italian business and labor world. Business terminology will be used in specific business situations such as banking, trade, communications, etc. The course will examine Italian business practices, cultural differences such as the attitude towards money, work, leisure and consumerism through websites, newspaper and magazine articles and video clips. Students will learn to read business publications, write and compose business texts, and participate in business-related conversations. Additionally, guest lecturers from the local business world with ties to Italy will provide students with information about internship and job opportunities and the knowledge necessary to navigate international and Italian commercial routes. All reading and lectures in Italian.
Course not offered every year
Prerequisites: Open to students who have completed ITAL 201 or equivalent.
Activity: Seminar
1 Course Unit

ITAL 217 Survey of Italian Theater
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 218 Film Sound and Film Music
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/courses
One-term course offered either term
Activity: Seminar
1 Course Unit

ITAL 220 Cultura E Letteratura
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/courses
One-term course offered either term
Activity: Seminar
1 Course Unit

ITAL 222 Topics in Italian Cinema
Topics vary. Please check the department's website for a current course description at: http://www.sas.upenn.edu/italians/courses
One-term course offered either term
Activity: Seminar
1 Course Unit

ITAL 230 Topics in European History
Topics vary. Please check the department's website for a current course description at: http://www.sas.upenn.edu/italians/courses
One-term course offered either term
Activity: Seminar
1 Course Unit

ITAL 257 Fascist Cinemas
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/courses
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

ITAL 288 Modern Italian Culture
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 300 Topics in Italian History, Literature, and Culture
Topics vary. Please check the department's website for a course description at: http://www.sas.upenn.edu/italians/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 308 Renaissance Europe
One-term course offered either term
Activity: Lecture
1 Course Unit
ITAL 333 Dante's Divine Comedy
In this course we will read the Inferno, the Purgatorio and the Paradiso, focusing on a series of interrelated problems raised by the poem: authority, fiction, history, politics and language. Particular attention will be given to how the Commedia presents itself as Dante's autobiography, and to how the autobiographical narrative serves as a unifying thread for this supremely rich literary text. Supplementary readings will include Virgil’s Aeneid and selections from Ovid’s Metamorphoses. All readings and written work will be in English. Italian or Italian Studies credit will require reading Italian texts in their original language and writing about their themes in Italian. This course may be taken for graduate credit, but additional work and meetings with the instructor will be required. Course not offered every year
Activity: Seminar
1 Course Unit
Notes: When crosslisted with ENGL 323, this is a Benjamin Franklin Seminar

ITAL 341 Topics: Italian Art
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 384 The Holocaust in Italian Literature and Film
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 398 Honors Thesis
One-term course offered either term
Activity: Independent Study
1 Course Unit

ITAL 399 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

ITAL 499 Independent Study
Course usually offered in fall term
Activity: Independent Study
1 Course Unit

ITAL 512 A Black Seed (He) Sowed: An Introduction to Paleography & History of Books
Writing and reading are common actions we do every day. Nonetheless they have changed over the centuries, and a fourteenth century manuscript appears to us very different from a Penguin book. The impact of cultural movements such as Humanism, and of historical events, such as the Reformation, reshaped the making of books, and therefore the way of reading them. The course will provide students with an introduction to the history of the book, including elements of paleography, and through direct contact with the subjects of the class: manuscripts and books. Furthermore, a section of the course will focus on digital resources, in order to make students familiar with ongoing projects related to the history of book collections (including the "Philosophical Libraries" and the "Provenance" projects, based at the Scuola Normale Superiore in Pisa and at Penn). The course will be conducted in English; a basic knowledge of Latin is desirable but not required. The class will meet in Van Pelt. Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 530 Medieval Italian Literature
Medieval Italian society, art, intellectual and political history. Please check the department's website for the course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 531 Dante's Commedia I
Please check the department's website for the course description at: http://www.sas.upenn.edu/italians/graduate/courses Dante Visualizing: Dante Visualizing and Dante Visualized. Dante’s Commedia has inspired art, but at the same time art is present within the Comedy itself, through images, metaphors, descriptions and even more concrete examples. This course aims at discussing these aspects, taking into consideration also the philosophical, political and religious background of these motifs. While analyzing images in and from the Commedia, we will look at illustrations and artistic interpretations, spanning from medieval illuminations and Renaissance printed books (mainly from Van Pelt Library) to contemporary examples, and focusing on artists such as Giotto, Botticelli, Michelangelo, Blake, Dore, and Dali. The course will be taught in English. Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course may sometimes be taught as the first part of a two-semester sequence.

ITAL 532 Divina Commedia II
"Divine Comedy" in the context of Dante's medieval worldview and culture.
One-term course offered either term
Prerequisite: Italian 531
Activity: Seminar
1 Course Unit

ITAL 535 Petrarch
Petrarch’s life and work in the context of Italian and European culture and society. Course not offered every year
Activity: Seminar
1 Course Unit
ITAL 537 Boccaccio
Boccaccio’s life and work in the context of Italian and European culture and society.
Taught by: Brownlee
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 540 Topics: Renaissance Culture
Please see department website for a current course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 581 Modern/Contemporary Italian Culture
Please see department website for a current course description at: http://www.sas.upenn.edu/italians/graduate/courses
One-term course offered either term
Activity: Seminar
1 Course Unit

ITAL 583 Post-Human Landscapes
Please check the website for a current course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 584 20th-Century Italian Fiction and Film
Please see department website for a current course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 601 Italian Literary Theory
Please see department website for a current course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 602 Tools of the Trade
Theoretical and practical aspects of academic research. Please check the department's website for the course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 641 Topics in Southern Renaissance Art
Topic varies. Fall 2018: This innovative course will explore the cross-fertilization between manuscript illumination and other media such as wall-painting, panel painting, architecture, sculpture, and stained glass across the early modern world, 1300-1600. We will consider such topics as: intermediality, artistic transfer, miniature vs. monumental, workshop practice, patronage, and the nascent art market. Students will have the rare opportunity to see and handle manuscripts held in area collections such as the Kislak Center and the Free Library of Philadelphia. This course is open to all students who are interested in artistic practice, the historical dimensions of media, and the social function of art. Our seminar will be coordinated with the Annual Schoenberg Symposium on Manuscript Studies (November 15-17, 2018), which will bring together an international group of experts in the field.
Taught by: Kim
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 682 Topics: Literature and Film
Please see department website for a current course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 685 20th Century Italian Culture
Please see department website for a current course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 687 Pasolini and Calvino
Please see department website for a current course description at: http://www.sas.upenn.edu/italians/graduate/courses
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 691 Italian Teaching & Learning
Two terms. Student must enter first term.
Activity: Seminar
1 Course Unit

ITAL 800 Exam Preparation
PhD Exam Preparation
Course not offered every year
Activity: Seminar
1 Course Unit

ITAL 990 Masters Thesis
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

ITAL 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit

ITAL 999 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
JAPANESE (JPAN)

**JPAN 001 Introduction to Spoken Japanese I**
Intended for students who have no Japanese background. The major emphasis is on oral communication skills, although some reading and writing instructions are given. Japanese pop-culture will also be incorporated.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: See LPS Course Guide. **This course does not fulfill the language requirement in the College.

**JPAN 002 Introduction to Spoken Japanese II**
Although some reading/writing instruction is given, the major emphasis is on oral communication skill.
Course usually offered in spring term
Prerequisites: Completion of JPAN 001 or the equivalent.
Activity: Lecture
1 Course Unit
Notes: See LPS Course Guide. **This course does not fulfill the language requirement in the College.

**JPAN 011 Beginning Japanese I**
Intended for students who have no Japanese background. All four skills, speaking/listening/writing/reading, are equally emphasized. Hiragana/ Katakana (Two sets of Japanese syllabic letters) and some Chinese characters (Kanji) are introduced. Textbooks: Genki I (Lesson 1- Lesson 7). Kanji: reproduction-approx.70/recognitio-approx.110
For BA Students: Language Course
Course usually offered in fall term
Prerequisite: None
Activity: Lecture
1 Course Unit

**JPAN 012 Beginning Japanese II**
Textbooks: Genki I (Lesson 8- Lesson 12) and Genki II (Lesson 13- Lesson 14) Kanji: reproduction-approx. 170/recognitio-approx.250
For BA Students: Language Course
Course usually offered in spring term
Prerequisites: Completion of JPAN 011 or the equivalent.
Activity: Lecture
1 Course Unit

**JPAN 021 Intensive Beginning Japanese I**
Intended for students with little or no background in Japanese who wish to finish the language requirement in one year. (Equivalent to JPAN 011 + JPAN 012) Textbooks: Yookoso I and Basic Kanji Book I (L.1-L.10) Kanji: reproduction-approx.110/recognitio-approx.200
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
2 Course Units

**JPAN 022 Intensive Beginning Japanese II**
This course is the equivalent to JPAN 111 + JPAN 112, and completes the College language requirement. Textbooks: Yookoso II and Basic kanji book I (L.11 - L.22) Kanji: reproduction-approx.250/recognitio-approx 350
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisites: completion of JPAN 021, 012 or the equivalent
Activity: Lecture
2 Course Units

**JPAN 111 Beginning Japanese III**
This course is a continuation of JPAN 012 and focuses on the development of the elementary grammatical structures of the Japanese language through aural-oral practices. The course also aims to develop the four basic skills: listening, speaking, reading, and writing. The course also introduces aspects of Japanese culture and customs, knowledge that is necessary for behaving in a socio-culturally appropriate manner. Students will learn and practice skills to communicate in situations they might face in real life. Example topics and functions are travel, part-time job, work, asking for favors, asking permission, stating your intention/ opinion, reporting what you heard, and various speech styles including Keigo (respectful speech). Textbooks: Genki II (Lesson 15- Lesson 21) will be covered, and around 100 new Kanji will be introduced. Overall kanji knowledge will be 286.
For BA Students: Language Course
Course usually offered in fall term
Prerequisites: Completion of JPAN 012, 021 or the equivalent.
Activity: Lecture
1 Course Unit

**JPAN 112 Beginning Japanese IV**
This course completes the College language requirement. Textbooks: Yookoso II (Chapt. 4 - Chapt. 7) & Basic Kanji Book I (L.17-L.22) Kanji: reproduction-approx250/recognitio-approx.350
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisites: Completion of JPAN 111 or the equivalent.
Activity: Lecture
1 Course Unit

**JPAN 211 Intermediate Japanese I**
A continuation of Japanese language beyond the language requirement. Textbooks: Tobira: Gateway to Advanced Japanese (Unit 1-Unit 5) Kanji: reproduction-approx.330/recognitio-approx.450
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisites: Completion of JPAN 112 or JPAN 022 or the equivalent.
Activity: Lecture
1 Course Unit

**JPAN 212 Intermediate Japanese II**
PREREQUISITES Completion of JPAN 211 or the equivalent. A continuation of Japanese language at the intermediate level. Textbooks: Tobira: Gateway to Advanced Japanese (Unit 6-Unit 10) Kanji: reproduction-approx.400/recognitio-approx.550
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisites: Completion of JPAN 211 or the equivalent.
Activity: Lecture
1 Course Unit

**JPAN 311 Intermediate Japanese III**
This course is a continuation of Japanese language at the upper intermediate level, and authentic reading/listening materials are introduced besides the textbooks. Textbooks: Tobira: Gateway to Advanced Japanese (Unit 11-Unit 15) Kanji: reproduction-approx. 470/ recognitio-approx.650
For BA Students: Advanced Language Course
Taught by: Takami
Course usually offered in fall term
Prerequisites: Completion of JPAN 212 or the equivalent.
Activity: Lecture
1 Course Unit
JPAN 312 Intermediate Japanese IV
Authentic materials and video clips will be used. The topics include culture and social issues in Japan. Selected video materials.
Kanji: reproduction—approx. 550/recognition—approx. 750
For BA Students: Advanced Language Course
Taught by: Takami
Course usually offered in spring term
Prerequisites: Completion of JPAN 311 or the equivalent.
Activity: Lecture
1 Course Unit

JPAN 381 Japanese for the Professions
For BA Students: Advanced Language Course
Taught by: Takami
Course usually offered in fall term
Prerequisites: Completion of JPAN 212 or the equivalent.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

JPAN 382 Japanese for the Professions II
For BA Students: Advanced Language Course
Taught by: Takami
Course usually offered in spring term
Prerequisites: Completion of JPAN 381 or the equivalent.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

JPAN 411 Advanced Japanese I
Minimum 600 - 700 kanji knowledge is expected. A continuation of Japanese language beyond the intermediate level.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisites: Completion of JPAN 312, 382 or the equivalent.
Activity: Lecture
1 Course Unit

JPAN 412 Advanced Japanese II
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisites: Completion of JPAN 411 or the equivalent.
Activity: Lecture
1 Course Unit

JPAN 481 Advanced Japanese for Proficiency I
This course is for students with an advanced background in Japanese, who are interested in taking at least the Level 2 Japanese Proficiency Test. Solid grammar, an extensive vocabulary, and the knowledge of at least 800-900 Chinese characters is required. This course is not continuous with any existing 300-level Japanese course; therefore, your grade from a 300-level course does not qualify you to take this course.
Eligibility will be determined through an interview and placement test taken in the first meeting. All students who take this course are required to take the Japanese Proficiency Test in December. Since the JLPT is administered in December every year, if you wish to fully prepare for the test, the instructor strongly recommends that you take JPAN 482 first in the spring of the same year. For example, if you plan to take the test in December, 2010, start taking 482 in the spring 2010 and take 481 in the fall 2010. Different from other courses, this full-year course begins in the spring and ends in the fall, because the test is given in December. However, participation in 482 is optional.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisites: Completion of the JPAN 312 or 382 or the equivalent.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

JPAN 482 Advanced Japanese for Proficiency II
This course is for students with an advanced-low or advanced-mid background in Japanese, aiming to strengthen the four language skills (speaking, reading, writing, and listening) and to deepen their understanding of Japanese culture. The class will use authentic Japanese through media, such as newspapers, television, and articles, regarding Japanese culture and society as well as current news. Students will narrate, describe, and express their opinions with details, examples, and strong reasoning, using sophisticated terms and phrases related such topics.
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisites: Japanese proficiency test and permission of instructor.
Offered through the Penn Language Center.
Activity: Lecture
1 Course Unit

JPAN 491 Readings in Classical Japanese I
Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods. Introduction to the different styles of classical Japanese, and to classical Japanese as a whole.
For BA Students: Advanced Language Course
Taught by: Chance, L.
Course usually offered in fall term
Prerequisites: Completion of JPAN 212 or equivalent.
Activity: Lecture
1 Course Unit

JPAN 492 Readings in Classical Japanese II
Readings in classical literary and journalistic texts written in modern Japanese.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisites: Completion of JPAN 412 or the equivalent.
Activity: Lecture
1 Course Unit

JPAN 511 Readings in Advanced Japanese
Readings in advanced literary and journalistic texts written in modern Japanese.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisites: Completion of JPAN 412 or the equivalent.
Activity: Lecture
1 Course Unit
**JPAN 512 Readings Advanced Japanese II**
Readings in advanced literary and journalistic texts written in modern Japanese.
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisites: Completion of JPAN 511 or the equivalent.
Activity: Lecture
1 Course Unit

**JPAN 515 Japanese-English Translation**
In this course, students learn basic techniques and skills in translation through hands-on practices. Depending on the interests of enrolled students, both literary and non-literary texts are drawn from a wide range of fields, including popular culture (e.g. manga, animation, film, game, music, and short story), religion, law, and medicine. As students read papers pertinent to principles and problems of translation from Japanese to English, they acquire practical experience in translation tasks and approaches, learn cultural and communicative differences between Japanese and English, and familiarize themselves with ethics and resources.
Taught by: Nishimura
Course usually offered in fall term
Prerequisites: COMPLETION OF JPAN 412 or the equivalent.
Activity: Lecture
1 Course Unit
JEWISH STUDIES PROGRAM (JWST)

JWST 026 Jews and China: Views from Two Perspectives
Jews in China???. Who knew???. The history of the Jews in China, both modern and medieval, is an unexpected and fascinating case of cultural exchange. Even earlier than the 10th century, Jewish trader from India or Persia on the Silk Road, settled in Kaifeng, the capital of the Northern Song Dynasty, and established a Jewish community that lasted through the nineteenth century. In the mid-nineteenth century, Jewish merchants, mainly from Iraq, often via India, arrived in China and played a major role in the building of modern Shanghai. After 1898, Jews from Russia settled in the northern Chinese city of Harbin, first as traders and later as refugees from the Bolshevik Revolution and Russian Civil War. In the first decades of the twentieth century, a few Jews from Poland and Russia visited China as tourists, drawn by a combination of curiosity about the cultural exoticism of a truly foreign culture and an affinity that Polish Jewish socialists and communists felt as these political movements began to emerge in China. During World War II, Shanghai served as a port of refuge for Jews from Central Europe. In this seminar, we will explore how these Jewish traders, travelers, and refugees responded to and represented China in their writings. We will also read works by their Chinese contemporaries and others to see the responses to and perceptions of these Jews. We will ask questions about cultural translation: How do exchanges between languages, religions, and cultures affect the identities of individuals and communities? What commonalities and differences between these people emerge?
Taught by: Hellerstein
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Benjamin Franklin Seminar

JWST 031 Beginning Yiddish
Yiddish is a 1000-year-old language with a rich cultural heritage. YDSS 101, the first in the Beginning Yiddish language series, introduces the student who has no previous knowledge of the language to the skills of reading, writing, and speaking Yiddish. Starting with the alphabet, students study grammar, enriched by cultural materials such as song, literature, folklore, and film, as well as the course s on-line Blackboard site, to acquire basic competency. By the end of the first semester, students will be able to engage in simple conversations in the present tense, know common greetings and expressions, and read simple texts, including literature, newspapers, songs, and letters. Students are encouraged to continue with YDSSH 102/ JWST 032/ YDSH 501 in the Spring. Four semesters of Yiddish fulfill the Penn Language Requirement.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit

JWST 032 Beginning Yiddish II
In this course, you can continue to develop basic reading, writing and speaking skills. Discover treasures of Yiddish culture: songs, literature, folklore, and films.
For BA Students: Language Course
Course usually offered in spring term
Prerequisites: JWST 031 or permission of the instructor.
Activity: Lecture
1 Course Unit

JWST 033 Intermediate Yiddish I
A continuation of JWST 032/ YDSH 102, Beginning Yiddish II, this course develops the skills of reading, writing, and speaking Yiddish on the intermediate level through the study of grammar and cultural materials, such as literature, newspapers, films, songs, radio programs.
For BA Students: Language Course
Taught by: Hellerstein
Course usually offered in fall term
Prerequisite: GRMN 402 or equivalent
Activity: Lecture
1 Course Unit

JWST 034 Intermediate Yiddish II
Continuation of JWST 033; emphases in reading texts and conversation.
For BA Students: Last Language Course
Taught by: Hellerstein
Course usually offered in spring term
Prerequisite: GRMN 403 or permission of the instructor
Activity: Lecture
1 Course Unit

JWST 041 Israel in Middle East
Activity: Seminar
1 Course Unit

JWST 051 Elementary Modern Hebrew I
An introduction to the skills of reading, writing, and conversing in modern Hebrew. This course assumes no previous knowledge of Hebrew.
For BA Students: Language Course
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

JWST 052 Elementary Modern Hebrew II
A continuation of HEBR 051, First Year Modern Hebrew, which assumes basic skills of reading and speaking and the use of the present tense. Open to all students who have completed one semester of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Language Course
Two terms. student may enter either term.
Prerequisite: HEBR 051 or permission of instructor
Activity: Lecture
1 Course Unit

JWST 053 Intermediate Modern Hebrew III
Development of the skills of reading, writing, and conversing in modern Hebrew on an intermediate level. Open to all students who have completed two semesters of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Language Course
One-term course offered either term
Prerequisites: HEBR 052 or permission of the instructor.
Activity: Lecture
1 Course Unit
JWST 054 Intermediate Modern Hebrew II
This course constitutes the final semester of Intermediate Modern Hebrew. Hence, one of the main goals of the course is to prepare the students for the proficiency exam in Hebrew. Emphasis will be placed on grammar skills and ability to read literary texts. Open to all students who have completed three semesters of Hebrew at Penn with a grade of B- or above and new students with equivalent competency.
For BA Students: Last Language Course
One-term course offered either term
Prerequisites: HEBR 053 or permission of instructor.
Activity: Lecture
1 Course Unit

JWST 059 Advanced Modern Hebrew: Conversation & Writing
After four semesters of language study, it's time to enter the vibrant world of contemporary Israeli culture. In this course students read some of the best plays, poems, short stories, and journalism published in Israel today. They also watch and analyze some of Israel's most popular films, TV programs, and videos. Themes include Jewish-Arab relations, the founding of the State, family ties and intergenerational conflict, war and society, and the recent dynamic changes in Israel society. HEBR 054 or permission of instructor. Since the content of this course may change from year to year; students may take it more than once (but only once for credit).
For BA Students: Advanced Language Course
Taught by: Engel
One-term course offered either term
Prerequisite: HEBR 054 or permission of instructor
Activity: Lecture
1 Course Unit

JWST 100 Themes Jewish Tradition: Iberian Conversos: Jew-Christian?
Course topics will vary; they have included The Binding of Isaac, Responses to Catastrophes in Jewish History, Holy Men & Women (Ben-Amos); Rewriting the Bible (Dohrmann); Performing Judaism (Fishman); Jewish Political Thought (Fishman); Jewish Esotericism (Lorberbaum) Democratic culture assumes the democracy of knowledge - the accessibility of of knowledge and its transparency. Should this always be the case? What of harmful knowledge? When are secrets necessary? In traditional Jewish thought, approaching the divine has often assumed an aura of danger. Theological knowledge was thought of as restricted. This seminar will explore the "open" and "closed" in theological knowledge, as presented in central texts of the rabbinic tradition: the Mishnah, Maimonides and the Kabbalah. Primary sources will be available in both Hebrew and English.
For BA Students: History and Tradition Sector
Taught by: Ben-Amos/Dohrmann/Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

JWST 102 Jewish Humor
In modern American popular culture Jewish humor is considered by Jews and non-Jews as a recognizable and distinct form of humor. Focusing upon folk-humor, in this course we will examine the history of this perception, and study different manifestation of Jewish humor as a particular case study of ethnic in general. Specific topics for analysis will be: humor in the Hebrew Bible, Jewish humor in Europe and in America, JAP and JAM jokes, Jewish tricksters and pranksters, Jewish humor in the Holocaust and Jewish humor in Israel. The term paper will be collecting project of Jewish jokes.
Taught by: Ben Amos
Course not offered every year
Activity: Lecture
1 Course Unit

JWST 103 The Messianic Impulse in Jewish History
Taught by: Ruderman
One-term course offered either term
Activity: Seminar
1 Course Unit

JWST 122 Religions of the West
This course surveys some of the core beliefs and practices within Judaism, Christianity, and Islam. To do so, we will focus on history and memory, exploring how key figures and formative events from the past have been made present, from generation to generation, through scripture, ritual, liturgy, and remembrance. Special attention will be given to points of interaction between Jews, Christians, and Muslims, as well as to the impact of their intertwined histories on the formation and development of Western cultures. Fulfills History & Tradition Sector.
For BA Students: History and Tradition Sector
Taught by: Reed
One-term course offered either term
Activity: Lecture
1 Course Unit

JWST 126 Jewish Mysticism
Survey of major periods of development of mystical speculation and experience within Judaism. Mystical symbolism as a basis for theosophical interpretations of Torah, Immanantist theologies, mystical ethics. Types of experiences and practices which were cultivated by Jewish mystics in order to achieve intimate communion with the Divine and to facilitate a sacred transformation of themselves and the world. Includes "Riders of the Chariot", The Zohar (Book of Splendor), Lurianic Kabbalah, Hasidism.
Course not offered every year
Activity: Lecture
1 Course Unit

JWST 130 American Jewish Experience
This course offers a comprehensive survey of American Jewish history from the colonial period to the present. It will cover the different waves of Jewish immigration to the United States and examine the construction of Jewish political, cultural, and religious life in America. Topics will include: American Judaism, the Jewish labor movement, Jewish politics and popular culture, and the responses of American Jews to the Holocaust and the State of Israel.
Taught by: Wenger
Course usually offered in fall term
Activity: Lecture
1 Course Unit
JWST 131 How To Read the Bible
While the Bible may be the most read text in the world, it is not clear that anyone understands what it actually means. Secular scholars read the Bible as they would any other ancient document, trying to understand who wrote it and what it reveals about the past, but that is not how the Bible is understood by hundreds of millions of readers who embrace it as a message from God and read its contents not just to learn about the past but to understand what the meaning of life is, how to be a good person, and where the world is headed. How is it that the Bible is read in such different ways by the secular and the religious? Who is right in the struggle over its meaning, and how does one go about deciphering that meaning in the first place?
Taught by: Weitzman
Activity: Seminar
1 Course Unit

JWST 136 Death and the Afterlife in Ancient Judaism and Christianity
This course surveys the development of concepts about death and the afterlife in Judaism and Christianity, exploring the cultural and socio-historical contexts of the formation of beliefs about heaven and hell, the end of the world, martyrdom, immortality, resurrection, and the problem of evil. Readings cover a broad range of ancient sources, including selections from the Hebrew Bible and New Testament, as well as other Jewish and Christian writings (e.g., “apocrypha,” “pseudepigrapha,” Dead Sea Scrolls, classical rabbinic literature, Church Fathers, “gnostic” and “magical” materials). In the process, this course introduces students to formative eras and ideas in the history of Judaism, Christianity, and Western culture.
One-term course offered either term
Activity: Lecture
1 Course Unit

JWST 151 Great Books of Judaism (Fall 2018: Lifecycle in the Talmud)
The Babylonian Talmud, known simply as the Bavli, is the foundational legal and ethical document of rabbinic Judaism. It is one of the best read works of world literature, and it is the most widely disseminated and revered rabbinic work. It not only contains legal discussions and rulings but rather it also presents the worldview of the rabbis. This course will analyze and contextualize the perspectives of the Talmud towards the important phases of life. We will examine in-depth several Talmudic passages relating to the various stages of the human lifecycle: birth and naming of the child; circumcision; bar/bat mitzva and adulthood; earning a livelihood and choosing a career; marriage and divorce; procreation and raising children; death, burial, mourning and the belief in the resurrection of the dead among others. We will evaluate these teachings in light of other traditions and in their broader late antiquity and contemporary contexts. All texts will be read in their English translation but originals will also be provided.
For BA Students: Arts and Letters Sector
Taught by: Bergmann
Course usually offered in fall term
Activity: Seminar
1 Course Unit

JWST 153 Jewish Literature in the Middle Ages in Translation
Course explores the cultural history of Jews in the lands of Islam from the time of Mohammed through the late 17th century (end of Ottoman expansion into Europe) – in Iraq, the Middle East, al-Andalus and the Ottoman Empire. Primary source documents (in English translation) illuminate minority-majority relations, internal Jewish tensions (e.g., Qaraism), and developments in scriptural exegesis, rabbinic law, philosophy, poetry, polemics, mysticism and liturgy. Graduate students have additional readings and meetings.
Spring 2015
Taught by: Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

JWST 154 Modern Hebrew Literature and Culture in Translation: Autobiography
This course follows and analyzes the transformations in Israeli literature and cinema. The lens through which we study this canon changes each semester. These “lenses” include: “Childhood,” “Holocaust,” “Cities,” “Madness,” and others. Israeli works constitute much of the course’s material, but European and American film and fiction play comparative roles. For a description of the current theme, please see the websites of Cinema and Media Studies, Jewish Studies, NELC, COML, or ENGL. This course will follow and analyze the transformation of Israeli literature and cinema from instruments of suppression into a means of processing this national trauma. While Israeli works constitute much of the course’s material, European and American film and fiction play comparative roles.
For BA Students: Arts and Letters Sector
Taught by: Gold
One-term course offered either term
Activity: Lecture
1 Course Unit
**JWST 156 Jews and Judaism in Antiquity: History of Jewish Civilization I**
The course is an overview of Jewish history, culture, and society from its biblical settings through the Hellenistic-Roman, and rabbinic periods. We will trace the political, social, and intellectual-religious, and literary development of Judaism from its beginnings through the Second Temple period to the formation and evolution of Rabbinic Judaism. Topics to be covered include: the evolution of biblical thought and religious practice over time; Jewish writing and literary genres; varieties of Judaism; Judaism and Imperialism; the emergence of the rabbinic class and institutions.
For BA Students: History and Tradition Sector
Taught by: Dohrmann
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**JWST 157 Medieval and Early Modern Jewry**
Exploration of intellectual, social, and cultural developments in Jewish civilization from the rise of Islam in the seventh century to the assault on established conceptions of faith and religious authority in 17th century Europe, that is, from the age of Mohammed to that of Spinoza. Particular attention will be paid to the interaction of Jewish culture with those of Christianity and Islam.
For BA Students: History and Tradition Sector
Taught by: Ruderman
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**JWST 158 Jews in the Modern World: History of Jewish Civilization III**
This course offers an intensive survey of the major currents in Jewish culture and society from the late middle ages to the present. Focusing upon the different societies in which Jews have lived, the course explores Jewish responses to the political, socio-economic, and cultural challenges of modernity. Topics to be covered include: the political emancipation of Jews, the creation of new religious movements within Judaism, Jewish socialism, Zionism, the Holocaust, and the emergence of new Jewish communities in Israel and the United States. No prior background in Jewish history is expected.
For BA Students: History and Tradition Sector
Taught by: Wenger
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**JWST 171 Elementary Biblical Hebrew I**
This course is an introduction to Biblical Hebrew. It assumes no prior knowledge, but students who can begin to acquire a reading knowledge of the Hebrew alphabet before class starts will find it extremely helpful. The course is the 1st of a 4-semester sequence whose purpose is to prepare students to take courses in Bible that demand a familiarity with the original language of the text.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**JWST 173 Intermediate Biblical Hebrew I**
This course will focus on using the grammar and vocabulary learned at the introductory level to be able to read Biblical texts independently and take advanced Bible exegesis courses. We will also work on getting comfortable with the standard dictionaries, concordances, and grammars used by scholars of the Bible. We will concentrate on prose this semester, closely reading Ruth, Jonah, and other prose selections. We will begin to translate from English into Biblical Hebrew, and there will also be a unit on the cantillation/punctuation marks used in the Bible. A suitable entry point for students who know modern Hebrew or have previously learned Biblical Hebrew in a less demanding framework.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in fall term
Activity: Lecture
Prerequisites: Successful completion of HEBR 152 or permission of the instructor.

**JWST 199 Directed Readings**
A tutorial under the direction of a member of the Jewish Studies Program faculty. Student and faculty member will create a reading list designed to achieve specific goals. The students will meet regularly with the faculty member and submit written assignments. Prior approval and sponsorship by a Jewish Studies Program faculty member is needed to take the course.
One-term course offered either term
Activity: Independent Study
1 Course Unit

**JWST 201 Major Seminar in History: Europe Before 1800**
One-term course offered either term
Activity: Seminar
1 Course Unit

**JWST 213 The Religious Other**
Course explores attitudes toward monotheists of other faiths, and claims made about these “religious Others” in real and imagined encounters between Jews, Christians and Muslims from antiquity to the present. Strategies of “othering” will be analyzed through an exploration of claims about the Other’s body, habits and beliefs, as found in works of scripture, law, theology, polemics, art, literature and reportage. Attention will be paid to myths about the other, inter-group violence, converts, cases of cross-cultural influence, notions of toleration, and perceptions of Others in contemporary life. Primary sources will be provided in English.
Taught by: Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

**JWST 215 Re-Reading the Holocaust**
This course explores how the Holocaust has been constructed as an historical event. Beginning in the mid-1940s, with the first attempts to narrate what had transpired during the Nazi era, this seminar traces the ways that the Holocaust became codified as a distinct episode in history. We will examine documentary films, memoirs, survivor testimonies, as well as other scholarly and popular representations of the Holocaust. Students will be introduced to unfamiliar sources and also asked to reconsider some well-known Holocaust documents and institutions.
Taught by: Wenger
Activity: Seminar
1 Course Unit
JWST 216 Jews and the City
One-term course offered either term
Activity: Seminar
1 Course Unit

JWST 225 Introduction to the Dead Sea Scrolls
Exploration of the issues relating to the identification and history of the people who produced and used these materials as well as the claims made about the inhabitants of the Qumran site near the caves in which the scrolls were discovered, with a focus on what can be known about the community depicted by some of the scrolls, its institutions and religious life, in relation to other known Jewish groups at that time (the beginning of the common era). This will involve detailed description and analysis of the writings found in the caves – sectarian writings, "apocrypha" and "pseudepigrapha," biblical texts and interpretations.

Course not offered every year
Activity: Seminar
1 Course Unit

JWST 244 Miracles to Mindfulness
In 1902, the most famous philosopher in America, William James, revolutionized the study of religion by analyzing religion as an experience rather than as a set of doctrines or scriptures. In this course, we will pick up the inquiry that James and scholars such as Sigmund Freud began by exploring new approaches to the science and philosophy of religious experience. We will invite a series of experts from a wide range of fieldsneuroscience, psychoanalysis, phenomenology, psychology, anthropology, to name only a few--to present their cutting-edged research on the nature of religious experience. How can religious experience be studied? What does the research reveal about religious experience? And what can we learn from such experiences about the workings of the human mind and human society? The course has two components: 1) a discussion-centered mini-seminar from 3:30-5:00 will open consideration of the subject with help from relevant readings 2) a guest lecture series every Tuesday from 5:00-6:30, nary angles or in light featuring leading scholars who approach religious experience from different disciplinary angles or in light of different questions.

Taught by: Steve Weitzman, Phil Webster
Activity: Lecture
1 Course Unit

JWST 248 Arab Israeli Relations
One-term course offered either term
Activity: Recitation
1 Course Unit

JWST 249 Ultimate Meanings
Does life have some ultimate meaning? In their search for an answer to this question, people tell stories—stories about the creation of the world, about great human beings confronted with the mysteries of existence, about what happens to people after death. To explore the role of stories in finding meaning in life, we will focus on some of the most meaningful stories ever composed: the biblical stories of Adam and Eve, Abraham and his family, the Exodus, Job and his friends, and the life and death of Jesus. One of our goals is to try to retrieve the original meaning of these narratives, what their authors intended, but we will also explore what they have come to mean for readers in our own day for believers and skeptics, scientists and artists, fundamentalists and feminists.

For BA Students: Arts and Letters Sector
Taught by: Weitzman
Activity: Seminar
1 Course Unit

JWST 255 The Bible in Translation
This course introduces undergraduates and graduate students to one specific Book of the Hebrew Bible. "The Bible in Translation" involves an in-depth reading of a biblical source against the background of contemporary scholarship. Depending on the book under discussion, this may also involve a contextual reading with other biblical books and the textual sources of the ancient Near East. Although no prerequisites are required, NELC 250 is a perfect follow-up course for NELC 150 "Intro to the Bible."

Taught by: Cranz
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit.

JWST 258 Studies in Medieval Jewish Literature
Course introduces students to the academic study of different genres of medieval Jewish culture through exposure to themes, authors and genres: literature: poetry, narrative, biblical interpretation, polemic, liturgy, historiography, philosophy, law, custom, sermons, pietistic and mystical texts. Study of primary texts will be anchored in explorations of the historical, regional and cross-cultural settings in which they were produced and subsequently received. The specific topic of the course – whether a genre, (e.g., polemics), a theme (e.g., prophecy), or an author (e.g., Maimonides) – varies. Students who will be reading primary sources in the original should have experience reading unpointed Hebrew texts.

Students who do not read Hebrew may encounter the texts in English translation. When topics vary, may be repeated for credit.

Taught by: Fishman
Course usually offered in fall term
Prerequisite: Reading knowledge of Hebrew
Activity: Seminar
1 Course Unit

JWST 259 Introduction to Modern Hebrew Literature
The objective of this course is to develop an artistic appreciation for literature through in-depth class discussions and text analysis. Readings are comprised of Israeli poetry and short stories. Students examine how literary language expresses psychological and cultural realms. The course covers topics such as: the short story reinvented, literature and identity, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students’ literary understanding.

For BA Students: Arts and Letters Sector
Taught by: Gold
Course usually offered in fall term
Prerequisite: Hebrew 054 or the equivalent, per instructor’s evaluation
Activity: Seminar
1 Course Unit
Notes: Because the content of this course changes from year to year, students may take it more than once.
JWST 260 Jewish Folklore
The Jews are among the few nations and ethnic groups whose oral tradition occurs in literary and religious texts dating back more than two thousand years. This tradition changed and diversified over the years in terms of the migrations of Jews into different countries and the historical, social, and cultural changes that these countries underwent. The course attempts to capture the historical and ethnic diversity of Jewish folklore in a variety of oral literary forms.
Taught by: Ben-Amos
One-term course offered either term
Activity: Lecture
1 Course Unit

JWST 261 Topics in Jewish-American Literature
From the 1922 silent film "Hungry Hearts" through the first "talkie," "The Jazz Singer," produced in 1927, and beyond "Schindler's List," Jewish characters have confronted the problems of their Jewishness on the silver screen for a general American audience. Alongside this Hollywood tradition of Jewish film, Yiddish film blossomed from independent producers between 1911 and 1939, and interpreted literary masterpieces, from Shakespeare's "King Lear" to Sholom Aleichem's "Teyve the Dairyman," primarily for an immigrant, urban Jewish audience. In this course, we will study a number of films and their literary sources (in fiction and drama), focusing on English language and Yiddish films within the framework of three dilemmas of interpretation: a) the different ways we "read" literature and film, b) the various ways that the media of fiction, drama, and film "translate" Jewish culture, and c) how these translations of Jewish culture affect and are affected by their implied audience.
For BA Students: Arts and Letters Sector
Taught by: Hellerstein
Course not offered every year
Activity: Seminar
1 Course Unit

JWST 262 Jewish Literature in Translation
The course explores an aspect of 20th-century literature intensively; specific course topics will vary from year to year. Fall 2016 - REPRESENTATION OF THE HOLOCAUST IN LITERATURE AND FILM: This discussion-centered course is about the enormous difficulties faced by those who felt the need to describe their own or others' experiences during the genocide of the European Jews, 1933-1945. We will explore the complex options they have faced as narrators, witnesses, allegorists, memoirists, scholars, teachers, writers and image-makers. Some linguistically (or visually) face the difficulty head on; most evade, avoid, repress, stutter or go silent, and agonize. One purpose of the course is for us to learn how to sympathize with the struggle of those in the latter group. This is not a history course, although the vicissitudes of historiography will be a frequent topic of conversation. Students will write frequent short papers, called position papers, due before class, in order to provide a basis for discussion. Students need not know anything about the Holocaust, although enrollees should consider historical reading over the summer.
Taught by: Filreis
Course not offered every year
Activity: Seminar
1 Course Unit

JWST 266 Jewish Art
Jewish Art provides a survey of art made by and for Jews from antiquity to the present. It will begin with ancient synagogues and their decoration, followed by medieval manuscripts. After a discussion of early modern representation of Jews in Germany and Holland (esp. Rembrandt), it focuses most intently on the past two centuries in Europe, American, and finally Israel and on painting and sculpture as Jewish artists began to pursue artistic careers in the wider culture. No prerequisites or Jewish background assumed.
Taught by: Silver
Course not offered every year
Activity: Lecture
1 Course Unit

JWST 299 Independent Study
An independent study course culminating in a final written project. Prior approval and sponsorship by a member of the Jewish Studies Program faculty is needed to take the course.
One-term course offered either term
Activity: Independent Study
1 Course Unit

JWST 303 Power and Peril: The Paradox of Monarchy among Ancient Greeks, Romans, and Jews
We imagine Ancient Greece and Rome as the cradles of democracy and republicanism, the early Judea as pious theocracy, but the evidence tells us that monarchy was the most common and prevalent form of government in antiquity (and the premodern world in general). Despite their ubiquity, the King was a polarizing figure in reality and in conception. On the one hand, some idealized the monarchy as the ideal leader, and monarchy provided the language with which to describe and even imagine the very gods but on the other, monarchs were widely reviled in both theory and practice, from the Greek tyrant to biblical Saul. The Emperor Augustus loudly denied his own affinity to the office of king, even as he ruled alone and was revered as a god. In other words, kings stood both for the ideal ruler and the worst form of government. This class confronts the paradox of the King. This class will take a special look at the idea and institution of kingship in the Near East, among the Jews, Greeks, and Romans to assess and discuss similarities, differences, and mutual influences among these cultures. Through the lens of the king we will explore the idea of god, government, human frailty, and utopianism. Why did the rule of one prevail, why was it so attractive to so many? How was royal rule legitimized? What role did religious beliefs play for keeping a monarchical system stable? What did people expect from their rulers and what happened if the ruler failed to fulfill these expectations? How was the concept of monarchical rule adopted and transferred into other spheres, such as religious belief systems or hopes for messianic kingship? While kingship is a rich field of scholarly inquiry, the question of its ubiquity, and the entanglement and divergences of these three cultures is rarely studied in context and in comparison.
Taught by: Julia Wilker, Natalie Dohrmann
Activity: Seminar
1 Course Unit
JWST 305 Jewish Diaspora in the Roman Empire
Under the Roman Empire, Jewish communities developed and flourished especially in the cities of the Eastern Mediterranean, in Egypt, Syria, Asia Minor, Greece, Northern Africa, and Italy proper. In many of these cities, the Jews formed a considerable part of the population; they influenced the cultural, social, and political communal life and developed an identity that was distinctively different from that in Judea. In this seminar, we will trace Jewish life in the Diaspora under Roman rule. How did Jews and non-Jews interact? What was the legal status of Jewish communities under the Roman Empire? What caused conflicts and how were they solved? What can the history of Jewish Diaspora communities tell us about minorities in the Roman Empire in general? We will use literary texts, inscriptions, papyri, and archaeological material to answer these questions and many more.
Taught by: Wilker
Activity: Seminar
1 Course Unit

JWST 320 Spirit and Law
While accepting “the yoke of the commandments”, Jewish thinkers from antiquity onward have perennially sought to make the teachings of revelation more meaningful in their own lives. Additional impetus for this quest has come from overtly polemical challenges to the law, such as those leveled by Paul, medieval Aristotelians, Spinoza and Kant. This course explores both the critiques of Jewish Law, and Jewish reflections on the Law’s meaning and purpose, by examining a range of primary sources within their intellectual and historical contexts. Texts (in English translation) include selections from Midrash, Talmud, medieval Jewish philosophy and biblical exegesis, kabbalah, Hasidic homilies, Jewish responses to the Enlightenment, and contemporary attempts to re-value and invent Jewish rituals.
Taught by: Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

JWST 359 Seminar in Modern Hebrew Literature
This course introduces students to selections from the best literary works written in Hebrew over the last hundred years in a relaxed seminar environment. The goal of the course is to develop skills in critical reading of literature in general, and to examine how Hebrew authors grapple with crucial questions of human existence and national identity. Topics include: Hebrew classics and their modern “descendents,” autobiography in poetry and fiction, the conflict between literary generations, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students’ literary understanding.
For BA Students: Arts and Letters Sector
Taught by: Gold
Course usually offered in spring term
Prerequisites: Hebrew 059 or the equivalent, per instructor’s evaluation
Activity: Seminar
1 Course Unit
Notes: Because the content of the course changes from year to year, students may take the course more than once for credit.

JWST 380 Modern Jewish Intellectual and Cultural History
An overview of Jewish intellectual and cultural history from the late 18th century until the present. The course considers the Jewish enlightenment Reform, Conservative and Neo-Orthodox Judaism, Zionist and Jewish Socialism thought, and Jewish thought in the 20th century, particularly in the context of the Holocaust. Readings of primary sources including Mendelsohn, Geige Hirsch, Herzl, Achad-ha-Am, Baeck, Buber, Kaplan, and others. No previous background is required.
Taught by: Ruderman
One-term course offered either term
Activity: Lecture
1 Course Unit

JWST 390 Senior Research Seminar
JWST 390 is required of all students majoring in the Interdisciplinary Jewish Studies major, but all majors and minors in the various departmental programs are encouraged to take the seminar. Students will conduct independent research and complete a 20-30 page paper.
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: Permit required

JWST 399 Senior Honors Thesis
Jewish Studies Honors majors must take JWST 399 in which they will design, with the guidance of an advisor, an individualized directed reading program culminating in the writing of an honors thesis.
One-term course offered either term
Activity: Independent Study
1 Course Unit

JWST 410 Topics in Medieval History
This seminar introduces students to the development of Jewish and Christian biblical interpretation by focusing on ancient, medieval, and modern interpretations of the Sermon on the Mount. The Sermon on the Mount is part of the Gospel of Matthew and is often considered to summarize the essential teachings of Jesus of Nazareth. Students will encounter a variety of important interpreters (including Origen, John Chrysostom, Augustine of Hippo, Thomas Aquinas, Martin Luther, Leo Tolstoy, Albert Schweitzer, Dietrich Bonhoeffer, Clarence Jordan, and Hans Dieter Betz), guided by appropriate secondary materials. The seminar will utilize a combination of lecture, discussion, student presentations, reports, close reading, and a research paper. Students will be encouraged to do original research in the primary sources. This course has no prerequisites. The readings will be made available in English. The class will utilize a combination of lecture, discussion, student presentations, reports, close reading, and a research paper.
Taught by: Treat
One-term course offered either term
Activity: Seminar
1 Course Unit

JWST 438 Readings in Modern Yiddish Literature
This course will survey modern Yiddish literature through readings of Yiddish prose and poetry from the end of the 19th century through the late 20th century. The class will be conducted in both Yiddish and English. Reading knowledge of Yiddish is required, although some texts will be available in English translation. Authors include I.L. Peretz, Isaac Bashevis Singer, Moyshe-Leyb Halpern, and Kadya Molodowsky.
Taught by: Hellerstein
Course not offered every year
Prerequisites: Reading knowledge of Yiddish.
Activity: Lecture
1 Course Unit
JWST 449 God and Nature: Readings on the Encounter between Jewish Thought and Science
God and Nature examines the place of the natural world, medicine, and science in Jewish thought from antiquity to the modern era. It looks especially at a body of primary sources in Hebrew written during the age of the so-called "scientific revolution" and during its aftermath. The course is a seminar open to undergraduate and graduate students with a reading knowledge of classical Hebrew. Students without Hebrew with special interest in the subject might enroll with special permission from the instructor.
Taught by: Ruderman
Activity: Seminar
1 Course Unit

JWST 471 Elementary Biblical Hebrew I
This course is an introduction to Biblical Hebrew. It assumes no prior knowledge, but students who can begin to acquire a reading knowledge of the Hebrew alphabet before class starts will find it extremely helpful. The course is the 1st of a 4-semester sequence whose purpose is to prepare students to take courses in Bible that demand a familiarity with the original language of the text.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in fall term
Prerequisite: For the second semester: Completion of the first semester or permission of the instructor
Activity: Lecture
1 Course Unit

JWST 473 Intermediate Biblical Hebrew I
This course will focus on using the grammar and vocabulary learned at the introductory level to be able to read Biblical texts independently and take advanced Bible exegesis courses. We will also work on getting comfortable with the standard dictionaries, concordances, and grammars used by scholars of the Bible. We will concentrate on prose this semester, closely reading Ruth, Jonah, and other prose selections. We will begin to translate from English into Biblical Hebrew, and there will also be a unit on the cantillation/punctuation marks used in the Bible. A suitable entry point for students who know modern Hebrew or have previously learned Biblical Hebrew in a less demanding framework.
For BA Students: Language Course
Taught by: Carasik
Course usually offered in fall term
Prerequisites: Successful completion of HEBR 152 or permission of the instructor
Activity: Lecture
1 Course Unit

JWST 490 Topics in Jewish History
Reading and discussion course on selected topics in Jewish history. One-term course offered either term
Activity: Seminar
1 Course Unit

JWST 509 Jewish Women Writers
One version of this seminar considers works by Jewish women who wrote in Yiddish, Hebrew, English, and other languages in the late 19th through the 20th century. The texts, poetry and prose, will include both belles lettres and popular writings, such as journalism, as well as private works (letters and diaries) and devotional works. The course will attempt to define "Jewish writing," in terms of language and gender, and will consider each writer in the context of the aesthetic, religious, and national ideologies that prevailed in this period. Because students will come with proficiency in various languages, all primary texts and critical and theoretical materials will be taught in English translation. However, those students who can, will work on the original texts and share with the class their expertise to foster a comparative perspective. Because we will be discussing translated works, a secondary focus of the course will, in fact, be on literary translation's process and products.
Activity: Seminar
1 Course Unit

JWST 520 Spirit and Law
While accepting "the yoke of the commandments", Jewish thinkers from antiquity onward have perennially sought to make the teachings of revelation more meaningful in their own lives. Additional impetus for this quest has come from overtly polemical challenges to the law, such as those leveled by Paul, medieval Aristotelians, Spinoza and Kant. This course explores both the critiques of Jewish Law, and Jewish reflections on the Law's meaning and purpose, by examining a range of primary sources within their intellectual and historical contexts. Texts (in English translation) include selections from Midrash, Talmud, medieval Jewish philosophy and biblical exegesis, kabbalah, Hasidic homilies, Jewish responses to the Enlightenment, and contemporary attempts to re-value and re-invent Jewish rituals.
Taught by: Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

JWST 523 Studies in Medieval Jewish Culture
Course examines features of 9th-16th century Jewish culture within their broader historical, regional and cross-cultural contexts, whether Christian or Islamic. Emphasis is placed on primary sources in Hebrew. Topics vary and have included "Reconstructing Rabbinic Judaism prior to the First Millennium"; "Custom in Medieval Jewish Cultures"; "Jewish Culture in the Islamicate World"; "Nature in Medieval Jewish Culture". Students should be able to read unpointed Hebrew. May be repeated for credit.
Taught by: Fishman
Course usually offered in fall term
Prerequisites: Successful completion of HEBR 152 or permission of the instructor
Activity: Seminar
1 Course Unit

JWST 537 Translating Literature
Course not offered every year
Activity: Seminar
1 Course Unit
JWST 553 Seminar in Rabbinic Literature
This seminar will investigate biblical and other precedents for the idea of the messiah and the messianic age, and their interpretation and extension into both ancient Judaism and ancient Christianity. To what degree are Second Temple Jewish and early Christian ideas about the messiah an extension of ancient Israelite concepts? To what degree might they reflect a response or reaction to Hellenistic and Roman imperial ideologies? How (and when) did beliefs surrounding Jesus depart meaningfully from Jewish ideas about the messiah? How do Rabbinic Jewish traditions about the messiah and messianic age differ from their Christian counterparts, and is there evidence of any "influence"? These questions will be explored with a focus on primary source readings.
Taught by: Stern
Course usually offered in spring term
Prerequisites: Proficiency in Hebrew and/or Greek recommended.
Undergraduates need permission to enroll.
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit

JWST 556 Seminar Modern Hebrew Literature: LITERATURE & IDENTITY
This course is for students who are interested in taking a literature course in Hebrew and are proficient in it. Grading is based primarily on students' literary understanding. There will be four 2-page written assignments over the course of the semester. We will discuss literary works that reflect Israelis' struggle with their national identity, from the patriotic 1948 generation for whom self and country overlapped to contemporary writers who ask what it means to be Israeli. While Yehuda Amichai's 1955 poem "I want to die in my bed" was a manifesto for individualism, the seemingly interminable Arab-Israeli conflict returned writers to the national, social, and political arenas starting in the 1980's. Readings include poems by Natan Alterman, Amir Gilboa, Meir Wieseltier and Roni Somek as well as fiction by Amos Oz, David Grossman, Sayed Kashua, Alona Kimhi and Etgar Keret. Texts, discussions and papers in Hebrew. The content of this course changes from year to year so students may take it for credit more than once.
Taught by: Gold
Course not offered every year
Prerequisites: HEBR 059 or HEBR 259 or permission of the instructor.
This class is conducted in Hebrew and the texts are read in the original. The syllabus serves solely as an outline. The amount of material we cover depends on the pace of the class. Additionally, the packet contains significantly more material than will be studied in class to compensate for the difficulty of obtaining Hebrew texts in America. The content of this course changes from year to year and therefore students may take it for credit more than once.
Activity: Seminar
1 Course Unit

JWST 582 Topics in Aesthetics
The course will study Arendt's political theory, as developed in The Origins of Totalitarianism, and her controversial book Eichmann in Jerusalem. It will also consider essays collected in Men in Dark Times. (Fall 2016 course)
Taught by: Weissberg
Activity: Seminar
1 Course Unit

JWST 620 Modern Jewish History
JWST 620 will be offered when the HIST 620 Colloquium subject matter is appropriate.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

JWST 699 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

JWST 999 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
KOREAN (KORN)

KORN 001 First-year Spoken Korean I
Offered through the Penn Language Center. KORN 001 is for those that have little to no knowledge of Korean. This course will mainly focus on the development of Korean communication skills by exploring a variety of everyday topics beyond school settings. Students will improve their Korean communication skills by engaging in a variety of interactive activities, role-plays, and presentations. Class topics include, but are not limited to, introducing oneself, describing one's surroundings, discussing daily activities and past events, talking about common objects and people, etc. We will also introduce cultural topics in order to deepen students' understanding of Korea's culture and language. NOTE: This course not count toward the language requirement or the EALC major or minor.
Taught by: Kim, Eunae
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: This course does not count toward the language requirement and major/minor requirements.

KORN 002 First-year Spoken Korean II
Offered through the Penn Language Center. A continuation of KORN 001, this course aims to further develop oral communication skills by exploring a variety of topics, such as shopping, hobbies, family, and future plans. Class activities include interactive tasks, role-plays, and presentations. Cultural topics will also be incorporated in order to further deepen students' understanding of Korea's culture and language. Upon completion of the course, students will be able to comprehend and carry on basic conversations; exchange information on a variety of topics in the past, present, and future tenses; and achieve a proficiency level of Novice High based on the ACTFL (American Council on the Teaching of Foreign Languages) proficiency scale. NOTE: This course not count toward the language requirement or the EALC major or minor.
Course usually offered in spring term
Prerequisite: KORN 001 or equivalent proficiency
Activity: Lecture
1 Course Unit
Notes: This course does not count toward the language requirement and major/minor requirements.

KORN 011 Elementary Korean I
This course is designed for students who have little or no knowledge of Korean. This course aims to develop foundational reading, writing, listening, and speaking skills through meaningful communicative activities and tasks. Upon successful completion of this course, students should be able to comprehend and carry on simple daily conversations and create simple sentences in the past, present, and future tenses. Students will learn how to introduce themselves, describe their surroundings, talk about daily lives, friends and relatives, and talk about past and future events.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit

KORN 012 Elementary Korean II
This is a continuation of KORN 011. This course aims to further develop the four language skills of students to the novice-high level by building on materials covered in KORN 011. Students will learn how to use three speech styles (polite formal, informal, and intimate) appropriately in a given context. Upon successful completion of this course, students should be able to handle simple and elementary needs of daily lives and talk (and write) about a variety of topics such as family, college life, birthday celebration, shopping, Korean food, etc.
For BA Students: Language Course
Course usually offered in spring term
Prerequisites: Completion of KORN 011 or equivalent knowledge and permission of the instructor.
Activity: Lecture
1 Course Unit

KORN 021 Intensive Elementary Korean I & II
KORN 021 is an intensive Korean course that covers the material from KORN 011 and KORN 012 in an intensive format, designed for novice learners who have little or no knowledge of Korean. This course aims to develop a solid foundation for reading, writing, listening, and speaking skills through meaningful communicative activities and tasks in cultural context. Upon completion of the course, students should be able to handle simple and elementary needs of daily lives and be able to talk and write about a variety of topics such as mood and personalities, clothing, weather, illness, Korean food, etc. Students will also learn how to use three speech styles (polite formal, informal, and intimate) appropriately in a given context. Students are also expected to obtain the Novice High level of proficiency based on the ACTFL (American Council on the Teaching of Foreign Languages) proficiency scale. During the summer, this course will be given in an online format that provides a communicative learning environment through Adobe Connect and Canvas. Students will be required to view PowerPoint slide shows and do homework questions in Canvas before each class, and class time will be mostly spent on communicative activities. After class, students will practice four language skills with the online exercises on Canvas, class blogs, and Voice Thread. This online course requires access to a reliable computer with high-speed internet and good quality headsets with a microphone. This course is offered through the Penn Language Center.
Course usually offered summer term only
Activity: Lecture
2 Course Units

KORN 111 Intermediate Korean I
This is a continuation of KORN 012. This course is designed to develop students' Korean language proficiency to the intermediate-low level of the ACTFL Proficiency Guidelines. Authentic materials, as well as various student-centered activities that are highly contextualized in everyday interactions will be used. Upon completion of the course, students will be able to present and exchange information on a variety of topics such as weather, fashion, travel, mailing, housing, public transportation, and shopping.
For BA Students: Language Course
Course usually offered in fall term
Prerequisites: Language Course
Activity: Lecture
1 Course Unit
KORN 112 Intermediate Korean II
This is a continuation of KORN 111. This course is designed to develop students’ Korean language proficiency to the intermediate-mid level of the ACTFL Proficiency Guidelines. This course expands student’s competence by dealing with more functions in various contexts that students can frequently encounter in everyday interactions. In order to prepare students for social contexts, students are encouraged to engage in conversations by personalizing the topics, functions or contexts. Students will perform in an interpersonal way by providing and obtaining information, expressing feelings and emotions, and exchanging opinions on a variety of topics such as birthday parties, recreation and hobbies, Korean holidays, marriage, cultural differences, education and jobs. This course completes the College language requirement.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisites: Completion of KORN 111 or equivalent knowledge and permission of the instructor.
Activity: Lecture
1 Course Unit

KORN 131 Korean for Heritage Speakers I
This course is designed for heritage speakers who have a strong background in everyday Korean. This course focuses on enhancing linguistic accuracy (spelling, grammar, vocabulary, pronunciation) and fluency (idiomatic and figurative expressions, narrative structure, discursive practice) in both spoken and written Korean, as well as gaining a deeper understanding of Korean culture. Upon completion of the course, students will be able to express themselves more accurately and participate in Korea-related communities more meaningfully. This course and its subsequent course KORN 132 complete the College language requirement.
Taught by: Jung
Course usually offered in fall term
Prerequisites: Restricted to students who have previous knowledge in Korean. Students are required to take the Korean placement test.
Activity: Lecture
1 Course Unit

KORN 132 Korean for Heritage Speakers II
This course is a continuation of KORN 131 and aims to further develop students’ linguistic and cultural competence by building on materials covered in KORN 131. In addition to gaining a deeper understanding of Korean culture, the course focuses on enhancing linguistic accuracy and fluency in both spoken and written Korean. Particular emphasis will be placed on building a meaningful Korean-speaking community, as well as consolidation of grammar structures, and expansion and enhancement of vocabulary. Topics include preparing for a trip to Korea, finding housing, college culture in Korea, entertainment and participating in various social events. Upon completion of this course, students will be able to express themselves more accurately and participate in Korea-related communities more meaningfully. This course completes the College language requirement.
For BA Students: Last Language Course
Taught by: Jung
Course usually offered in spring term
Prerequisites: Completion of KORN 131 or equivalent knowledge and permission of the instructor.
Activity: Lecture
1 Course Unit

KORN 211 Advanced Korean I
This course aims to develop functional proficiency in Korean at the intermediate-high level. Students will develop competence in fluency, grammatical accuracy and socio-linguistic/cultural appropriateness through a variety of activities and assignments. In addition, students will learn to communicate using more sophisticated grammatical structures and vocabulary on various topics. The development of each of the four language skills (speaking, listening, reading and writing) is equally emphasized.
For BA Students: Advanced Language Course
Taught by: Cho
Course usually offered in fall term
Prerequisites: Completion of KORN 112, 132 or equivalent knowledge and permission of the instructor.
Activity: Lecture
1 Course Unit

KORN 212 Advanced Korean II
This is a continuation of KORN 211. Students continue to develop functional proficiency in Korean at the advanced-low level. The topics include literature, culture, Korean customs, and social issues in contemporary Korea.
For BA Students: Advanced Language Course
Taught by: Cho
Course usually offered in spring term
Prerequisites: Completion of KORN 211 or equivalent knowledge and permission of the instructor.
Activity: Lecture
1 Course Unit

KORN 281 Business Comm in Korean
Offered through the Penn Language Center. This course is designed to help students improve their Korean language proficiency by learning essential communication skills necessary to engage in business in Korea. Students will also develop their knowledge of and competence in Korean business culture and practice. The course objectives include: (1) to learn essential business terms, advanced grammar structures and communication strategies in business transactions; (2) to learn Korean business customs and culture, work norms, and business etiquette that students need to successfully communicate in a Korean business context. Topics include job application, business correspondence and reports, discussion and presentation in business meetings, communication styles and strategies in business contexts, current business culture, etc.
Taught by: Cho
Course usually offered in fall term
Prerequisites: Completion of KORN 112, 132 or equivalent knowledge and permission of the instructor.
Activity: Lecture
1 Course Unit
KORN 311 Topics in Advanced Korean
This course aims to develop an in-depth understanding of Korean culture and society through the analysis of spoken and written Korean discourse. Students will engage with key sociolinguistic concepts of politeness, hierarchy, solidarity, power, age, and gender, and enhance their advanced vocabulary and grammar. Students will also develop their abilities in conversation management, self-presentation, socialization, and sense of socio-cultural appropriateness, and gain a better understanding of how native speakers' cultural practices are reflected in language use and how interpersonal relationships are built and maintained through language. For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: Completion of KORN 212
Activity: Lecture
1 Course Unit

KORN 331 Current Korean Media I
Offered through the Penn Language Center. This course aims to develop a deeper understanding of the contemporary Korean society through critical analysis of language use and viewpoints expressed in various types of media including the internet, TV, films and newspapers. This course will provide students with a rich opportunity to relate what they have learned in previous Korean language courses to the larger context of Korean culture and society. The course is conducted entirely in Korean and utilizes both written and audiovisual materials to develop students' reading/listening comprehension and critical thinking. The course also involves in-depth class discussion and writing short compositions to enhance conversation and writing skills.
One-term course offered either term
Prerequisites: Completion of KORN 212 or permission of the instructor.
Activity: Lecture
1 Course Unit

KORN 332 Current Korean Media II
Offered through the Penn Language Center. Current Korean Media II aims at a deeper understanding of the contemporary Korean society, through critical analysis of language use and viewpoints expressed in various types of media including the Internet, TV, films, magazines and newspapers. This course will focus on cultural products and practices such as popular culture, media culture, and entertainment. By catering to the needs and interests of individual learners of Korean, the course will provide them with a rich opportunity to relate what they have learned in previous Korean language courses to the larger context of Korean culture and society. In addition, students will have an in-depth discussion on topics related to Korean society as well as Penn news. This course is conducted entirely in Korean.
Course usually offered in fall term
Prerequisites: KORN 331 or permission of the instructor.
Activity: Lecture
1 Course Unit

KORN 381 Business Korean I
Offered through the Penn Language Center. Business Korean I is designed for students who want to sharpen their Korean language skills to the advanced-high level by focusing their study on Korean business and economy. Students will learn business/economy-related terminologies and concepts. They will also take an in-depth look at the issues related to business practices and environment in Korea. Students will improve and refine their language skills through actively participating in discussions, research, and presentations.
For BA Students: Advanced Language Course
Taught by: Cho
Course not offered every year
Prerequisites: Completion of KORN 212 or equivalent knowledge and permission of the instructor
Activity: Lecture
1 Course Unit

KORN 382 Business Korean II
Offered through the Penn Language Center. A continuation of the material offered in KORN 381. Business Korean I. Students further develop their Korean language proficiency at the advance-high level by studying case studies, participating in discussions, and doing research and giving presentations on the topic of current Korean business and economy.
For BA Students: Advanced Language Course
Taught by: Cho
Course not offered every year
Prerequisite: Completion of KORN 212 or equivalent knowledge
Activity: Lecture
1 Course Unit

KORN 431 Advanced Readings in Modern Korean I
This course is designed for advanced level students. Based on literary pieces in the form of short stories, essays, and novels, students are to gain an in-depth, multi-faceted and critical understanding of Korean people, society, and culture. These objectives are achieved primarily through 1) close reading and discussion of original literary texts by 20th -century Korean writers; and 2) regular writing exercises. Some Korean films that are related to the topics of the reading text will be used.
For BA Students: Advanced Language Course
Taught by: Jung
Course not offered every year
Prerequisite: Completion of KORN 311 or equivalent knowledge
Activity: Lecture
1 Course Unit

KORN 432 Advanced Readings in Modern Korean II
This course allows development of creative and analytical thinking through introduction of more organized thematic topics such as family, human relationships, and the reflection of self-images, and individual's mental status while the society changes in time.
For BA Students: Advanced Language Course
Taught by: Jung
Course not offered every year
Prerequisites: Completion of KORN 311 or equivalent knowledge and permission of the instructor.
Activity: Lecture
1 Course Unit
KORN 481 Advanced Business Korean I
Offered through the Penn Language Center. This course aims to further develop students' advanced language proficiency and simultaneously deepen their knowledge and understanding of specific areas related to Korean business and economy such as an expansion of business into Asian markets and globalization strategies. Through research, discussion and presentation on various case studies and other business-related materials, students will enhance their critical thinking skills and gain an in-depth perspective on issues related to contemporary Korean business operations and practices.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: Completion of 311 or equivalent knowledge
Activity: Lecture
1 Course Unit

KORN 482 Advanced Business Korean II
Offered through the Penn Language Center. A continuation of the material offered in KORN 481: Advanced Business Korean I. Students continue to closely follow the current topics of business and financial markets of Korea by actively participating in discussions, research, and presentations.
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisite: Completion of 311 or equivalent knowledge
Activity: Lecture
1 Course Unit

KORN 511 Advanced Academic Korean I
This course aims to assist students who wish to improve their knowledge of the advanced Korean language skills required to conduct academic research. Students will critically read, analyze, and discuss academic and other relevant texts, written in either Korean or mixed scripts. Readings include, but are not limited to, academic journal articles and book chapters are important in the field of each student's research, as well as major primary sources, such as periodicals, government documents, and other authentic texts from the late nineteenth century to the present. Students will develop familiarity with these texts and a deeper understanding of academic writing styles in Korean. In addition, students will expand their proficiency in Sino-Korean vocabulary and Hanja (Chinese characters), both essential to developing their academic language skills in Korean. This course will be conducted in Korean.
Taught by: Lee, Seok
Course offered fall, even-numbered years
Prerequisite: Completion of KORN 432 or equivalent proficiency
Activity: Lecture
1 Course Unit

KORN 512 Adv Academic Korean II
Activity: Lecture
1 Course Unit
LANDSCAPE ARCHITECTURE &
REGIONAL PLANNING (LARP)

LARP 501 Studio I
The focus of this foundation studio is to explore ways of recording and representing landscape - with an emphasis on material, space, rhythm and measure - through a range of drawings and constructions. The studio attempts to create a sensibility toward landscape where the act of surveying a site is as much an imaginative endeavor as is the crafting of an artifact or the construction of a path in a landscape. Emphasis is placed on visual and manual skills in two-dimensional and three-dimensional constructions (drawing, fabrications, model-making, etc.), while developing ways to “see” landscape. The studio is structured around the themes of wetness/dryness and enclosure/disclosure, and works with one or more sites in the Philadelphia region. Recent sites have included Bartram’s Gardens and East Fairmount Park in Philadelphia. In the past, the studio has focused on a territory around Martha’s Furnace in the Pine Barrens, NJ; a part of the Meadowlands in northern NJ; an anthracite strip-mine in part of Pennsylvania’s Appalachian Mountains; the Wissahickon Creek and, the Schuylkill River Trail in Philadelphia; and Great Falls in Paterson, NJ. Projects involve the making of pathways in these otherwise undeveloped environments.
Taught by: Faculty
Course usually offered in fall term
Activity: Studio
2 Course Units

LARP 502 Studio II
This foundation design studio explores the relationship among sites, drawings, models and the making of landscape architectural projects. The studio site is typically located on vacant or abandoned land in North Philadelphia along the Delaware River. Such sites are fairly large in size and present a complex set of issues, including fragmentation, lack of access, and contamination. Through the design of a park, students test and refine the relationship among project concept, modes of visualization, and project formation (organizational and material). As a precursor to site work, students experiment with methods and materials for making organization and form in two and three dimensions. In the early part of the semester, we explore techniques of imaging that generate multiples (scenarios), serial progressions (transformations of a sort), and iterations (transformations of another). Through various grafting techniques, we use the resultant drawings and models as analogous structures in order to imagine possible future organizations and uses for the site. These studies occur in conjunction with site interpretations ranging from photographs and sketches, to measured drawings and diagrams. The objective for the studio is to develop an informed and imaginative response to the site in order to create new relationships among the site, its immediate edges and the larger neighborhood or region.
Taught by: M’Closkey/Faculty
Course usually offered in spring term
Prerequisite: LARP 501: Studio I
Activity: Studio
2 Course Units

LARP 501 Workshop I: Ecology and Built Landscapes
This workshop explores a sequence of sites extending from the Atlantic Ocean to the Appalachian Mountains that illustrates the changing geology and topography of the regional physiographic provinces including the Atlantic Coastal Plain, Piedmont, and Valley and Ridge. In moving westward along the transect, field trips to natural areas and constructed sites will highlight the diversity of regional plant communities ranging from primary dune to salt marsh, serpentine Virginia pine-oak forest to seepage wetland, and more. Analysis of the inter-connections between the underlying geology, topography, hydrology, soils, vegetation, wildlife, and human interventions will reveal patterns reflecting process and demonstrate key ecological and cultural systems and processes through the production of field notebooks as well as large-scale measured drawings. Ultimately students will develop a vocabulary (recognition, identification and nomenclature) of the materials of landscape, its substance, its ecology, and its changing nature owing to place and time. NOTE: COURSE MEETS IN ASSIGNED CLASSROOM FROM 9-1PM. CLASS MEETING FROM 2-5PM IS DEDICATED TO FIELD WORK.
Taught by: Willig and Popowsky
Course usually offered in fall term
Activity: Lecture
1 Course Unit

LARP 512 Workshop II: Landform and Planting Design
Workshop II combines two of the most elemental tools in the practice of landscape architecture: landform and planting design. Grading - the shaping and sculpting of the landform - is both art and science, and thus Workshop II aims to provide an appreciation of landform as an evocative component in the design vocabulary as well as a critical tool in solving difficult design problems. The basic techniques and strategies of grading design (slopes, terraces, water management, grade change devices) will be introduced, practiced and reinforced, so that grading design becomes an integral part of the students’ design approach. Lecture, field trips, modeling, in-class exercises, and group projects will be used. The Planting component provides students with a working overview of the principles and processes of planting design. Plants will be considered both as individual elements and as part of larger dynamic systems. The natural distribution of plants, concepts of plant community and successional patterns, and the relationship of planting to topography will be used as the initial framework for planting design. Planting design typologies will be examined as an outgrowth of these "natural" patterns. The role of plants as a key element in the structural design of the landscape will be explored through a combination of modeling, plan and section drawing, temporal studies, writing, field trips and case studies. Emphasis will be placed on process and evolution: the temporality of planting (daily, seasonal and annual changes), establishment and maintenance of plantings, and the process of planting design. During the first week of May, a five-day field ecology course focuses on techniques of urban revitalization, sustainable land use, reclamation, and restoration. The field trips offer insight into the diversity of approaches to using plants to promote positive environmental change.
Taught by: Olgyay
Course usually offered in spring term
Prerequisite: LARP 511: Workshop I
Corequisite: Summer Field Ecology Laboratory/Willig
Activity: Lecture
1 Course Unit
LARP 533 Media I: Drawing and Visualization
Drawing is the ability to experience deeply things we see and envision. It allows us, not only to represent things or images seen, but, to discover and construct space and depth on the two dimensions of drawing surface. Expanding the tools of drawing, this course presents inquiries into applied media providing a basis for envisioning the speculative and developing an economy of expression. Work will be closely related to work in Studio I. Students will be introduced to the formal syntax of drawing (line, contour, structure, texture, chiaroscuro), graphic grammar (orthographic, oblique, perspective projection drawings and free-hand sketching) alongside exercises in material expression (collage, assemblage).
Taught by: Faculty
Course usually offered in fall term
Activity: Lecture
1 Course Unit

LARP 535 Theory I: The Culture of Nature
Landscape architecture, architecture and visual art are all mediations between nature and culture. This course is designed to help students form their own view regarding our relationship with the “natural” world around us in an age of ecological crisis. To achieve this, the course provides a stimulating historical and contemporary survey of ideas of nature. We explore ways “nature” has been understood mythically, theologially, ideologically, philosophically, scientifically, and artistically through the ages, with an emphasis on contemporary culture. We survey the way in which the polarity of nature and culture has been historically constructed and more recently, deconstructed. The pedagogical philosophy of this course is that an appreciation of the broad pattern of history and the ideas that have shaped it are foundational to living a critical and ethical life and central to the process of making contemporary art, architecture, and landscape architecture.
Taught by: Weller
Course usually offered in fall term
Activity: Lecture
1 Course Unit

LARP 540 Theory II: History and Theory of Landscape Architecture
This course unfolds several contemporary issues that shape the profession, such as giving form to environmental values, balancing science and art, ecology and design, reconsidering the need for the beautiful vis-a-vis the many sites challenged by pollution and abuse. Among the topics of discussion, this course will also take into account how recent phenomena such as the late twentieth-century increase in world population, sprawl, and environmental pollution, and how these have changed the reality described by the very word “nature” and have contributed to expand the domain of landscape architecture. The discussion of topics will integrate contemporary ideas and their roots in earlier theoretical formulation. The past will be presented as a way to illuminate, receive, and critique the present. Course objectives are to become familiar with the social and cultural processes that inform the landscape architectural discourse and to be able to discuss in an informed manner the impact of the latter upon design trends; to be able to trace the roots of contemporary ideas in earlier theoretical formulations; and to be able to think critically and to enhance synthesis and augmentation skills.
Taught by: Fabiani Giannetto
Course usually offered in spring term
Activity: Lecture
1 Course Unit

LARP 542 Media II: Digital Visualization
Continuing the sequence of the Landscape Architecture media classes, this course will provide students with the techniques to explore and examine precision surface profiles and land forming strategies, in both physical and digital models. These models provide a basis to speculate on what processes and programs might be engendered or instigated. Rhino will be the primary modeling platform. Associated plug-ins of Grasshopper, Rhino Terrain, Sonic, and Bongo will help extend the toolset. GIS will facilitate the collection and analysis of extent data. The Adobe Creative Cloud will also be used for documenting and expressing modeling processes through static and time-based visualizations.
Taught by: VanDerSys
Course usually offered in spring term
Prerequisite: LARP 533: Media I
Activity: Lecture
1 Course Unit

LARP 543 Media III: Flows: Linear / Non-Linear
This course is the third in the media sequence and is required of all MLA students at the 600 level. This course engages the generative potential of the dynamic and temporal attributes of the landscape medium. Time-based visualizations are used to investigate landscape organizations shaped through the dynamic interplay of varying processes and their spatial consequences. Emphasis will parallel the LARP 601 on urban ecology and landscape systems.
Taught by: VanDerSys/Faculty
Course usually offered in fall term
Prerequisites: Students in the 3-yr MLA program must complete LARP 533: Media I and LARP 542 Media II prior to beginning LARP 543: Media III
Activity: Lecture
1 Course Unit

LARP 544 Media IV: Futures: Trends and Trajectories
This course is the fourth in the media sequence and is required of all MLA students at the 600 level. This course exposes students to parametric tools as mechanisms for analyzing and generating both predictable and emergent terrain dependent urban morphologies. Rather than inert lines of shapes, space infrastructure are visualized as products of force and flow. Emphasis will parallel the LARP 602 studio on forms of urbanization. This course is open to Landscape Architecture students only. Students outside of Landscape Architecture will need instructor permission to enroll in this course.
Taught by: Freese
Course usually offered in spring term
Prerequisites: Students in the 3-yr MLA program must complete LARP 533: Media I, LARP 542 Media II and LARP 543: Media III prior to beginning LARP 544: Media IV
Activity: Lecture
1 Course Unit
LARP 601 Studio III
This studio brings together both two-year and three-year MLA students for a landscape studio problem that works at a regional scale, as well as multiple design scales. LARP 601 - the Green Stimuli studio - emphasizes rigorous site analysis, the strategic organization of living material, and the potential of design to produce a wide range of effects. Studio problems are "live" - local leaders and experts are actively trying to solve them, there is an audience for student work outside the University, and projects have the potential to stimulate debate and new directions. The Green Stimuli studio takes on design problems where soil, terrain, geology, mineral resources, climate, water, plants, wildlife, and living systems interactions are major drivers. Studio projects explore one or more of these dimensions in depth to reach high levels of design exploration, strategic thinking, technical resolution and physical expression. The studio's topics intersect with a broader universe of practical concerns, including land use, local and regional economies, real estate development and public policy, as well as philosophical and artistic questions about nature and ecology. The intent is that designed Green Stimuli make new connections between the material of landscape and the economic, infrastructural, scientific, social, cultural and creative attributes of a region.
Taught by: Faculty
Course usually offered in fall term
Prerequisites: Students in the 3-yr MLA program must complete LARP 501: Studio I and LARP 502: Studio II prior to beginning LARP 601: Studio III
Activity: Studio
2 Course Units

LARP 602 Workshop IV: Advanced Landscape Construction
This workshop builds upon Workshop III by expanding the concept of site systems to the full range of drawings, details, specifications, and contracts used by landscape designers in the creation of the man-made environment. The course features lectures, case studies and field walks, exploring documentation from initial concept through construction administration. Topics will include materials and their use in exterior environments, documentation phases and their role in a project's evolution and the art of detailing to ensure beautiful, durable landscapes that define cohesive design.
Taught by: Burrell
Course usually offered in fall term
Prerequisite: LARP 611: Workshop III
Activity: Lecture
1 Course Unit

LARP 660 Fundamentals of Urban Design
This course is a requirement for students enrolled in Certificate in Urban Design and for Master of City Planning students enrolled in the Urban Design concentration. How should urban designers give shape to the city? What urban design methods could they apply? This course helps students acquire the principles that can inform urban design practice. It has three major pedagogical objectives. First, it helps students understand the contemporary city through a series urban design tools. Second, it covers both historical and modern urban design principles. Finally, it includes all the scales in which urban designers operate, ranging from the fundamentals of social interaction in public space, to the sustainability of the region. This course is open to other interested PennDesign students if there is space and with permission of the instructor.
Taught by: AI
Course usually offered in fall term
Activity: Lecture
1 Course Unit

LARP 611 Workshop III: Site Engineering and Water Management
Building upon the skills and concepts developed in Workshops I and II, this intermediate workshop focuses on technical aspects of site design, with an emphasis on landscape performance. Functional considerations related to landscapes and their associated systems - including circulation, drainage and stormwater management, site stabilization and remediation - will be explored as vital and integral components of landscape design, from concept to execution. Lectures, case studies, field trips, and focused design exercises will enable students to develop facility in the tools, processes and metrics by which landscape systems are designed, evaluated, built and maintained. In concert with the concurrent design studio, students will consider the means by which functional parameters can give rise to the conceptual, formal, and material characteristics of designed landscapes.
Taught by: Faculty
Course usually offered in fall term
Prerequisites: Students in the 3-yr MLA program must complete LARP 511: Workshop I and LARP 512: Workshop II prior to beginning LARP 611: Workshop III
Activity: Lecture
1 Course Unit

LARP 611 Workshop III
This course usually offered in fall term
LARP 612 Workshop IV: Advanced Landscape Construction
Advanced Landscape Construction: The Art and Craft of Design Documentation and Detailing introduces students to the process of landscape documentation as means of strengthening design intent through careful material selection and articulation of form. The course builds upon Workshop III by expanding the concept of site systems to the full range of drawings, details, specifications, and contracts used by landscape designers in the creation of the man-made environment. The course features lectures, case studies and field walks, exploring documentation from initial concept through construction administration. Topics will include materials and their use in exterior environments, documentation phases and their role in a project's evolution and the art of detailing to ensure beautiful, durable landscapes that define cohesive design.
Taught by: Burrell
Course usually offered in fall term
Prerequisite: LARP 611: Workshop III
Activity: Lecture
1 Course Unit

LARP 612 Workshop IV: Advanced Landscape Construction
Advanced Landscape Construction: The Art and Craft of Design Documentation and Detailing introduces students to the process of landscape documentation as means of strengthening design intent through careful material selection and articulation of form. The course builds upon Workshop III by expanding the concept of site systems to the full range of drawings, details, specifications, and contracts used by landscape designers in the creation of the man-made environment. The course features lectures, case studies and field walks, exploring documentation from initial concept through construction administration. Topics will include materials and their use in exterior environments, documentation phases and their role in a project's evolution and the art of detailing to ensure beautiful, durable landscapes that define cohesive design.
Taught by: Burrell
Course usually offered in fall term
Prerequisite: LARP 611: Workshop III
Activity: Lecture
1 Course Unit
LARP 701 Studio V
These advanced elective studios provide opportunities for focused exploration of particular themes in contemporary landscape architecture. Important emerging and accomplished designers, often from divergent points-of-view, interests and backgrounds, are invited to run these studios. Collaborative options (between Landscape and the Departments of Architecture or City Planning) are sometimes offered across the School. In addition to our own faculty who offer some of these studios (Fabiani Giannetto, Gouverneur, Marcinkoski, Mathur, M'Closkey, Neises, Olin, Pezvner, Sanders, Tomlin), visitors have included Paolo Burgi (Switzerland), Peter Latz (Munich), Bernard Lassus (Paris), Margie Ruddick (Philadelphia), Chris Reed (Boston), Peter Beard (London), Nicholas Quennell (New York), Ken Smith (New York), Raymond Gastil (New York), Alessandro Tagliolini (Italy), Ignacio Bunster (Philadelphia), Perry Kulper (Los Angeles), James Wines (New York), Lee Weintraub (New York), Charles Waldheim (Chicago), Stanislaus Fung (Australia), Dennis Wedlick (New York), Sandro Marpillero (New York), Peter Connolly (Australia), and former associate professor Anita Berrizbeitia. More recent visitors have been Claire Fellman (New York), Catherine Mosbach (Paris), Nanako Umemoto/Neil Cook (New York), Valerio Morabito (Italy), Carol and Colin Franklin (Philadelphia), Keith Kaseman (Philadelphia), Silvia Benedito (New York), Claudia Taborda (Lisbon), Mark Thomann (New York), Jerry Van Eyck (New York), and Martin Rein-Cano (Berlin).
Taught by: Faculty
Course usually offered in fall term
Activity: Studio
2 Course Units

LARP 702 Studio VI
These advanced elective studios provide opportunities for focused exploration of particular themes in contemporary landscape architecture. Important emerging and accomplished designers, often from divergent points-of-view, interests and backgrounds, are invited to run these studios. Collaborative options (between Landscape and the Departments of Architecture or City Planning) are sometimes offered across the School. In addition to our own faculty who offer some of these studios (Fabiani Giannetto, Gouverneur, Marcinkoski, Mathur, M'Closkey, Neises, Olin, Pezvner, Sanders, Tomlin), visitors have included Paolo Burgi (Switzerland), Peter Latz (Munich), Bernard Lassus (Paris), Margie Ruddick (Philadelphia), Chris Reed (Boston), Peter Beard (London), Nicholas Quennell (New York), Ken Smith (New York), Raymond Gastil (New York), Alessandro Tagliolini (Italy), Ignacio Bunster (Philadelphia), Perry Kulper (Los Angeles), James Wines (New York), Lee Weintraub (New York), Charles Waldheim (Chicago), Stanislaus Fung (Australia), Dennis Wedlick (New York), Sandro Marpillero (New York), Peter Connolly (Australia), and former associate professor Anita Berrizbeitia. More recent visitors have been Claire Fellman (New York), Catherine Mosbach (Paris), Nanako Umemoto/Neil Cook (New York), Valerio Morabito (Italy), Carol and Colin Franklin (Philadelphia), Keith Kaseman (Philadelphia), Silvia Benedito (New York), Claudia Taborda (Lisbon), Mark Thomann (New York), Jerry Van Eyck (New York), and Martin Rein-Cano (Berlin).
Taught by: Faculty
Course usually offered in spring term
Activity: Studio
2 Course Units

LARP 704 Urban Design Research Studio
This course is a requirement for students enrolled in the Certificate of Urban Design. The Urban Design Research Studio (UDRC) is a capstone educational experience open to students of architecture, planning, landscape architecture and historic preservation in PennDesign. The studio's focus is how design intelligence can be applied to complex urban problems which are at once systemic and spatial. Reaching across scales and across disciplines the studio immerses students in the social, economic, political, ecological and aesthetic complexity of the contemporary city in a way that interweaves the speculative quality of the design process with the analytical and evidence-based empiricism of urban research. Interdisciplinary collaboration is the studio's modus operandi and its purpose is to develop techniques and strategies by which contemporary cities can become not only metabolically more efficient but also more edifying of the human spirit in the 21st century. Acceptance into the studio is based on interview and portfolio with priority placements given to students enrolled in the Urban Design Certificate Program.
Taught by: Gouverneur
Course usually offered in spring term
Activity: Studio
2 Course Units

LARP 710 Implementation of Urban Design
This course is a requirement for students enrolled in the Certificate of Urban Design. With a focus on contemporary major cities this subject charts the various ways in which urban design is typically conceived, procured, administered and ultimately delivered. From the very conception of a project to its completion, the various methods and avenues through which contemporary cities are planned, designed, and constructed are examined from multiple perspectives so that students become familiar with the myriad issues and main actors involved in urban development. Though exemplary case studies the subject offers a comprehensive understanding of the complexities and contingencies of contemporary city making, placing a particular emphasis on the role of the urban designer as a practical, ethical and visionary agent of change. This course may open to other interested PennDesign students if there is space and with permission of the instructor.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

LARP 720 Topics in Representation
In these advanced representation courses the work extends to new ways of documenting and seeing landscape. These courses are open to all interested School of Design students who have previous drawing experience or have taken foundation studios. Recent topics have been: Traces and Inscriptions (spring 2013), instructors: Anuradha Mathur, Matthew Neff; Landscape Representation (fall annually), instructors: Valerio Morabito; Landscape Drawing (spring annually), instructor: Laurie Olin; Landscape Drawing (spring 2008), instructors: David Gouverneur, Trevor Lee; Shifting Landscapes: A Workshop in Representation (spring 2005, 2004), instructor: Anuradha Mathur; and The Agile Pencil and Its Constructs (spring 2004) instructor: Mei Wu.
Taught by: Faculty
One-term course offered either term
Prerequisites: LARP501, LARP533, LARP601, ARCH501, ARCH532 OR ARCH601
Activity: Seminar
1 Course Unit
LARP 730 Topics in Professional Practice
These seminar courses explore ideas and methods in current landscape architectural practice. They include instruction in professional procedures, office management, project development, contracts, and collaborative ventures. They include visits to construction sites, professional offices and archives. Recent topics have been: Transformational Leadership (fall 2015), instructor: Lucinda Sanders, Office Practice (spring 2003-2015) instructor: Lucinda Sanders. Taught by: Sanders
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Fall 2016: course offering is limited to LARP majors or by permission of the instructor.

LARP 740 Topics in Digital Media
These courses offer advanced instruction in the uses and applications of various digital media, including Geographical Information Systems, 3-D modeling, video, animation, and web-design. These courses are open to all interested School of Design students who already have a working knowledge of basic digital graphic techniques and with permission of the instructor. Recent topics have been: Simulated Natures (fall 2015, 2014), instructors Keith VanDerSys, Joshua Freese; Digital Fabrication (spring 2009-2013), instructor Keith VanDerSys; Non-Static Representation: Video, Animation, and Interactive Media (fall 2013, 2012), instructor: Todd Montgomery; Interoperable Terrains (fall 2008-2013), instructor: Keith Kaseman; Kino-Eye: Intro to Spatial Filmmaking (fall 2011, 2010), instructor: Richie Gelles; Geometry Clouds, Fluid Landscapes (fall 2002-2006), instructor: David Ruy; Tactical Surfaces / Topographic Modeling (fall 2002), instructor: Charles McGloughlin. Taught by: Faculty
One-term course offered either term
Prerequisites: LARP-543, MEDIA III
Activity: Lecture
1 Course Unit

LARP 741 Modeling Geographic Space
This course explores the nature and use of raster-oriented (i.e. image-based) Geographic Information Systems (GIS) for the analysis and synthesis of spatial patterns and processes. Previous experience in GIS is not required.
Taught by: Tomlin
Course usually offered in spring term
Activity: Lecture
1 Course Unit

LARP 743 Geospatial Software Design
The purpose of this course is to equip students with a selected set of advanced tools and techniques for the development and customization of geospatial data-processing capabilities. It is open to any student with experience equivalent to that of an entry-level class on GIS. Taught by: Tomlin
Course usually offered in fall term
Activity: Seminar
1 Course Unit

LARP 745 Advanced Topics in GIS
This course offers students an opportunity to work closely with faculty, staff, local practitioners, and each other in conducting independent projects that involve the development and/or application of Geographic Information System (GIS) technology. The course is open to all students who can demonstrate sufficient experience, expertise, or initiative to pursue a successful term project. Taught by: Tomlin
Course usually offered in spring term
Activity: Seminar
1 Course Unit

LARP 750 Topics in Construction, Horticulture and Planting Design
These courses explore relevant topics in construction, horticulture and planting design as they relate to contemporary landscape architecture. The aim is to supplement fundamental skills and ideas explored in the core curriculum workshops with more advanced, cutting-edge research, technology and case studies. The teaching faculty are leading practitioners and researchers in the field. These courses are open to all interested School of Design students. Recent topics have been: Urban Horticulture and Planting Design (fall annually since 2009), instructor: David Ostrich; Detailing New Urban Landscapes (spring 2012, 2011), instructor: Tom Ryan; Building New Urban Landscapes, Construction, and Planting Design (fall 2009, 2008), instructor: Tom Ryan; Urban Horticulture: Designing and Managing Landscape Plantings in Stressful Environments (1998-2003), instructor: Paul Meyer; Advanced Planting Design, instructors: Rodney Robinson (2003-2009), Dennis McGlade (fall 2006), Sheila Brady; and Sustainable Large Scale Planting of Trees, Shrubs, Perennials and Grasses (fall 2001), instructor: Wolfgang Oehme. Taught by: Faculty
One-term course offered either term
Activity: Lecture
1 Course Unit

LARP 755 Arboretum Management I: Understanding Plants
In this course, students will learn about plants from an organismal perspective, an applied/practical perspective, an aesthetic perspective, an environmental perspective, and an evolutionary perspective. Utilizing the plant collection of the Morris Arboretum as a living laboratory and the expertise of arboretum staff, this course will bring students, novices and experts alike, to a better understanding of plants. Session topics integrate both theoretical and hands-on practical work. Course assessment will be based on weekly practical assignments and two exams. Please note that this course takes place at the Morris Arboretum in the Chestnut Hill section of Philadelphia and students are responsible for transporting themselves to and from the arboretum on their own for class each week. For further information about the course, students may contact Cynthia Skema (cskema@upenn.edu). Taught by: Skema
Course usually offered in fall term
Activity: Laboratory
1 Course Unit
LARP 756 Arboretum Management II: Evaluating Public Gardens
This interdisciplinary course looks at public gardens as a whole, studying these public institutions and their performance in the four major services they undertake: research, horticultural display, conservation and education/outreach. Students, of any level or discipline, begin the course by learning what arboreta and botanic gardens are, how they function, and what role they fill in our society through a series of lecture sessions at the Morris Arboretum. For the remainder of the semester, the students take that knowledge into the field to apply what they have learned and evaluate some of the many public gardens in “America’s Garden Capital,” the Philadelphia region, with expert instructors from the Morris Arboretum as guides. Course assessment will be based on one exam, and a series of essays pertaining to their garden evaluations. Garden evaluations and the written work can be tailored to a particular subject of interest to a student, if pertinent within the public garden realm. Please note that this course takes place at the Morris Arboretum in the Chestnut Hill section of Philadelphia and students are responsible for transporting themselves to and from the arboretum on their own or to other Philadelphia area public gardens as required for class each week. For further information about the course, students may contact Cynthia Skema (cskema@upenn.edu). Taught by: Skema
Course usually offered in spring term
Activity: Laboratory
1 Course Unit

LARP 760 Topics in Ecological Design
These elective courses explore relevant topics in ecological design and new technologies as they relate to contemporary landscape architecture. The courses explore topics such as ecology, sustainability, habitat restoration, hydrology, green roof and green architecture technology, soil technology, and other techniques pertinent to the construction of ecologically dynamic, functioning landscapes. The teaching faculty are leading practitioners and researchers in the field. These courses are open to all interested PennDesign students. Recent topics have been: Large-Scale Land Reclamation Projects (annually since 2005), instructor: William Young; Green Roof Systems (spring 2010-2014), instructor: Susan Weiler; Restoration Ecology (fall biennially since 2004), instructor: David Robertson; Sustainable Development: The Queen Elizabeth Olympic Park, London (fall 2012), instructor: John Hopkins; Ecological Economies and Infrastructure (spring 2012), instructor: John Hopkins; Contemporary Issues in Sustainability: The London 2012 Olympic Park and Other European Examples (fall 2011), instructor: John Hopkins; James Ludwig (spring 2004); Sustainable Landscape Design for Watershed Protection (fall 2008, 2006, 2005, 2004,2003, 2002), instructor: Katrin Scholz-Barth; and Ecological Restoration in the Urban Context (spring 2002, 2001), instructor: Deborah Marton. Taught by: Faculty
One-term course offered either term
Activity: Lecture
1 Course Unit

LARP 761 Urban Ecology
This course introduces students to the core concepts, processes, and vocabulary of contemporary urban ecology. It aims to provide a conceptual framework and grounding in an understanding of ecological processes, in order to empower students to develop and critique the function and performance of landscape interventions. Urban ecology describes the interaction of the built and natural environment, looking at both ecology in the city, as well as ecology of the city. Lectures, case studies, critical reading and design exercises will enable students to increase their ability to analyze and interpret ecological systems and processes. By analyzing the application of ecological concepts in the design management of urban landscapes, urban ecology will be explored as a dynamic, human-influenced system. Registration is limited to MLA students in the LARP 601 studio. Taught by: Carlisle/Pevzner
Course usually offered in fall term
Activity: Lecture
1 Course Unit

LARP 770 Topics in Landscape Architecture History and Theory
These advanced seminars explore central issues in the history and theory of landscape architecture from the Renaissance to the present day. The focus is upon the cultural context of built works, their relation to conceptual writings (contemporary with the designs as well as modern) and the dialogue between modern professional practice and historical example and method. Recent topics taught by Professor Hunt have been: Place & Peacefulness (fall 2012); Texts & Topics (fall 2011); The Role of History in Contemporary Landscape Architecture (fall 2010); Understanding Venice Research Seminar (spring 2009); Sculpture Parks and Sculpture in Parks (fall 2008); Six Landscape Architects & What We Say About Them (spring 2007); Open Spaces & Open Places: The Design and Use of American Landscapes (spring 2006), co-taught with Emily Cooperman; Reception, or the After Life of Landscapes (Spring 2005), Land Art and Ian Hamilton Finlay (fall 2004), Lawrence Halprin: Theory, Practice, Context & the Archival record (spring 2004) co-taught with Emily Cooperman; French Landscape Architecture: Case Studies (spring 2003); Picturesque as Modernism (spring 2002).
Taught by: Faculty
One-term course offered either term
Activity: Seminar
1 Course Unit
LARP 780 Topics in Theory and Design
These advanced seminars explore advanced ideas in contemporary landscape architectural design and theory. A special link is made between the analysis of built work and text to design practice and the making of projects. Topics include the intersections of art, nature and creativity; practices of analysis and criticism; ideas of urbanism and infrastructure; collaborative ventures and cross-disciplinarity; vision and visuality; and representational structures, both verbal and visual. These courses fulfill the Landscape Architecture Theory III requirement and are open to all interested School of Design students. Spring 2017: Environmental Readings. In this seminar, we will explore this green thread and analyze its influence on how we shape our environments through design and planning. The course has three parts. Throughout, the influence of literature on design and planning theory will be explored. The first part will focus on three most important theorists in environmental planning and landscape architecture: Frederick Law Olmstead Sr., Charles Eliot and Ian McHarg. The second part of the course will critically explore current theories in environmental planning and landscape architecture. The topics include: frameworks for cultural landscape studies, the future of the vernacular, ecological design and planning, sustainable and regenerative design, the languages of landscapes, and evolving views of landscape aesthetics and ethics. In the third part of the course, students will build on the readings to develop their own theory for ecological planning or, alternatively, landscape architecture. While literacy and critical inquiry are addressed throughout the course, critical thinking is especially important for this final section.
Taught by: Faculty
One-term course offered either term
Activity: Seminar
1 Course Unit

LARP 781 Contemporary Urbanism
This course will expose students to a wide array of case studies in planning, urban design, and landscape architecture including notions of sustainable development, the interplay between open space and built form, the rehabilitation of existing areas as historic districts, commercial corridors, and the improvement of squatter settlements. Also, it will focus on city expansions and new towns, housing, mix-use developments, and areas of new centrality. The program will also address territorial planning, the improvement of open space systems, and site specific interventions of parks, plazas, streetscape and gardens. Cases will provide the proper ground for analysis and interpretation of issues related to the design and implementation of "good" landscape and urban form. Class discussions will be complemented with short design exercises. We will also enjoy the presence of outstanding visiting lecturers who will share with us cutting-edge information, derived from their professional practice and research. Registration is limited to MLA students in the LARP 602 studio and to students in the Urban Design Certificate program. This course is cross-listed with CPLN 673.
Taught by: Weller/Gouverneur
Course usually offered in spring term
Activity: Lecture
1 Course Unit

LARP 789 LARP Summer Institute: Intro to Design Languages (3-year students)
This one-week course is for entering three-year MLA students who do not have a background in architectural, or landscape architectural design or related design fields. The workshop introduces students to architectural terminology, concepts and conventions, as well as to basic analog and digital drawing techniques, in order to bring all students to a minimum level of proficiency, prior to the start of the more intensive Summer Institute coursework. Exemption from this requirement will be granted upon request, based on academic record, professional experience and admissions portfolio. Course enrollment is by permit only. Please contact Darcy Van Buskirk (LARP Dept.) at darcyv@design.upenn.edu.
Taught by: Faculty
Course usually offered summer term only
Activity: Studio
0 Course Units
Notes: Course fee: $500.00

LARP 790 LARP Summer Institute: Natural Systems (3-year Students)
This one-week session for entering three-year MLA students will provide an introduction to the varied physiographic provinces and associated plant communities of the greater Philadelphia region. Through a review of available mapping and on-site study we will characterize and consider the connections between climate, geology, topography, hydrology, soils, vegetation, wildlife, and disturbance, both natural and anthropogenic. With a focus on plants students will begin to develop a familiarity with the local flora (native and non-native) including plant species identification, preferred growing conditions, and potential for use. Field trips will include visits to the Inner Coastal Plain and Piedmont. Course enrollment is by permit only. Please contact Darcy Van Buskirk (LARP Dept.) at darcyv@design.upenn.edu.
Taught by: Willig
Course usually offered summer term only
Activity: Studio
0 Course Units
Notes: Course fee: $500.00

LARP 791 LARP Summer Institute: Landscape Operations (3-year Students)
This one-week course, for entering three-year MLA students, introduces concepts and techniques for analyzing, representing, and operating on landform, the fundamental medium of landscape architecture. Students will learn representational and model-making techniques for conveying topography, and will describe a series of landscape interventions on a topographic surface. Through models and drawings, students will develop an appreciation for the spatial implications of landform, for landscape narrative, for the movement of water and people across the landscape, and for the operation of reshaping the ground. An introduction to the Fine Arts Library will also be included. Course enrollment is by permit only. Please contact Darcy Van Buskirk (LARP Dept.) at darcyv@design.upenn.edu.
Taught by: Faculty
Course usually offered summer term only
Activity: Studio
0 Course Units
Notes: Course fee: $500.00
LARP 792 LARP Summer Institute: Introduction to Digital Media (3-year Students)
This four-day introductory course is intended to enable students to orient themselves to digital media facilities, programs, and workflows. The course is focused around daily projects building up to a final pinup. Each daily project illustrates a different set of work paths between digital programs, as well as teaches students how to use different software applications key to the practice of landscape architecture today. The focus of this course is to enable students to understand what each digital software application offers to the landscape process, and how to build change and iteration into digital workflows. Course enrollment is by permit only. Please contact Darcy Van Buskirk (LARP Dept.) at darcyv@design.upenn.edu. Taught by: Faculty
Course usually offered summer term only
Activity: Studio
0 Course Units
Notes: Course fee: $500.00

LARP 793 LARP Summer Institute: Landform and Grading Workshop
The reading and shaping of landform is an elemental tool in the practice of landscape architecture. The act of grading design - the shaping and sculpting of landform - is both art and science. This four-day session for entering two-year MLA students aims to provide an appreciation of landform as both an evocative component in the design vocabulary and as a critical tool in resolving difficult design problems. Basic techniques and strategies of grading design are introduced and reinforced, so that grading design becomes an integral part of the student’s design approach. This session is intended to provide a concise overview of the principles and process of landform and grading design, and is designed to prepare the entering two-year students for Workshop III. Course enrollment is by permit only. Please contact Darcy Van Buskirk at darcyv@design.upenn.edu. Taught by: Olgyay
Course usually offered summer term only
Activity: Lecture
0 Course Units
Notes: Course fee: $500.00

LARP 794 LARP Summer Institute: Natural Systems (2-year students)
This five-day session for entering two-year MLA students will provide an introduction to the varied physiographic provinces and associated plant communities of the greater Philadelphia region. Through a review of available mapping and on-site study we will characterize and consider the connections between climate, geology, topography, hydrology, soils, vegetation, wildlife, and disturbance, both natural and anthropogenic. With a focus on plants students will begin to develop a familiarity with the local flora (native and non-native) including plant species identification, preferred growing conditions and potential for use. Field trips will include visits to the Coastal Plan and Piedmont of New Jersey and Pennsylvania. Course enrollment is by permit only. Please contact Darcy Van Buskirk (LARP Dept.) at darcyv@design.upenn.edu. Taught by: Willig
Course usually offered summer term only
Activity: Lecture
0 Course Units
Notes: Course fee: $500.00

LARP 795 LARP Summer Institute: Computing Introduction (2-year Students)
The Intro to Computing session introduces students to the facilities of digital media as the primary mode of design visual communication. The course provides a short, yet intensive, hands-on inquiry into the production and expression of digital media that is essential for all designers. Through a series of working labs, students learn various software applications and associated techniques to execute precise two-dimensional representations of three-dimensional concepts. Students also learn the PennDesign systems, network basics and computer lab procedures. In the Academic Writing session, students will also receive a basic introduction to research methods, research resources, academic writing, citation formats and standards expected by the School of Design. Course enrollment is by permit only. Please contact Darcy Van Buskirk at darcyv@design.upenn.edu. Taught by: Faculty
Course usually offered summer term only
Activity: Lecture
0 Course Units
Notes: Course fee: $500.00

LARP 796 Independent Studio
An independent studio may be undertaken in the final semester but is not required. The independent studio is intended to provide highly motivated students who have demonstrated their ability to work independently with the opportunity to pursue topics that extend the boundaries of the profession. For permission, students must prepare a written proposal in the preceding semester and apply for approval from the faculty. Details available in Landscape Architecture department office. Taught by: Faculty
Course offered summer, fall and spring terms
Activity: Independent Study
1 Course Unit

LARP 999 Independent Study
An independent study may be taken for elective credit at any point during the degree program for a letter grade. For permission, students must prepare a written proposal in the preceding semester and obtain a Landscape Architecture faculty advisor to oversee their work. Details are available in the Landscape Architecture department office. Taught by: Faculty
Course offered summer, fall and spring terms
Activity: Independent Study
1 Course Unit
LATIN (LATN)

LATN 101 Elementary Latin I
An introduction to the Latin language for beginners. Students begin learning grammar and vocabulary, with practical exercises in reading in writing. By the end of the course students will be able to read and analyze simple Latin texts, including selected Roman inscriptions in the Penn Museum.
For BA Students: Language Course
Course usually offered in fall term
Activity: Seminar
1 Course Unit

LATN 102 Elementary Latin II
Prerequisite(s): LATN 101 or equivalent. Completes the introduction to the Latin language begun in 101. By the end of the course students will have a complete working knowledge of Latin grammar, a growing vocabulary, and experience in reading simple continuous texts.
For BA Students: Language Course
Course usually offered in spring term
Prerequisites: LATN 101 or equivalent.
Activity: Seminar
1 Course Unit

LATN 112 Intensive Elementary Latin
An introduction to the Latin language for beginners, with explanation of basic grammatical concepts and intensive exercises in reading and writing. Ideal for undergraduates or graduate students from Penn or elsewhere with some background in learning other languages, or who need to learn Latin rapidly. The course covers the first year of college-level Latin, equivalent to LATN 101 + 102 at more than twice the normal pace. This is an online course. 2 c.u. Students are not required to be in Philadelphia. Course activities will involve a series of intensive online exercises completed each day according the students own schedule, plus one daily video-linked session 5.30-7.00pm EST (Monday thru Thursday). The textbook is Learn to Read Latin (Keller & Russell; textbook only, not workbook). The instructor for summer 2018 is Marcie Persyn, a Ph.D. student in Classical Studies. For further information about the course, please contact Prof. James Ker (jker@sas.upenn.edu).
For BA Students: Language Course
Course usually offered summer term only
Activity: Seminar
2 Course Units

LATN 203 Intermediate Latin Prose
Prerequisite(s): LATN 102 or equivalent (such as placement score of 550). Introduction to continuous reading of unadapted works by Latin authors in prose(e.g., Cornelius Nepos, Cicero, Pliny), in combination with a thorough review of Latin grammar. By the end of the course students will have thorough familiarity with the grammar, vocabulary, and style of the selected authors, will be able to tackle previously unseen passages by them, and will be able to discuss questions of language and interpretation.
For BA Students: Language Course
Course usually offered in fall term
Prerequisites: LATN 102 or equivalent.
Activity: Seminar
1 Course Unit

LATN 204 Intermediate Latin Poetry
Prerequisite(s): LATN 203 or equivalent (such as placement score of 600). Continuous reading of several Latin authors in poetry (e.g., Ovid, Virgil, Horace) as well as some more complex prose, in combination with ongoing review of Latin grammar. By the end of the course students will have thorough familiarity with the grammar, vocabulary, and style and style of the selected authors, will be able to tackle previously unseen passages by them, and will be able to discuss language and interpretation. Note: Completion of Latin 204 with C- or higher fulfills Penn's Foreign Language Requirement. "Please note: the MW 3.30-5.00 section combines Latin reading with practical Latin-based tutoring in a West Philadelphia elementary school."
For BA Students: Language Course
Course usually offered in spring term
Prerequisites: LATN 203 or equivalent.
Activity: Seminar
1 Course Unit

LATN 212 Intensive Intermediate Latin
An introduction to the basic history and conventions of Latin prose and poetry, with continuous readings from classical authors accompanied by grammar review and exercises. Ideal for undergraduates or graduate students from Penn or elsewhere who have completed the equivalent of one year Latin (e.g., LATN 112). The course covers the second year of college-level Latin, equivalent to LATN 203 + 204 at more than twice the normal pace. This is an online course. 2 c.u. Students are not required to be in Philadelphia. Course activities will involve a series of intensive online exercises completed each day according the students own schedule, plus one daily video-linked session 5.30-7.00pm EST (Monday thru Thursday). The focus of the course will be Romans and Carthaginians, combining readings on Hannibal and the second Punic war (mostly in prose, focusing on Cornelius Nepos Life of Hannibal) with readings from the story of Dido (mostly in poetry, focusing on Ovids Heroides). The instructor for summer 2018 is Brian Credo, a Ph.D. student in Classical Studies. For further information about the course, please contact Prof. James Ker (jker@sas.upenn.edu).
For BA Students: Language Course
Course usually offered summer term only
Activity: Seminar
2 Course Units

LATN 309 Roman Satire
This course is for those who have completed Latin 204, Latin 212, or equivalent (such as placement score of 650, or AP score of 4 or 5). Close reading and discussion of a Latin author or a particular genre of Latin literature. Topics will vary each semester, and the course may be repeated for credit. Assignments will include syntactic and literary analysis on a daily basis, a midterm, a paper, and a final exam. This advanced Latin class will explore the contrarian and comical poetry of the great Roman satirists, with special attention to Horace's Satires) and Juvenals Satires. Such poetry was direct, aggressive and delightfully irreverent, but also complex and often inscrutable. By combining translation work with literary study, we will address the many aspects of Roman satire that continue to fascinate, such as the tension between the serious and the comic, the politics' of Roman satirists, and the many connections we can find in this poetry with the satirical arts of our own time.
Taught by: Rosen
One-term course offered either term
Prerequisites: Reading knowledge of Latin or permission of instructor.
Activity: Seminar
1 Course Unit
LATN 399 Supervised Study in Latin Literature
This course is taken by students doing independent work with a faculty advisor, such as students approved to work on a senior research paper in pursuit of honors in the major.
Activity: Independent Study
1 Course Unit

LATN 401 Latin for Advanced Students
For graduate students in other departments needing individualized study in Latin literature.
For BA Students: Advanced Language Course
One-term course offered either term
Activity: Independent Study
1 Course Unit

LATN 540 The Latin Text: Language and Style
What do we need to read texts in Latin? In these courses we read just one prose text and one poetic text, or a very limited number of texts and passages, with a focus on language and formal analysis (such as diction, grammar, stylistics, metrics, rhetoric, textual criticism). A range of exercises will be used to develop this, including composition, lexical studies, recitation, memorization, exegesis, written close-readings, and sight-translation.
Course not offered every year
Activity: Seminar
1 Course Unit

LATN 541 Latin Literary History
In this course we survey an extensive range of readings in a variety of authors in both prose and poetry, and consider the problems and opportunities involved in literary history.
Course not offered every year
Activity: Seminar
1 Course Unit

LATN 600 Tacitus' Annals
In this seminar we will read Tacitus' Annals, a work replete with stirring history presented in a style that eschews complacency. Through careful study of this work and selected passages of its predecessor, the Histories, we will develop a richly detailed understanding of Tacitus' historiographical method, principles, and practice. Consideration of surviving epigraphic parallels will allow us to see a particularly important element of his historiographical practice, namely, his awareness of but deviation from the official record of events. Each class session will involve close reading of the text and student-led discussion of important features of Tacitus work. As a group project we will produce a variorum edition of the Annals for on-line publication. Final projects will take the form of papers suitable for presentation at the SCS Annual Meeting.
Taught by: Damon
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Topics will vary

LATN 602 Graduate Latin Poetry: Ennius
Ennius writings, and particularly his epic poem Annales, proved to be foundational for many genres of Latin literature. Editions of his work by Jocelyn (tragedies) and Skutsch (Annales) have attracted more and more critical attention to these works in recent years. A spate of criticism over the past few years considers Ennius from a variety of points of view, including some that call for a radical reassessment of basic assumptions concerning the Annales in particular. The purpose of this seminar is to introduce students to Ennius, to acquaint them with the tools and methods they will need to study Ennius in depth, and to involve them in current debates surrounding the poet.
Taught by: Farrell
Course not offered every year
Activity: Seminar
1 Course Unit

LATN 609 Problems in Ancient History
A separate topic is offered in either the history of Ancient Near East, Greece or Rome.
Taught by: Grey
Course usually offered in fall term
Activity: Seminar
1 Course Unit

LATN 999 Independent Study
For doctoral candidates.
One-term course offered either term
Activity: Independent Study
1 Course Unit
LATIN AMERICAN & LATINO STUDIES (LALS)

LALS 016 Topics in Literature
Freshman Seminars under the title "Topics in Literature" will afford entering students who are considering literary study as their major the opportunity to explore a particular and limited subject with a professor whose current work lies in that area. Topics may range from the lyric poems of Shakespeare's period to the ethnic fiction of contemporary America. Small class-size will insure all students the opportunity to participate in lively discussions. Students may expect frequent and extensive writing assignments, but these seminars are not writing courses; rather, they are intensive introductions to the serious study of literature. One of them may be counted toward the English major and may be applied to a period, genre, or thematic requirement within the major.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Freshman Seminar

LALS 070 Latina/o Literature and Culture
This course provides an introduction to the broad literature on Latin America's rich colonial history. We will begin by tracing some of the early origins of - and points of contact between - the Indian, Iberian, and Africa men and women who formed the basis of colonial society. As the course progresses, we will explore the variety of ways in which colonial subjects lived, worked, ate, worshipped, and socialized. Lectures and reading assignments will draw upon a variety of sources, including court cases, artistic renderings, city maps and street plans, travel accounts of visits to the regions, and the material, cultural, and intellectual products made possible by the wealth and dynamism of the seventeenth and eighteenth centuries. The course will conclude with an analysis of the Age of Revolutions, a period of dramatic upheaval that remains at the center of lively scholarly debates. By the end of the semester, students will be able to engage the key questions driving these debates, the most important of which, perhaps, is: what is Latin America's colonial legacy?
For BA Students: History and Tradition Sector
Taught by: Walker, T.
Course usually offered in fall term
Activity: Recitation
1 Course Unit
Notes: Fulfills History Tradition Distribution Requirement

LALS 071 Latin America 1782-Present
Surveys Latin American and Caribbean history from the Haitian Revolution of 1791 to the present. We will examine the legacy of Spanish colonialism and slavery, movements for national and cultural independence, twentieth-century radicalism, and the politics of race in contemporary Latin America. Readings include fictional as well as analytical representations, and a film series will accompany the course.
For BA Students: History and Tradition Sector
Taught by: Farnsworth-Alvear
Course usually offered in spring term
Activity: Lecture
1 Course Unit

LALS 072 Introduction to Latin American and Latino Studies
Designed to introduce students to the interdisciplinary field of Latin American and Latino Studies, this is a seminar oriented toward first and second year students. Readings will range widely, from scholarly work on the colonial world that followed from and pushed back against the "conquest", to literary and artistic explorations of Latin American identities; to social scientists' explorations of how Latinos are changing the United States in the current generation.
Taught by: Dr. Ann Farnsworth-Alvear
Course usually offered in spring term
Activity: Lecture
1 Course Unit

LALS 107 Freshman Seminar: The World After 1800
Freshmen seminars are small, substantive courses taught by members of the faculty and open only to freshmen. These seminars offer an excellent opportunity to explore areas not represented in high school curricula and to establish relationships with faculty members around areas of mutual interest. See www.college.upenn.edu/admissions/freshmen.php
One-term course offered either term
Activity: Seminar
1 Course Unit

LALS 116 Caribbean Culture and Politics
This course offers anthropological perspectives on the Caribbean as a geo-political and socio-cultural region, and on contemporary Caribbean diaspora cultures. We will examine how the region's long and diverse colonial history has structured relationships between race, ethnicity, class, gender and power, as well as how people have challenged these structures. As a region in which there have been massive transplantations of peoples and their cultures from Africa, Asia, and Europe, and upon which the United States has exerted considerable influence, we will question the processes by which the meeting and mixing of peoples and cultures has occurred. Course readings include material on the political economy of slavery and the plantation system, family and community life, religious beliefs and practices, gender roles and ideologies, popular culture, and the differing ways national, ethnic, and racial identities are expressed on the islands and throughout the Caribbean diaspora.
Taught by: Thomas, D.
Course not offered every year
Activity: Lecture
1 Course Unit

LALS 174 Reform and Revolution in the Americas
The United States and Latin America produced a remarkable series of revolutions and reforms during the twentieth century. This course examines efforts throughout the hemisphere to define and address problems around land, labor, and property; nation, empire, and autonomy; and racism, democracy, and citizenship. It considers the relationship between national upheavals, the global consequences of events in the hemisphere, and the relation between social and political history, on the one hand, and the development of economic ideas, on the other.
For BA Students: History and Tradition Sector
Taught by: Offner
One-term course offered either term
Activity: Lecture
1 Course Unit
LALS 175 Society and Culture in Brazil
With its booming economy, the recent inauguration of its first female president, and its selection as host to the 2012 World Cup and Olympic games, Brazil is growing in global prestige. But amid all these exciting developments are devastating socioeconomic inequalities. Access to safe living conditions, livable wages, higher education, and overall social mobility remain painfully out of reach to many Brazilians, the majority of whom are the descendants of slaves. Why do these problems persist in a country that has had such an enduring and widespread reputation as a "racial democracy"? What are the possibilities of closing the equality gap in Brazil?
Taught by: Walker, T.
One-term course offered either term
Activity: Lecture
1 Course Unit

LALS 208 International Organizations in Latin America
International Organizations play a powerful role in mitigating conflict at the global level. What role do they play in solving problems related to global politics, economic development, corruption, inequality and civil society in Latin America? How much power, influence and control do they possess in the region? This course examines the role and impact international organizations have had on Latin America since the mid-20th century. After a review of theoretical and methodological perspectives on the significance of IOs in international relations, students will examine the workings, issues and often controversies surrounding IOs in Latin America, including the IMF, World Bank, UN, OAS and ICC as well as regional organizations such as the Inter-American Court of Human Rights and area trade blocs and agreements of Mercosur, NAFTA and others. Students will also explore the regional impact of transnational civil society organizations, such as human rights organizations and the International Olympic Committee. Students will be invited to participate in the Washington Model OAS from April 10-17.
Taught by: Bartch
Course usually offered in spring term
Activity: Seminar
1 Course Unit

LALS 209 Latino/as and the Law
Based in concepts and principles of Constitutional law, this course explores the interpretation and impact of seminal court cases in U.S. history as applied to Latino/as in the United States and abroad. With a particular focus on the 20th century, students will examine how court decisions have affected civil rights, immigration policies, welfare, political incorporation and identity and other important issues affecting Latino/as. Students will also explore additional themes including the status and treatment of Latinos in the criminal justice system, representation of Latino/as in the judiciary, and how Supreme Court decisions have also affected U.S. foreign policy with Latin America. Students will be introduced to a number of guest speakers who are academic experts and practitioners in the field.
Taught by: Bartch
Activity: Lecture
1 Course Unit

LALS 213 Latin American Politics
This course examines the dynamics of political and economic change in twentieth century Latin America, with the goal of achieving an understanding of contemporary politics in the region. We will analyze topics such as the incorporation of the region to the international economy and the consolidation of oligarchic states (1880s to 1930s), corporatism, populism, and elitist pacts (1930s and 1940s), social revolution, democratic breakdown, and military rule (1960s and 1970s), transitions to democracy and human rights advocacy (1980s) market-oriented reforms (1990s), and the turn to the left of current governments (2000s). The course will draw primarily from the experiences of Argentina, Brazil, Colombia, Chile and Mexico. No prior knowledge of the region is required.
Taught by: Falleti
One-term course offered either term
Activity: Recitation
0 Course Units

LALS 227 Educating for Democracy in Latin America and the U.S.
What does it mean to educate for a democracy, and for what type of democracy should we educate for? This course will examine these central questions and others pertaining to citizenship, democracy, and education as it relates to Latin America and Latino/as in the U.S. The course will first examine theories of education for democracy comparing and contrasting the works of persons including U.S. progressive-era writer John Dewey, Brazilian scholar Paulo Freire, and Penn President and political scientist Amy Gutmann. The course will delve into a civic and political education curriculum and pedagogies that have been carried out in institutions, inequality, and culture in the region. The latter part of the course will examine civic education practices of Latino/as here in the U.S. from primary schools to higher education. This course offers a service-learning component where students will be encouraged to volunteer with educational organizations in the Philadelphia community.
Taught by: Bartch
Activity: Seminar
1 Course Unit

LALS 231 Perspectives in Brazilianizan Culture
Topics vary. For current course description, please see department's webpage: http://ccat.sas.upenn.edu/roml/portuguese/undergraduate/courses.html
Taught by: Flannery Marcia
Course not offered every year
Prerequisite: Taught in Portuguese
Activity: Seminar
1 Course Unit

LALS 233 World History: Latin America Topics vary.
Topics vary
Course usually offered in fall term
Activity: Seminar
1 Course Unit
LALS 235 Latinos in United States
This course presents a broad overview of the Latino population in the United States that focuses on the economic and sociological aspects of Latino immigration and assimilation. Topics to be covered include: construction of Latino identity, the history of U.S. Latino immigration, Latino family patterns and household structure, Latino educational attainment. Latino incorporation into the U.S. labor force, earnings and economic well-being among Latino-origin groups, assimilation and the second generation. The course will stress the importance of understanding Latinos within the overall system of race and ethnic relations in the U.S., as well as in comparison with previous immigration flows, particularly from Europe. We will pay particular attention to the economic impact of Latino immigration on both the U.S. receiving and Latin American sending communities, and the efficacy and future possibilities of U.S. immigration policy. Within all of these diverse topics, we will stress the heterogeneity of the Latino population according to national origin groups (i.e. Mexican, Puerto Rican, Cuban, and other Latinos), as well as generational differences between immigrants and the native born.
Taught by: Emilio Parrado
Course not offered every year
Activity: Lecture
1 Course Unit

LALS 238 Spanish Civil War & Postwar
Activity: Seminar
1 Course Unit

LALS 248 Haitian Revolution
Activity: Seminar
1 Course Unit

LALS 250 C.I.A. Assassinations and Coups in Latin America
Why has the United States government participated in political assassinations and coups d'état in Latin America? How have these interventions affected Latin American political and economic outcomes? How have they helped or hurt U.S. interests in the region? This lecture course provides an introduction to the history and politics of U.S.-led assassinations and coups in Latin America since 1949. For each event, the course will help students understand (1) the goals of the U.S. government; (2) the historical and political context of the intervention; and (3) the outcomes and consequences, both in Latin America and for the United States. Knowledge of the history of U.S. involvement in regime change is critical for understanding contemporary foreign policy.
Taught by: Kronick
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit

LALS 254 Archaeology of the Inca
The Inca created a vast and powerful South American empire in the high Andes Mountains that was finally conquered by Spain. Using Penn's impressive Museum collections and other archaeological, linguistic, and historical sources, this course will examine Inca religion and worldview, architecture, sacred temples, the capital of Cuzco, ritual calendar, ceque system, textiles, metalworking, economic policies and expansionist politics from the dual perspectives of Inca rulers and their subjects. Our task is to explain the rise, dominance, and fall of the Incas as a major South American civilization.
For BA Students: History and Tradition Sector
Taught by: Erickson
Course not offered every year
Activity: Seminar
1 Course Unit

LALS 258 Caribbean Music & Diaspora
This survey course considers Caribbean musics within a broad and historical framework. Caribbean musical practices are explored by illustrating the many ways that aesthetics, ritual, communication, religion, and social structure are embodied in and contested through performance. These initial inquiries open onto an investigation of a range of theoretical concepts that become particularly pertinent in Caribbean contexts—concepts such as post-colonialism, migration, ethnicity, hybridity, syncretism, and globalization. Each of these concepts, moreover, will be explored with a view toward understanding its connections to the central analytical paradigm of the course—diaspora. Throughout the course, we will listen to many different styles and repertoires of music, ranging from calypso to junkanoo, from rumba to merengue, and from dancehall to zouk. We will then work to understand them not only in relation to the readings that frame our discussions but also in relations to our own North American contexts of music consumption and production.
Taught by: Rommen
Course not offered every year
Activity: Lecture
1 Course Unit

LALS 273 The Immigrant City
Immigration is among the most important phenomena shaping neighborhoods, cities, and regions. Understanding migration is fundamental to understanding urbanization, community development, and urban society today. This course examines the development of immigrant communities in United States cities and suburbs. Class readings, discussions, and visits to a variety of Philadelphia immigrant neighborhoods explore themes including labor markets, commerce, housing, civil society, racial and ethnic relations, integration, and the public sphere. We study the diverse dynamics and impacts of immigration through foundational readings and close observation of various newcomer and receiving communities. The first part of the course surveys migration and community formation among a broad range of ethnic groups in different sorts of city and suburban neighborhoods, mainly through history, sociology, and geography. The second part focuses on public policy and community and economic development practices related to migration at the local, regional, national, and trans-national scales.
Taught by: Vitiello, Domenic
Course usually offered in spring term
Activity: Seminar
1 Course Unit

LALS 274 Facing America
This course explores the visual history of race in the United States as both self-fashioning and cultural mythology by examining the ways that conceptions of Native American, Latino, and Asian identity, alongside ideas of Blackness and Whiteness, have combined to create the various cultural ideologies of class, gender, and sexuality that remain evident in historical visual and material culture. We also investigate the ways that these creations have subsequently helped to launch new visual entertainments, including museum spectacles, blackface minstrelsy, and early film, from the colonial period through the 1940s.
Taught by: Shaw
Course not offered every year
Activity: Lecture
1 Course Unit
LALS 291 Latin American Literature
This course explores an aspect of Latina/o literature intensively; specific course topics will vary from year to year. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Spaces will be reserved for English Majors

LALS 314 Transitions to Democracy
Taught by: Falleti
One-term course offered either term
Activity: Seminar
1 Course Unit

LALS 317 The Politics of Matter and the Matter of Politics
What is nature? What is culture? What kinds of practices and actors constitute what we call science? Who and what constitute the sphere we refer to as politics? A number of theoretical developments in cultural anthropology, political theory, critical geography, and feminist science studies have problematized the modernist ontological divide between Nature and Culture and a whole series of binary oppositions (such as objects/subjects, matter/form, bio/geo) that follow from it. Taking inspiration from this literature and placing it in conversation with Native and Indigenous scholarship and a series of contemporary socio-environmental struggles occurring in Latin America and beyond, this course will discuss the conceptual-methodological tools that a concern with politics of matter has generated. The epistemic and political implications of these tools go beyond their analytical usefulness as innovative devices to explore novel phenomena. They complicate well-established fields of inquiry, such as political ecology and economy, environmental studies, ethics, social justice, and modern politics; and, indeed, the singular ontology that these fields may inadvertently and explicitly sustain. We will explore how it is that things, stuff, matter, ‘nature’ came to fall outside modern politics as such, and the kinds of ethico-political repercussions that problematizing this division may produce.
Taught by: Lyons
One-term course offered either term
Activity: Seminar
1 Course Unit

LALS 328 Democracy in Trouble: OAS to the Rescue?
Democracy in the Americas is in trouble. Entrenched political, economic, and social inequality, combined with environmental degradation, weak institutions, pervasive health epidemics, weapon proliferation, and other pressing issues pose formidable challenges for strengthening democratic ideals and institutions. The Organization of American States (OAS), is uniquely poised to confront and purposively focused to strengthen peace, security, democracy, and human rights. In this community based course, students will study the role and history of the OAS while working directly with area public high school students in preparation for the OAS annual high model OAS simulation in Washington, DC.
Taught by: Bartch
Activity: Seminar
1 Course Unit

LALS 385 Religion and Politics in Latin America
Activity: Lecture
1 Course Unit

LALS 387 Topics in Africana Studies
Topics vary: Black Feminist Approaches to History & Memory - The term black feminism emerged in public discourse amid the social, political, and cultural turbulence of the 1960s. The roots of black feminism, however, are much older, easily reaching back to the work of black women abolitionists and social critics of the nineteenth century. The concept continued to grow and evolve in the work of twentieth century black women writers, journalists, activists, and educators as they sought to document black women’s lives. Collectively, their work established black feminism as a political practice dedicated to the equality of all people. More recently, black feminism has been deployed as a tool for theoretical and scholarly analysis that is characterized by an understanding that race, class, gender, and sexuality are inextricably interconnected.
Taught by: Osuji, Sanders-Johnson, Willis
One-term course offered either term
Prerequisites: Junior and Senior Seminar
Activity: Seminar
1 Course Unit

LALS 388 Topics in Spanish and Latin American Cinema
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

LALS 389 Topics in Modern and Contemporary Art
Topic varies. Spring 2019: The end of the last century saw a shift in the way contemporary artistic practice was conceived. This class will consider the work and writings of key artists and thinkers of the last 50 years who have tackled issues of race, class, consumption, marginality, nationality, and modernism.
Taught by: Shaw
Course not offered every year
Activity: Seminar
1 Course Unit

LALS 394 Spanish American Fiction
Topics vary. See the Romance Languages Department’s website at http://ccat.sas.upenn.edu/roml for a description of the current offerings.
Course not offered every year
Prerequisite: Span 219
Activity: Seminar
1 Course Unit

LALS 395 Hispanic Theater
Topics vary. Please see the Spanish Department’s website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Taught by: Regueiro
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

LALS 396 Introduction to Spanish American Literature
Topics vary. Please see the Spanish Department’s website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit
LALS 397 Studies in Spanish American Culture
Topics vary. Please see the Spanish Department’s website for the current
course description: https://www.sas.upenn.edu/hispanic-portuguese-
studies/c
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

LALS 398 History of Spanish American Culture
Topics vary. Please see the Spanish Department’s website for the current
course description: https://www.sas.upenn.edu/hispanic-portuguese-
studies/c
Course not offered every year
Prerequisite: Span 219
Activity: Seminar
1 Course Unit

LALS 399 Independent Study
Individual research to be taken under the direction of a faculty member.
Students wishing to do an independent study should contact the Latin
American and Latino Studies program.
One-term course offered either term
Activity: Independent Study
1 Course Unit

LALS 402 Why Latin America Matters: Examining Us-Latin American
Foreign Relations
Activity: Lecture
1 Course Unit

LALS 417 Comparative Racial Politics
This course combines scholarship on race and racism in plural societies
with qualitative approaches to the study of political institutions,
phenomena and actors. Germany, Brazil, France and Cuba will be
examined as individual country cases and in comparative perspective.
Conceptual and theoretical readings on race, racism and politics provide
students with the analytic too to draw more abstract lessons and
generalize conclusions about how racial and ethno-national hierarchy
involves the role of the state and political economy, culture, norms
and institutions. Students will also examine the impact of civil rights
movements for political equality in response to legacies of racial and
ethno-national hierarchy and inequality. Finally, students will become
familiar with scholarship on nationalism and social movements as they
relate to racial politics.
Taught by: Hanchard
Activity: Lecture
1 Course Unit

LALS 420 Adv Tpcs in Africana Stds
Activity: Lecture
1 Course Unit

LALS 424 Latinx Communities and the Role of CBO's in Social Change
The purpose of this course to create a Latino Studies/Service Learning
ABCS course that cultivates dialogue and knowledge about the social,
political, cultural and historical complexities of the Latinx experience in
the United States (Philadelphia in particular) and the roles Latinx CBO’s
play in meeting the needs of Latinx communities and in impacting social
change.
Taught by: Irizarry
Activity: Lecture
1 Course Unit

LALS 425 Latin@ Cultural History: the Resiliency and Impact of Latin@
Cultural Expressions in the Us
This course takes a multi-disciplinary approach to the study of the
resiliency and impact of Latin@ cultural and artistic contributions,
esthetics, expressions and institution building int he United Stats
from the Civil Rights Era to the present. We will explore how Latin@s
argiculturally defining being "American"; how their artistic expressions
fit and influence the creativity and productivity of American and global
Arts & Cultural expressions; and the Latin@ interactions of race, culture,
society, economy and politics in the U.S.
Taught by: Irizarry, Johnny
Activity: Seminar
1 Course Unit

LALS 431 Modern Mexican Society
An introduction to social, political, and economic organization of modern
Mexico. This course traces to evolution of Mexico's fundamental societal
institutions from their birth during the Mexican Revolution of 1910,
through their flowering during the 1950's and 1960's, to recent changes
under neoliberal administrations. The course ends with a discussion of
Mexico's transition to democracy and the election of the first opposition
President in 80 years.
Course not offered every year
Activity: Seminar
1 Course Unit

LALS 433 Andean Archaeology
Consideration of the culture history of the native peoples of the Andean
area, with emphasis on the pre-conquest archaeology of the Central-
Andean region.
Taught by: Erickson
Course not offered every year
Activity: Lecture
1 Course Unit

LALS 436 Latina/Os and the Law
Activity: Lecture
1 Course Unit

LALS 437 Love,Anger,Madness: Love, Anger, Madness: History and
Silences in Modern Haiti
Course usually offered in spring term
Activity: Seminar
1 Course Unit

LALS 526 Transitional Justice in Latin America
Activity: Online Course
1 Course Unit
LALS 527 Spring 2015: Race, Gender & Auto/Biography
SPRING 2017: Market Women, Madames, Mistresses & Mother Superior
studies gender, labor, sexuality, and race in the Caribbean. In our historical
examination of primary source documents alongside literature, and
popular media, we will question some of the iconic representations
of Caribbean and Latin American women in order to understand the
meaning, purpose and usages of these women’s bodies as objects
of praise, possession, obsession and/or ridicule by communities,
governments and religions within and outside of the region. Beginning in
the late-18th century and ending with contemporary migration narratives,
this course considers the relationship between slave society and colonial
pasts on gender performance in the modern Caribbean, Latin America,
and their diasporas.
Taught by: Sanders
One-term course offered either term
Activity: Seminar
1 Course Unit

LALS 557 Seminar in Archaeological Theory and Method: Archaeology of
Landscapes
Advanced seminar for potential professional archaeologists. Course
will examine critically main past and present theoretical issues in
archaeological research and interpretation, and consider various
methodologies utilized towards these interpretive ends.
Taught by: Erickson, C.
Course not offered every year
Prerequisites: ANTH 241 or ANTH 600 and one archaeology area course
or permission from instructor
Activity: Seminar
1 Course Unit

LALS 590 Introduction to Francophone Literature
An introduction to major literary movements and authors from five areas
of Francophonie: the Maghreb, West Africa, Central Africa, the Caribbean
and Quebec.
Course not offered every year
Activity: Seminar
1 Course Unit

LALS 655 Democratization
This graduate class focuses on issues of democratization (and de-
democratization), as studied in the comparative politics literature.
The course is structured in four parts. In the first part, we scrutinize
conceptualizations and measurements of democracy. In the second part,
we study competing political theories about the origins of democracy.
The third part of the seminar is devoted to the study of democratic
transition and consolidation processes. To finish, we tackle specific
issues in democratization such as social capital and civic participation,
as well as the resilience of (subnational) authoritarianism.
Taught by: Falleti
Course not offered every year
Activity: Seminar
1 Course Unit

LALS 694 Spanish & Latin Am Cine
Topics vary. See the Romance Languages Department’s website at http://
cat.sas.upenn.edu/roml/ for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit

LALS 697 Studies in Latin American Culture
Topics vary. Please see the Spanish Department’s website for the current
course description: https://www.sas.upenn.edu/hispanic-portuguese-
studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

LALS 771 Oral History
One-term course offered either term
Activity: Seminar
1 Course Unit
LEAD 101 Leadership Theory and Practice
Using an innovative combination of academic theory, empirical research, and self-reflection, this course is an intensive introduction to multiple and competing concepts of leadership. Students will critically analyze texts and research related to effective leadership and leaders and, at the same time, develop their own, individualized leadership traits and skills profile. A culminating biographical analysis paper requires students to compare and contrast their own distinctive leadership traits and skills to those of an admired leader. The course concludes with each student crafting a 5-year leadership and communication career plan.
Activity: Online Course
1 Course Unit

LEAD 102 Leadership Theory and Practice
Using an innovative combination of academic theory, empirical research, and self-reflection, this course is an intensive introduction to multiple and competing concepts of leadership. Students will critically analyze texts and research related to effective leadership and leaders and, at the same time, develop their own, individualized leadership traits and skills profile. A culminating biographical analysis paper requires students to compare and contrast their own distinctive leadership traits and skills to those of an admired leader. The course concludes with each student crafting a 5-year leadership and communication career plan.
Activity: Online Course
1 Course Unit

LEAD 304 Communication
This writing-intensive course is designed to enhance each student's ability to communicate effectively in the workplace and other professional settings. Students will learn how to edit their own writing, give persuasive oral presentations to different audiences, communicate effectively during conflicts or crises, and apply evidence-based lessons from positive psychology to personal development and professional success. Students who have taken LEAD 101 will complete the first draft of a plan.
Activity: Online Course
1 Course Unit

LEAD 340 Professional Communication and Self-Development
This writing-intensive course is designed to enhance each student's ability to communicate effectively in the workplace and other professional settings. Students will learn how to edit their own writing, give persuasive oral presentations to different audiences, communicate effectively during conflicts or crises, and apply evidence-based lessons from positive psychology to personal development and professional success. Students who have taken LEAD 101 will complete the first draft of a plan.
Activity: Online Course
1 Course Unit
LGST 100 Ethics and Social Responsibility
This course explores business responsibility from rival theoretical and managerial perspectives. Its focus includes theories of ethics and their application to case studies in business. Topics include moral issues in advertising and sales; hiring and promotion; financial management; corporate pollution; product safety; and decision-making across borders and cultures.
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 101 Law and Social Values
This course presents law as an evolving social institution, with special emphasis on the legal regulation of business in the context of social values. It considers basic concepts of law and legal process, in the U.S. and other legal systems, and introduces the fundamentals of rigorous legal analysis. An in-depth examination of contract law is included.
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 202 Law of Corporate Management and Finance
This course provides an introduction to the law of corporate management and finance, focusing on large publicly held corporations. It is presented from the perspective that before too long virtually all students will serve on one or more corporate boards of directors and that each should, therefore, know about the duties owed by directors and officers to those toward whom they bear a fiduciary duty. The course covers the basic obligations of corporate directors and managers under state corporate law and the federal securities laws. It also considers the rights and responsibilities of other major stake holders in the governance of public corporations, including shareholders, creditors/bondholders, employees (including corporate executives), investment bankers, corporate lawyers, and accountants. Particular attention is given to the law of mergers and acquisitions. Important issues of social policy concerning large business corporations are also discussed.
Taught by: Buccola, Orts
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 204 Real Estate Law
See Real Estate, REAL 204
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 205 Law of Marketing and Antitrust
The course explores the legal aspects of competition. The aim is to understand what legal obligations a business organization owes to its competitors and consumers. In particular, the course focuses on permissible and impermissible marketing tactics, pricing strategies, use of intellectual property (including patents, copyrights, and trademarks), and exertion of market dominance. The focus is primarily on U.S. law, but the challenges posed by diverse domestic, foreign, and international regimes will also be discussed. The course is useful to students interested in marketing strategy or competitive business strategy, and, more broadly, to anyone desiring to understand the legal and public policy issues relating to competitive business interaction.
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 206 Negotiations
This course examines the art and science of negotiation, with additional emphasis on conflict resolution. Students will engage in a number of simulated negotiations ranging from simple one-issue transactions to multi-party joint ventures. Through these exercises and associated readings, students explore the basic theoretical models of bargaining and have an opportunity to test and improve their negotiation skills.
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 207 The Sports Industry: Business and Legal Aspects
This course examines various business disciplines as they apply to the sports industry. The course provides the student with an overview of the business of the intercollegiate, Olympic and professional sports enterprises. In addition, the course investigates the business related issues encountered by managers of sports organizations and covers how business principles can be applied to effectively address these issues.
Taught by: DiGisi
One-term course offered either term
Activity: Lecture
1 Course Unit
LGST 208 The Law at Work: Employment Law for Managers
This course is based on the principle that knowledge and understanding of employment law facilitate (1) promotion of a workforce with a high degree of commitment to reaching business goals, (2) the development of practical business solutions to problems arising in the workplace, (3) effective human resources policy and procedures that comply with applicable laws. It provides students with an introduction to the law of the workforce and examines the balance between business goals and employment law compliance. The course examines the various employment laws with which businesses must comply and the legal rights and responsibilities of employees and employers. The emphasis is on laws concerning equal employment opportunity with respect to discrimination and harassment because of sex, race, national origin, religion, sexual orientation, age, disability and other characteristics protected by workforce laws; work-related privacy including investigations, electronic communication and social media; employee misclassification; diversity and affirmative action; and the legal and regulatory environment regarding immigration, wage and hour, leaves of absence, hiring, termination and afterwards, the non-employee workforce, whistle blower concerns, labor/management relations and collective bargaining.
Taught by: Weinstein
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 212 Economic Analysis of Law
The course is designed to teach students how to think as an economist about legal rules; to evaluate alternative legal rules against standards of economic efficiency and distributive justice; and to understand the nature of the legal process and several specific areas of the law. With the use of alternative texts, both deductive and inductive reasoning will be employed to study the formation and interpretation of legal rules.
Taught by: Buccola
One-term course offered either term
Prerequisite: Econ 001
Activity: Lecture
1 Course Unit

LGST 213 Legal Aspect of Entrepreneurship
This practically oriented course examines the critical legal issues confronting start-ups with a focus on innovation and disruption. Cutting edge topics include the new drone law, which permits companies to benefit from the efficiency of aerial view techniques. Students will learn to use the law to manage risk, deploy resources and maximize value by analyzing cases, statutes, pleadings and contracts. The course covers the entire lifecycle of a business and deals with confidentiality, non-competition and invention assignment clauses, tax advantages of limited liability companies (LLC) v. corporations or partnerships, securities law strategy for raising venture capital, independent contractor v. employee concerns, discrimination laws, merger and acquisition exit plans, intellectual property (IP) including patent, trade secrets, copyrights and trademarks, as well as restructuring and bankruptcy. Students will emerge from the course with the skills and tools to draft term sheets tailored to their business models, as well as mitigate liability via risk-protective policies, insurance and management of litigation. The course fulfills elective requirements for 6 Concentrations, Majors, or Minors: * Wharton Legal Studies and Business Ethics; * Wharton Entrepreneurship and Innovation/Management; * Wharton Social Impact and Responsibility; * SAS Legal Studies Minor; * SAS STSC Major(Science, Technology and Society)--with permission; * Engineering Entrepreneurship Minor--with permission.
Taught by: Hochstadter
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 215 Environmental Management: Law & Policy
This course provides an introduction to environmental management by focusing on foundational concepts of environmental law and policy and how they affect business decisions. The primary aim of the course is to give students a deeper practical sense of the important relationship between business and the natural environment, the existing legal and policy framework of environmental protection, and how business managers can think about managing their relationship with both the environment and the law.
Taught by: Light, Orts
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 216 Emerging Economies
This course explores important issues in conducting business internationally in and with emerging economies. Much of the course attempts to define emerging economies and to understand the changes occurring in these countries. The course also examines the position of emerging economies in the global context, and how broad social issues affect the development of emerging economies and the ability to establish relationships or conduct business in emerging economies.
Taught by: Nichols
One-term course offered either term
Activity: Lecture
1 Course Unit
LGST 218 Diversity and the Law
The goal of this course is to study the role the law has played, and continues to play, in addressing the problems of racial discrimination in the United States. Contemporary issues such as racial profiling, affirmative action, and diversity will all be covered in their social and legal context. The basis for discussion will be assigned texts, articles, editorials and cases. In addition, interactive videos will also be used to aid class discussion. Course requirements will include a term paper and class case presentations.
Taught by: Anderson
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 219 Law and Policy in International Business
This course introduces students to the legal frameworks for regulating international business - national, regional, and international. Topics include mechanisms for dispute resolution, different standards on assigning nationality, jurisdictional and choice of law problems, controversies regarding the treatment of incoming foreign direct investment and expropriation of foreign-owned businesses, patterns in extraterritoriality, problems of clashing legal standards affecting areas like labor and the environment, and projects for creating more uniform rules governing the conduct of international business. Throughout students will be encouraged to evaluate the policy dimensions of laws and to develop their own critical perspectives regarding these.
Taught by: Zaring
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 220 International Business Ethics
This course is a multidisciplinary, interactive study of business ethics within a global economy. A central aim of the course is to enable students to develop a framework to address ethical challenges as they arise within and across different countries. Alternative theories about acting ethically in global environments are presented, and critical current issues are introduced and analyzed. Examples include bribery, global sourcing, environmental sustainability, social reports, intellectual property, e-commerce, and dealing with conflicting standards and values across cultures. As part of this study, the course considers non-Western ethical traditions and practices as they relate to business.
Taught by: Berkey, Laufer
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 221 Constitutional Law and Free Enterprise
The course explores the fundamentals of U.S. constitutional doctrine and adjudication, with an emphasis on commercial and business issues and implications of constitutional law. The course starts by considering the Constitution and the structure and relationship of the governmental entities it establishes and upon which it depends. Special attention is given to the role of the federal courts, especially the Supreme Court, in interpreting and applying constitutional principles. From this foundation, the course moves on to examine in detail the major economic and business implications of constitutional law in different eras of the nation's history. A core theme is how historical events and changing notions of public policy have affected and been affected by the evolution of constitutional doctrine.
Taught by: Sepinwall
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 222 Internet Law & Policy
The Internet has become central to business and daily life. This course looks at how courts, legislatures, and regulators confront the major legal issues that the Internet poses. The fundamental challenge is that law comes from governments and other institutions in specific places, but the Internet is global and virtual. Conflicts such as the shutdown of the Napster peer-to-peer file-sharing service and the debate over "network neutrality" regulations for broadband access illustrate the challenge. How does the legal system think about Google, Skype, Twitter, and Facebook? How should it? The material in the course ranges from the foundations of cyberlaw, developed during the e-commerce boom of the 1990s, to current leading-edge questions around social networks, user-generated content, location-based services, cloud computing, and broadband platforms. Major topics include: how legally-enforceable contracts are made online; how courts determine jurisdiction over online transactions; intellectual property rules around digital assets such as music, video, and online texts; control over Internet domain names; liability of intermediaries such as Internet Service Providers and search engines; and online privacy protections. No pre-existing legal or technical knowledge is required.
Taught by: Werbach
One-term course offered either term
Activity: Lecture
1 Course Unit
LGST 223 Securities Regulation
The course examines the federal securities laws and the operation of the Securities Exchange Commission. The legal responsibilities of corporate managers, accountants, underwriters, and broker-dealers, occasioned by the securities regulatory scheme, will be investigated. Students will be encouraged to evaluate, from a managerial perspective, the various aspects of securities regulation studied. The course will discuss the recent financial crisis and ask the question whether enhanced securities regulation will prevent such a crisis in the future. The material covered in the course will provide familiarity with the basic legal structure of securities law and will assist in understanding the current policy issues in securities law. The course should help students to develop the ability to read and learn further in the field and to improve their effectiveness of communication with attorneys. It will also suggest ways of detecting instances in which an attorney should be consulted. The course is particularly useful for those students pursuing careers in corporate finance, investment banking, mergers and acquisitions, sales and trading, venture capital, private equity, entrepreneurship, accounting, corporate management, and real estate.
Taught by: Buccola, Conti-Brown
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 224 Human Rights and Globalization
The 2000 UN Global Compact has confirmed the role of TNCs as central actors in the UN system of international human rights law, but whether their role should be voluntary or legally mandated remains in dispute. This course introduces students to how globalization has led to projects for expanding international human rights law to capture the operations of TNCs and why this development is opposed in many quarters. Competing perspectives on the pros and cons of imposing human rights responsibilities on TNCs and on the respective roles that businesses and governments should play will be examined. The Positions of various governments, businesses, international institutions, academics, and NGOs will be considered, and a number of illustrative case studies will be analyzed.
Taught by: Bellace
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 226 Markets, Morality & the Future of Capitalism
Markets play a central role in the life of a capitalist democracy. But is this a good thing? Should we let markets decide who is rich and who is poor? Who makes decisions and who follows them? Whose ideas get heard and whose ideas do not? The goal of this class will be to examine the market from the perspective of various social values to see whether we should want a market system and, if so, what kind of market system we should want. Among the issues we will examine are the following: Does the market contribute to the common good? If so, how? Does the market conflict with the idea that all human beings are of equal value? What is the relation between the market and freedom? Does the market liberate us or oppress us? Can we reconcile the market with our democratic ideals? What role should corporations play in a healthy democracy? What role should markets play in an increasingly globalized world? We will read several important philosophers, economists and political theorists writing on these issues, including Adam Smith, John Rawls, Amartya Sen, Friedrich Hayek, Karl Marx, Robert Nozick, Jurgen Habermas, and others.
Grades will be based on three papers and class participation.
Taught by: Hughes
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 227 Literature of Success
This course explores the history, literature, and philosophy of two age-old questions: what does it mean to be successful and how does one achieve this elusive goal? It surveys some of the classics of the "success" genre - from Benjamin Franklin's Autobiography in the 18th century to Dale Carnegie's How to Win Friends and Influence People and Marcus Buckingham's Now, Discover Your Strengths in the 20th and 21st centuries. Case studies of remarkable achievements in business and society and Arthur Miller's play Death of a Salesman provide additional contexts within which to reflect on the questions at the center of the course. Students will keep a personal journal and use web-based tools to examine their own character strengths, talents, and achievement orientations. Grading is based on class attendance and participation, reading response papers, personal journals on assigned topics involving self reflection, a mid-term paper on an assigned research subject related to success, and a final, longer paper exploring, based on course readings and original research, each students personal philosophy of success. No final exam.
Taught by: Shell
One-term course offered either term
Activity: Lecture
1 Course Unit
LGST 228 Sports Law
This course focuses on the areas of association, contract, constitutional, labor, antitrust, and agency law as they apply to the sports industry. This course exposes the student to many of the legal issues facing stakeholders in sport organizations. Special attention is given to the regulation of professional sports leagues promoting competitive balance, as well as antitrust law and labor-management relations dealing with the organization structure of sports leagues. The course also takes an inside look at previous and newly formed collective bargaining agreements and the use of Salary Cap or lack thereof in professional sports leagues. The development of effective communication skills will be emphasized through class presentations, written assignments, and quizzes; leadership and interpersonal communications will be cultivated through small group projects and meetings, and critical thinking and problem solving skills will be fostered through the careful study of case law impacting the sports industry in a variety of facets.
Taught by: Ashe, McAfee
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 230 Social Impact and Responsibility: Foundations
What role can business play in helping to meet global societal needs, whether it involves the environment, improving health, expanding education or eradicating poverty? Is there any responsibility on the part of business to help meet those needs? What are models of successful business engagement in this area? How should success be measured? Are there limits to what businesses can and should do, and what institutional changes will enable businesses and entrepreneurs to better succeed? This survey course provides students the opportunity to engage in the critical analysis of these and other questions that lie at the foundation of social impact and responsibility as an area of study. The course involves case studies, conceptual issues, and talks by practitioners. The course is designed to help students develop a framework to address the question: How should business enterprises and business thinking be engaged to improve society in areas not always associated with business? The course is required for the secondary concentration in Social Impact and Responsibility
Taught by: Gordon, Nichols
Activity: Lecture
1 Course Unit

LGST 241 Theories of the Business Enterprise
What is a business firm? How did various forms of business, including the corporation, arise historically? How do contemporary economic and financial theories explain how business firms evolve, grow, and die? What are the legal underpinnings of the forms of business enterprise, ranging from sole proprietorships to partnerships to family-owned enterprises to multinational corporate groups? How do business firms relate to politics and government, as well as religion? What about the environment? This interdisciplinary course offers an introduction to pursuing answers to these questions. Students will gain perspective on the nature of business enterprises from different points of view that will be useful in further research, as well as having practical application. Ubiquitous economic concepts such as agency costs, principal-agent relationships, transaction costs, and influence costs will be studied. Different legal structures of firms will also be introduced, including new hybrid organizations such as benefit corporations, which seek to meld non-profit and profit objectives. In the course, we will read high-profile U.S. Supreme Court cases such as Citizens United and Hobby Lobby and debate appropriate boundaries (or not) between business and politics, as well as business and religion. Business ethics and the nature of any social responsibilities owed by business and business people will be topics too.
Taught by: Orts
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 242 Big Data, Big Responsibilities: The Law and Ethics of Business Analytics
Significant technologies always have unintended consequences, and their effects are never neutral. A World of ubiquitous data, subject to more sophisticated collection, aggregation, and analysis, creates massive opportunities for both financial gain and social good. It also creates dangers in areas such as privacy, security, discrimination, exploitation, and inequality, as well as simple hubris about the effectiveness of management by algorithm. Firms that anticipate the risks of these new practices will be best positioned to avoid missteps. This course introduces students to the legal, policy, and ethical dimensions of big data, predictive analytics, and related techniques. It then examines responses-both private and governmental-that may be employed to address these concerns.
Taught by: Werbach
Activity: Lecture
0.5 Course Units
LGST 243 Other People’s Money: The Law, Politics, and History of Financial Institutions
We learn in introductory economics courses that money is fungible: that is, one dollar is as good as the next. Indeed, using money as a “medium of exchange” is one of its defining characteristics. But what happens when we take a big pile of money and put it in different buckets. On one bucket we might write “hedge fund”; on another, “central bank”; on still another, “payday lender.” Then money starts to change in ways defined by law, history, ethics, and politics. This course will take you on a tour of these different buckets—different kinds of financial institutions, broadly defined—throughout the modern financial system. We will look at hedge funds, insurance companies, investment banks, sovereign wealth funds, central banks, consumer banks, payday lenders, state-sponsored enterprises (like the Export-Import Bank in the United States and much of the financial system in China), and the cutting edge of fintech, including crowd-funded lending, digital currencies, and more. In each case, students will be exposed to a series of specialized questions: Where did this institution come from? What problem is it trying to solve that other alternatives could not resolve? What is the basic business (or, where relevant, regulatory) model for each institution? How is each institution regulated, and by whom? What are the ethical considerations in each context? What are the political considerations that each market participant faces?
Taught by: Schweitzer, Staff
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 292 Advanced Negotiations
This course is designed to teach negotiation principles and to enable students to develop their negotiation skills. This course assumes familiarity with the basic negotiation concepts covered in the prerequisite for this course: Negotiations. In this course, we extend the study and practice of negotiations and we develop a deeper understanding for how specific aspects of the negotiation process (e.g., emotions, deadlines, trust violations) impact outcomes. Through course lectures, readings, and case exercises, students will develop a rich framework for thinking about the negotiation process and acquire tools for guiding the negotiation process.
Taught by: Schweitzer, Staff
One-term course offered either term
Prerequisite: LGST 206 Negotiations
Activity: Lecture
1 Course Unit

LGST 299 Seminar in Law and Society
A study of the nature, functions, and limits of law as an agency of societal policy. Each semester an area of substantive law is studied for the purpose of examining the relationship between legal norms developed and developing in the area and societal problems and needs.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: See department for current offerings

LGST 524 Human Rts & Globalization
The 2000 UN Global Compact has confirmed the role of TNCs as central actors in the UN system of international human rights law, but whether their role should be voluntary or legally mandated remains in dispute. This course introduces students to how globalization has led to projects for expanding international human rights law to capture the operations of TNCs and why this development is opposed in many quarters. Competing perspectives on the pros and cons of imposing human rights responsibilities on TNCs and on the respective roles that businesses and governments should play will be examined. The positions of various governments, businesses, international institutions, academics, and NGOs will be considered, and a number of illustrative case studies will be analyzed.
Taught by: Bellace
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 611 Responsibility in Global Management
This course uses the global business context to introduce students to important legal, ethical and cultural challenges they will face as business leaders. Cases and materials will address how business leaders, constrained by law and motivated to act responsibly in a global context, should analyze relevant variables to make wise decisions. Topics will include an introduction to the basic theoretical frameworks used in the analysis of ethical issues, such as right-based, consequentialist-based, and virtue-based reasoning, and conflicting interpretations of corporate responsibility. The course will include materials that introduce students to basic legal (common law vs. civil law) and normative (human rights) regimes at work in the global economy as well as sensitize them to the role of local cultural traditions in global business activity. Topics may also include such issues as comparative forms of corporate governance, bribery and corruption in global markets, human rights issues, diverse legal compliance systems, corporate responses to global poverty, global environmental responsibilities, and challenges arising when companies face conflicting ethical demands between home and local, host country mores. The pedagogy emphasizes globalized cases, exercises, and theoretical materials from the fields of legal studies, business ethics and social responsibility.
One-term course offered either term
Activity: Lecture
0.5 Course Units

LGST 612 Responsibility in Business
This course introduces students to important ethical and legal challenges they will face as leaders in business. The course materials will be useful to students preparing for managerial positions that are likely to place them in advisory and/or agency roles owing duties to employers, clients, suppliers, and customers. Although coverage will vary depending on instructor, the focus of the course will be on developing skills in ethical and legal analyses that can assist managers as they make both individual-level and firm-level decisions about the responsible courses of action when duties, loyalties, rules, norms, and interests are in conflict. For example, the rules of insider trading may form the basis for lessons in some sections. Group assignments, role-plays, and case studies may, at the instructor’s discretion, be used to help illustrate the basic theoretical frameworks. Course materials will highlight industry codes and professional norms, as well as the importance of personal and/or religious values.
One-term course offered either term
Activity: Lecture
0.5 Course Units
LGST 641 Theories of the Business Enterprise
What is a business firm? How did various forms of business, including the corporation, arise historically? How do contemporary economic and financial theories explain how business firms evolve, grow, and die? What are the legal underpinnings of the forms of business enterprise, ranging from sole proprietorships to partnerships to family-owned enterprises to multinational corporate groups? How do business firms relate to politics and government, as well as religion? What about the environment? This interdisciplinary course offers an introduction to pursuing answers to these questions. Students will gain perspective on the nature of business enterprises from different points of view that will be useful in further research, as well as having practical application. Ubiquitous economic concepts such as agency costs, principal-agent relationships, transaction costs, and influence costs will be studied. Different legal structures of firms will also be introduced, including new hybrid organizations such as benefit corporations, which seek to meld non-profit and profit objectives. In the course, we will read high-profile U.S. Supreme Court cases such as Citizens United and Hobby Lobby and debate appropriate boundaries (or not) between business and politics, as well as business and religion. Business ethics and the nature of any social responsibilities owed by business and business people will be topics too.
Taught by: Orts
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 642 Big Data, Big Responsibilities: The Law and Ethics of Business Analytics
Significant technologies always have unintended consequences, and their effects are never neutral. A world of ubiquitous data, subject to ever more sophisticated collection, aggregation, and analysis, creates massive opportunities for both financial gain and social good. It also creates dangers in areas such as privacy, security, discrimination, exploitation, and inequality, as well as simple hubris about the effectiveness of management by algorithm. Firms that anticipate the risks of these new practices will be best positioned to avoid missteps. This course introduces students to the legal, policy, and ethical dimensions of big data, predictive analytics, and related techniques. It then examines responses—both private and governmental—that may be employed to address these concerns.
Taught by: Werbach
One-term course offered either term
Activity: Lecture
0.5 Course Units

LGST 643 Other People’s Money: The Law, Politics, and History of Financial Institutions
We learn in introductory economics courses that money is fungible: that is, one dollar is as good as the next. Indeed, using money as a “medium of exchange” is one of its defining characteristics. But what happens when we take a big pile of money and put it in different buckets. On one bucket we might write “hedge fund”; on another, “central bank”; on still another, “payday lender.” Then money starts to change in ways defined by law, history, ethics, and politics. This course will take you on a tour of these different buckets—different kinds of financial institutions, broadly defined—throughout the modern financial system. We will look at hedge funds, insurance companies, investment banks, sovereign wealth funds, central banks, consumer banks, payday lenders, state-sponsored enterprises (like the Export-Import Bank in the United States and much of the financial system in China), and the cutting edge of fintech, including crowd-funded lending, digital currencies, and more. In each case, students will be exposed to a series of specialized questions: Where did this institution come from? What problem is it trying to solve that other alternatives could not resolve? What is the basic business (or, where relevant, regulatory) model for each institution? How is each institution regulated, and by whom? What are the ethical considerations in each context? What are the political considerations that each market participant faces?
Taught by: Conti-Brown
One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 692 Advanced Negotiations
This course is designed to teach negotiation principles and to enable students to develop their negotiation skills. This course assumes familiarity with the basic negotiation concepts covered in the prerequisite for this course: Negotiations. Cross-listed with MGMT 692/OPIM 692. In this course, we extend the study and practice of negotiations and we develop a deeper understanding for how specific aspects of the negotiation process (e.g., emotions, deadlines, trust violations) impact outcomes. Through course lectures, readings, and case exercises, students will develop a rich framework for thinking about the negotiation process and acquire tools for guiding the negotiation process.
Taught by: Schweitzer, Staff
One-term course offered either term
Prerequisite: LGST 806 Negotiations
Activity: Lecture
1 Course Unit

LGST 693 Influence
Building, protecting and using influence is critical for achieving your goals. This requires good personal decision making as well as understanding others’ decision-making, proficiency at the negotiation table as well as with the tacit negotiations before and after sitting at the table. In this course we focus on building your facility with a wide range of influence tools to help with these efforts. Topics include persuasion, coalitional bargaining, social cognition, networks, and status, as well as their applications to analytics, organizational decision-making and policy.
Taught by: Massey
Activity: Lecture
1 Course Unit
LGST 729 Intellectual Property Strategy for the Innovation Driven Enterprise  
See MGMT 729  
Taught by: Weiner  
Activity: Lecture  
0.5 Course Units

LGST 785 Business Strategy and Corporate Law  
This course explores strategic, business and legal decision making in a fluid real world corporate context. Classes will cover a series of timely financial and legal subjects as well as case studies that deal with topical problems in corporate governance, investment strategy, executive compensation, and potential corporate and criminal behavior. Press, public market reaction, and governmental/political considerations will be integrated into the classroom.  
Activity: Lecture  
1 Course Unit

LGST 799 Seminar in Law & Society  
A study of the nature, functions, and limits of law as an agency of societal policy. Each semester an area of substantive law is studied for the purpose of examining the relationship between legal norms developed and developing in the area and societal problems and needs.  
One-term course offered either term  
Activity: Seminar  
1 Course Unit

LGST 802 Corporate Law and Management in Global Perspective  
This course provides an introduction to the law of corporate management and finance, focusing on large publicly held corporations. It is presented from the perspective that before too long virtually all students will serve on one or more corporate boards of directors and that each should, therefore, know about the duties owed by directors and officers to those toward whom they bear a fiduciary duty. The course covers the basic obligations of corporate directors and managers under state corporate law and the federal securities laws. It also considers the rights and responsibilities of other major stake holders in the governance of public corporations, including shareholders, creditors/bondholders, employees (including corporate executives), investment bankers, corporate lawyers, and accountants. Particular attention is given to the law of mergers and acquisitions. Important issues of social policy concerning large business corporations are also discussed. Format: Lecture and legal case discussion. Materials: To be determined.  
Taught by: Buccola, Orts  
One-term course offered either term  
Activity: Lecture  
1 Course Unit

LGST 804 Real Estate Law  
See Real Estate, REAL 804  
One-term course offered either term  
Activity: Lecture  
1 Course Unit

LGST 805 Law of Marketing and Antitrust  
The course explores the legal aspects of competition. The aim is to understand what legal obligations a business organization owes to its competitors and consumers. In particular, the course focuses on permissible and impermissible marketing tactics, pricing strategies, use of intellectual property (including patents, copyrights, and trademarks), and exertion of market dominance. The focus is primarily on U.S. law, but the challenges posed by diverse domestic, foreign, and international regimes will also be discussed. The course is useful to students interested in marketing strategy or competitive business strategy, and, more broadly, to anyone desiring to understand the legal and public policy issues relating to competitive business interaction.  
One-term course offered either term  
Activity: Lecture  
1 Course Unit

LGST 806 Negotiations  
This course examines the art and science of negotiation, with additional emphasis on conflict resolution. Students will engage in a number of simulated negotiations ranging from simple one-issue transactions to multi-party joint ventures. Through these exercises and associated readings, students explore the basic theoretical models of bargaining and have an opportunity to test and improve their negotiation skills. Cross-listed with MGMT 691/OPIM 691. Format: Lecture, class discussion, simulation/role play, and video demonstrations. Materials: Textbook and course pack.  
One-term course offered either term  
Activity: Lecture  
1 Course Unit

LGST 807 Securities Regulations  
The course examines the federal securities law and the operation of the Securities Exchange Commission. The legal responsibilities of corporate managers, accountants, underwriters, and broker-dealers, occasioned by the securities regulatory scheme, will be investigated. Students will be encouraged to evaluate, from a managerial perspective, the various aspects of securities regulation studied. The course will discuss the recent financial crisis and ask the question whether enhanced securities regulation will prevent such a crisis in the future. The material covered in the course will provide familiarity with the basic legal structure of securities regulation and will assist in understanding the current policy issues in securities law. The course should help students to develop the ability to read and learn further in the field and to improve their effectiveness of communication with attorneys. It will also suggest ways of detecting instances in which an attorney should be consulted. The course is particularly useful for those students pursuing careers in corporate finance, investment banking, mergers and acquisitions, sales and trading, venture capital, private equity, entrepreneurship, accounting, corporate management and real estate. Requirements: Midterm and final exam. Materials: Text, pamphlet of statutes and rules, and study guide.  
Taught by: Buccola, Conti-Brown  
One-term course offered either term  
Activity: Lecture  
1 Course Unit
LGST 809 Sports Business Management
This course examines various business disciplines as they apply to the sports industry. The course provides the student with an overview of the business of the intercollegiate, Olympic and professional sports enterprises. In addition, the course investigates the business related issues encountered by managers of sports organizations and covers how business principles can be applied to effectively address these issues. This course is crosslisted with MGMT815. One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 813 Legal and Transactional Aspects of Entrepreneurship
Legal and Transactional Aspects of Entrepreneurship is a practical and intensive course that examines the critical legal and transactional issues confronting start-up and emerging growth companies. Although the context of the course is early stage companies, many of the concepts studied are equally applicable to more mature, established companies. The course provides perspective on how to use the law strategically to manage risk, deploy resources and maximize shareholder value. Topics include the enforceability of confidentiality, non-competition and other restrictive covenants in employment agreements; choice of business form including the legal, financial and tax advantages and disadvantages of general partnerships, limited partnerships, corporations and limited liability companies; tax and securities law; legal aspects of raising capital including structuring venture capital and private equity financing; entrepreneurial acquisition structures, employment law, and intellectual property law including trade secrets, copyrights, patents, and trademarks. Format: Lecture and discussion with coverage of legal cases and materials. Requirements: Class participation, midterm and final exam. Materials: Course pack.
Taught by: Borghese One-term course offered either term Prerequisites: None but generally recommended for second year students. Students who have taken certain legal studies courses may find limited overlap with this course.
Activity: Lecture
1 Course Unit

LGST 815 Environmental Management: Law and Policy
This course provides an introduction to environmental management with a focus on law and policy as a basic framework. The primary aim of the course is to give students a deeper practical sense of the important relationship between business and the natural environment and to think critically about how best to manage this relationship. Taught by: Light, Orts One-term course offered either term Activity: Lecture 1 Course Unit

LGST 820 International Business Ethics
This course is a multidisciplinary, interactive study of business ethics within a global economy. A central aim of the course is to enable students to develop a framework to address ethical challenges as they arise within and across different countries. Alternative theories about acting ethically in global environments are presented, and critical current issues are introduced and analyzed. Examples include bribery, global sourcing, environmental sustainability, social reports, intellectual property, e-commerce, and dealing with conflicting standards and values across cultures. As part of this study, the course considers non-Western ethical traditions and practices as they relate to business.
Taught by: Berkey, Laufer One-term course offered either term
Activity: Lecture
1 Course Unit

LGST 920 Ethics in Business and Economics
The seminar explores the growing academic literature in business ethics. It also provides participants an opportunity to investigate an ethical issue of their choosing in some depth, using their field of specialty as context. The seminar assumes no previous exposure to business ethics. Different business ethics theories and frameworks for investigating issues will be discussed, including corporate social responsibility, corporate moral agency, theories of values, and corporate governance. In turn, these theories will be applied to a range of issues, both domestic and international. Such issues include: corruption in host countries, the management of values in modern corporations, the ethical status of the corporation, ethics in sophisticated financial transactions (such as leveraged derivative transactions), and gender discrimination in the context of cultural differences. Literature not only from business ethics, but from professional and applied ethics, law, and organizational behavior will be discussed. Often, guest speakers will address the seminar. At the discretion of the class, special topics of interest to the class will be examined. Students will be expected to write and present a major paper dealing with a current issue within their major field. The course is open to students across fields, and provides integration of ideas across multiple business disciplines.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Ph.D Course

LGST 921 Foundations of Business Law
This course will introduce students to basic jurisprudential discussions and debates that relate to understanding business in society. Topics will include a general overview of the nature of law and its relationship to ethics; history of legal thought, business in society; theories of contract, torts, and property; criminal law as it applies to business situations; and theories of the business enterprise and its regulation. Selected topics will also be chosen in accordance with the interest of participants in the seminar.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Ph.D Course
LING 001 Introduction to Linguistics
A general introduction to the nature, history and use of human language, speech and writing. Topics include the biological basis of human language, and analogous systems in other creatures; relations to cognition, communication, and social organization; sounds, forms and meanings in the world’s languages; the reconstruction of linguistic history and the family tree of languages; dialect variation and language standardization; language and gender; language learning by children and adults; the neurology of language and language disorders; the nature and history of writing systems. Intended for any undergraduate interested in language or its use, this course is also recommended as an introduction for students who plan to major in linguistics.
For BA Students: Natural Science and Math Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

LING 051 Proto-Indo European Language and Society
Most of the languages now spoken in Europe, along with some languages of Iran, India and central Asia, are thought to be descended from a single language known as Proto-Indo-European, spoken at least six thousand years ago, probably in a region extending from north of the Black Sea in modern Ukraine east through southern Russia. Speakers of Proto-Indo-European eventually populated Europe in the Bronze Age, and their societies formed the basis of the classical civilizations of Greece and Rome, as well as of the Celtic, Germanic and Slavic speaking peoples. What were the Proto-Indo-Europeans like? What did they believe about the world and their gods? How do we know? Reconstruction of the Proto-Indo-European language, one of the triumphs of comparative and historical linguistics in the 19th and 20th centuries, allows us a glimpse into the society of this prehistoric people. In this seminar students will, through comparison of modern and ancient languages, learn the basis of this reconstruction — the comparative method of historical linguistics — as well as explore the culture and society of the Proto-Indo-Europeans and their immediate descendants. In addition, we will examine the pseudo-scientific basis of the myth of Aryan supremacy, and study the contributions of archaeological findings in determining the "homeland" of the Indo-Europeans. No prior knowledge of any particular language is necessary. This seminar should be of interest to students considering a major in linguistics, anthropology and archaeology, ancient history or comparative religion. (Also fulfills Cross-Cultural Analysis.)
For BA Students: History and Tradition Sector
Taught by: Noyer
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Freshman Seminar

LING 054 Bilingualism in History
This course introduces the foundations of linguistics - the scientific study of language - through exploration of multilingualism in the USA and in different societies around the world. Contacts between groups of people speaking different languages are documented from earliest records, and around the world it remains the norm to find more than one language in regular use in a single community. In this course we will see that multilingualism is a catalyst for linguistic change: sometimes languages are lost; sometimes new languages are created; sometimes the structure of a language is radically altered. We will consider: Which parts of linguistic structure are most susceptible to change under conditions of bilingualism? Does language contact - whether a result of trade, education, migration, conquest, or intermarriage - influence language structure in predictable ways? How do individual speakers handle multiple languages? How have attitudes to speakers of multiple languages changed through history? How have socio-historical events shaped the linguistic situation in the USA?
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Freshman Seminar

LING 071 American Sign Language I
Introduction to American Sign Language (ASL). Introduces ASL in a contextualized and conversational manner. Course includes receptive and expressive readiness activities, sign vocabulary and grammar, and an introduction to important topics and people within Deaf communities and Deaf culture.
For BA Students: Language Course
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

LING 072 American Sign Language II
Increased communication skill in American Sign Language (ASL). Expressive and receptive abilities are expanded upon via a contextualized and conversational manner Important topics to Deaf communities and Deaf culture are continued within online and in-class discussion.
For BA Students: Language Course
One-term course offered either term
Prerequisite: LING 071 or Permission of the Instructor
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

LING 073 American Sign Language III
American Sign Language (ASL) at the Intermediate I level. Expressive and receptive abilities are expanded upon via a contextualized and conversational manner, including, but not limited to, narrative production. Important topics to Deaf communities and Deaf culture are continued within online and in-class discussion.
For BA Students: Language Course
One-term course offered either term
Prerequisite: LING 072 or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center
LING 074 American Sign Language IV
American Sign Language (ASL) at the Intermediate II level. Expressive and receptive abilities are expanded upon via a contextualized and conversational manner, including, but not limited to, narrative production. Important topics to Deaf communities and Deaf culture are continued within online and in-class discussion.
For BA Students: Last Language Course
One-term course offered either term
Prerequisite: LING 073 or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

LING 075 American Sign Language V
This is an advanced ASL course in which students expand their conversational and narrative range. While receptive readiness activities continue to be an important part of the class, the emphasis moves toward honing expressive sign skills through narrative presentation and ASL-only class discussions. Various aspects of Deaf culture and cultural behavior rules will be incorporated into the course. A large component of the course is a unit on Deaf history in which students read and discuss major events and famous deaf people via readings, film, class lectures and discussions, and other outside resources.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisite: LING 074 or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

LING 076 Deaf Literature, Performance, Art, and Film
This course is an advanced/conversational ASL course that explores several key topics related to Deaf culture and the Deaf experience. Influence on literature (both written and signed), theatre, fine and visual arts, and film—both Deaf and hearing directed and acted. Using only ASL in class, students learn about various perspectives and approaches to each of the themes and topics of the course. Some questions to explore and answer in this course will be: What is Deaf Literature? The Deaf Lens: What is it? How is it different from a hearing perspective on film? How is Deafness expressed differently in each of the arts discussed in this course? Analysis and discussion will come from readings as well as viewings of various types of Deaf arts.
For BA Students: Advanced Language Course
Taught by: Dragana-Hawk
Prerequisites: Ling 074 and prior language experience or permission from instructor.
Activity: Seminar
1 Course Unit

LING 077 ASL/Deaf Studies - ABCS
For this course, students will attend Pennsylvania School for the Deaf on a weekly basis where they will participate in and contribute to the school community via tutoring or other mutually agreeable activities. Students will also have formal class on a weekly basis with discussions and activities centered on reflection of community experiences through linguistic as well as cultural lenses. Additionally, drawing from the required Linguistics and other ASL/Deaf Studies coursework, students will develop an inquiry question and conduct preliminary community-based research to analyze sociolinguistic variations of ASL and Deaf cultural attitudes, behaviors, and norms. Ongoing reflections and discussions-formal and informal-on Deaf cultural/theoretical topics drawing from readings as well as community experiences will be integral to the course experience. LING 078, Topics in Deaf Culture and permission from the instructor, are required for this course.
For BA Students: Advanced Language Course
Taught by: Fisher
Prerequisites: LING 078 and permission from instructor, Anyone considering taking this course should contact the ASL Program Coordinator early in the semester prior to enrollment (Spring) to ensure adequate time to obtain clearances and appropriate placement.
Activity: Lecture
1 Course Unit

LING 078 Deaf Culture
This course is an advanced/conversational ASL course that explores several key topics related to Deaf Culture. Using only ASL in class, students will read and discuss books, articles, and films related to the following topics: Deaf History, Deaf Identity, Deafness as Asset, Communication Issues and Pathological Perspectives on Deafness, Deafness and Education, Deaf/Hearing Family Dynamics. Language growth will stem from direct instruction as well as through the course of class conversation. Students will collaborate with the instructor and our Deaf community liaison to develop and host an event that is accessible to both Deaf and hearing people alike.
For BA Students: Advanced Language Course
Taught by: Fisher
Prerequisite: LING 074 or permission from coordinator
Activity: Seminar
1 Course Unit
Notes: Offered through Penn Language Center
LING 079 Disability Rights and Oppression: Experiences within Global Deaf Communities
This course explores the linguistic and social statuses of global Deaf communities with respect to language rights and efforts toward parity with spoken language communities. We will begin by providing some background and context for understanding Deaf communities and people as both linguistic and cultural minorities as well as members of a disability group. We then explore various examples of oppression borne by Deaf people throughout history and today, with an emphasis on the Milan Conference of 1880, from which several decrees mandated that sign languages be banned in all instruction of Deaf students worldwide. The impacts of said decrees were catastrophic for the linguistic and social rights of Deaf people; effects of these experiences are pernicious and long lasting. Since then, global Deaf communities have fought to gain the legal rights and social recognition that are typically afforded hearing members of their respective communities. There are some Deaf communities that have attained said rights, where others are still left far behind. We explore the lasting effects of the Milan Congress in global terms, using the United States and North American Deaf communities as a standard for comparative measurement. Do note that this course will include a module on Italian Sign Language (LIS) and will give opportunities to learn and use LIS in and amongst Italian Deaf community members while in Italy.
Taught by: Fisher
Course usually offered in spring term
Prerequisites: Application and Permission from Penn Global
Activity: Lecture
1 Course Unit

LING 081 Beginning Irish Gaelic I
Irish Gaelic, spoken primarily on the west coast of Ireland, is rich in oral traditions, song, poetry and literature. Knowledge of this language provides a foundation to understanding Celtic folklore and linguistics and also enhances the study of Anglo-Irish literature and history. The first-year course will include reading, conversation, listening and speaking.
Taught by: Blyn-LaDrew
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

LING 082 Beginning Irish Gaelic II
Taught by: Blyn-LaDrew
One-term course offered either term
Prerequisite: LING 081 or permission from instructor
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

LING 083 Intermediate Irish Gaelic I
Taught by: Blyn-LaDrew
One-term course offered either term
Prerequisite: LING 082 or equivalent
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

LING 085 Advanced Irish Gaelic I
Taught by: Blyn-LaDrew
One-term course offered either term
Prerequisite: LING 084 or equivalent
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

LING 086 Advanced Irish Gaelic II
This course will emphasize reading of literary texts, and advanced aspects of grammar, composition, and conversation.
Taught by: Blyn-LaDrew
One-term course offered either term
Prerequisite: LING 085 or equivalent
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

LING 091 American Sign Language III/IV
Expanded instruction of American Sign Language (ASL) on the Intermediate I and II levels. Includes receptive and expressive readiness activities, sign vocabulary and grammar growth, fingerspelling practice and narrative skills. Topics on Deaf cultural are also included in the course readings and discussions. Increases the emphasis on more abstract and challenging conversational and narrative range.
For BA Students: Last Language Course
Course not offered every year
Prerequisite: LING072 or by permission of instructor
Corequisites: Expanded instruction of ASL.
Activity: Lecture
2 Course Units
Notes: Offered by Penn Language Center; permit from Penn Language Center required for admission.

LING 102 Introduction to Sociolinguistics
Human language viewed from a social and historical perspective. Students will acquire the tools of linguistic analysis through interactive computer programs, covering phonetics, phonology and morphology, in English and other languages. These techniques will then be used to trace social differences in the use of language, and changing patterns of social stratification. The course will focus on linguistic changes in progress in American society, in both mainstream and minority communities, and the social problems associated with them. Students will engage in field projects to search for the social correlates of linguistic behavior, and use quantitative methods to analyze the results.
For BA Students: Society Sector
Taught by: Tamminga
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Satisfies Quantitative Data Analysis

LING 103 Introduction to Language: Language Structure and Verbal Art
The purpose of this course is to explore the relationship between linguistic structure and the use of language for artistic purposes. The syllabus is organized as a sequence of units, each built around a particular theme. These include the sound structure of poetry (meter, rhyme, and other linguistic patterns in Jabberwocky, the Odyssey, Shakespeare, the Troubadours, and others); how precise linguistic data can be used to solve an outstanding literary problem (determining the approximate date when Beowulf was composed); and the structure of folktales of various cultures and of narratives of everyday experience.
For BA Students: Arts and Letters Sector
Taught by: Ringe
Course usually offered in fall term
Activity: Lecture
1 Course Unit
LING 105 Introduction to Cognitive Science
Cognitive Science is founded on the realization that many problems in the analysis of human and artificial intelligence require an interdisciplinary approach. The course is intended to introduce students to the problems and characteristic concepts of Cognitive Science, drawing on formal and empirical approaches from the parent disciplines of computer science, linguistics, neuroscience, philosophy and psychology. The topics covered include Perception, Action, Learning, Language, Knowledge Representation, and Inference, and the relations and interactions between such modules. The course shows how the different views from the parent disciplines interact, and identifies some common themes among the theories that have been proposed. The course pays particular attention to the distinctive role of computation in such theories, and provides an introduction to some of the main directions of current research in the field.
Taught by: Brainard/Ungar
Course usually offered in fall term
Also Offered As: CIS 140
Activity: Lecture
1 Course Unit
Notes: This is a Formal Reasoning course.

LING 106 Introduction to Formal Linguistics
In this course, we study formal mathematical tools for the analysis of language that help us understand and classify the complex structures and rules that constitute language and grammar. These tools include set theory, formal language and automata theory, as well as aspects of logic, and will be applied to the syntax and semantics of natural language. In addition to learning something about formal tools for analyzing language, this will also enhance your general skills in analytical reasoning.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: This is a Formal Reasoning course.

LING 115 Writing Systems
The historical origin of writing in Sumeria, Egypt, China, and Mesoamerica; the transmission of writing across languages and cultures, including the route from Phoenician to Greek to Etruscan to Latin to English; the development of individual writing systems over time; the traditional classification of written symbols (ideographic, logographic, syllabic, alphabetic); methods of decipherment; differences between spoken and written language; how linguistic structure influences writing, and is reflected by it; social and political aspects of writing; literacy and the acquisition of writing.
For BA Students: History and Tradition Sector
Taught by: Buckley
Course usually offered in fall term
Activity: Lecture
1 Course Unit

LING 120 Introduction to Speech Analysis
This course focuses on experimental investigations of speech sounds. General contents include: the fundamentals of speech production and perception; speech analysis tools and techniques; and topics in phonetic studies. The course consists of integrated lectures and laboratory sessions in which students learn computer techniques for analyzing digital recordings.
Taught by: Kuang
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Satisfies Quantitative Data Analysis

LING 151 Language and Thought
This course describes current theorizing on how the human mind achieves high-level cognitive processes such as using language, thinking, and reasoning. The course discusses issues such as whether the language ability is unique to humans, whether there is a critical period to the acquisition of a language, the nature of conceptual knowledge, how people perform deductive reasoning and induction, and how linguistic and conceptual knowledge interact.
Taught by: Trueswell
One-term course offered either term
Prerequisites: PSYC 001, COGS 001, LING 105, or PSYC 207
Activity: Lecture
1 Course Unit

LING 170 Experimental Methods for Linguists
Controlled experiments are a key element of empirical research, and they play an increasingly important role in the study of language and communication. This course will be divided into two halves. In the first half, students will be introduced to the fundamentals of how to conduct an experiment, along with a basic introduction to statistical methods. The emphasis will be on understanding the basic logic of experimental design, but special lectures will focus on the application of particular methods to the study of language. In the second half, classes will become more like lab meetings as students develop their own experimental projects from the ground up. At the end of the semester they will write up these projects as papers.
Taught by: Roberts
Course not offered every year
Activity: Seminar
1 Course Unit

LING 210 Introduction to Language Change
This course covers the principles of language change and the methods of historical linguistics on an elementary level. The systematic regularity of change, the reasons for that regularity, and the exploitation of regularity in linguistic reconstruction are especially emphasized. Examples are drawn from a wide variety of languages, both familiar and unfamiliar. The prerequisite for the course is any course in phonetics or phonology, or Ling 001, or permission of the instructor. Note that this course does NOT satisfy any sector requirement.
Taught by: Ringe
Course not offered every year
Prerequisites: One phonetics or phonology course, or Ling 001. Note that this course does NOT count towards sector II, History and Tradition.
Activity: Lecture
1 Course Unit

LING 230 Sound Structure of Language
An introduction to phonetics and phonology. Topics include articulatory phonetics (the anatomy of the vocal tract; how speech sounds are produced); transcription (conventions for representing the sounds of the world's languages); classification (how speech sounds are classified and represented cognitively through distinctive features); phonology (the grammar of speech sounds in various languages: their patterning and interaction) and syllable structure and its role in phonology.
Taught by: Noyer
Course usually offered in spring term
Prerequisites: Prerequisite: A prior course in linguistics or permission of instructor.
Activity: Lecture
1 Course Unit
LING 235 Psychology of Language
This course describes the nature of human language, how it is used to speak and comprehend, and how it is learned. The course raises and discusses issues such as whether language ability is innate and unique to humans, whether there is a critical period for the acquisition of a language, and how linguistic and conceptual knowledge interact.
Taught by: Dahan
One-term course offered either term
Prerequisite: PSYC 151 or LING 001
Activity: Lecture
1 Course Unit

LING 240 Structure of a Language
Designed to apply linguistic principles to the grammatical analysis of a particular language, this course focuses on the different language each time it is given, according to the decision of the instructor. It may be taken by students with prior knowledge of the language in question who have not taken previous courses in linguistics, and by students of linguistics who wish to explore a new language. The selected language will be announced prior to pre-registration for any semester in which it is given.
Course not offered every year
Activity: Seminar
1 Course Unit

LING 241 Language in Native America
This course is an introduction to linguistic perspectives on the languages native to the Americas (their nature and distribution, typological similarities and differences), with an emphasis on North America. The diverse languages of this region will be examined from the point of view of particular linguistic phenomena, such as phonology, morphology, and syntax; and in addition we will study their historical development and their place in culture, society, and thought.
Taught by: Buckley
Course not offered every year
Activity: Lecture
1 Course Unit

LING 242 Construct a Language
In this course, students construct their own language, one that is compatible with what is known about possible human languages. To this end, the course investigates language typology through lectures and examination of grammars of unfamiliar languages. Topics include language universals, points of choice in a fixed decision space, and dependencies among choices.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Students who have taken Ling 140: Construct a Language are not eligible to enroll in Ling 242.

LING 243 Language of Native Americans
This course describes the nature of human language, how it is used to speak and comprehend, and how it is learned. The course raises and discusses issues such as whether language ability is innate and unique to humans, whether there is a critical period for the acquisition of a language, and how linguistic and conceptual knowledge interact.
Taught by: Dahan
One-term course offered either term
Prerequisite: PSYC 151 or LING 001
Activity: Lecture
1 Course Unit

LING 244 Language of Native Americans
This course is an introduction to linguistic perspectives on the languages native to the Americas (their nature and distribution, typological similarities and differences), with an emphasis on North America. The diverse languages of this region will be examined from the point of view of particular linguistic phenomena, such as phonology, morphology, and syntax; and in addition we will study their historical development and their place in culture, society, and thought.
Taught by: Buckley
Course not offered every year
Activity: Lecture
1 Course Unit

LING 247 Structure of American Sign Language
This course covers the linguistic structure of American Sign Language (ASL), including its phonology (articulatory features, phonological constraints, nonmanuals), morphology (morphological constraints, compounds, incorporation, borrowing), and syntax (syntactic categories, basic phrase structure, common sentence types). Also discussed are the topics of classifiers and deixis. In keeping with the comparative perspective of linguistic theory, parallels and differences between ASL and other (primarily spoken) languages are pointed out where appropriate. Historical and sociolinguistic issues are addressed where they are relevant to elucidating linguistic structure. Though the course focuses on ASL, it necessarily touches on issues concerning sign languages more generally, notably the possible effects of modality (sign vs. speech) on linguistic structure and the implications of the signed modality for general linguistics.
Taught by: Fisher/Santorini
Course not offered every year
Prerequisite: Ling 001 or permission of instructor(s)
Activity: Lecture
1 Course Unit

LING 250 Introduction to Syntax
This course is an introduction to current syntactic theory, covering the principles that govern phrase structure (the composition of phrases and sentences), movement (dependencies between syntactic constituents), and binding (the interpretation of different types of noun phrases). Although much of the evidence discussed in the class will come from English, evidence from other languages will also play an important role, in keeping with the comparative and universalist perspective of modern syntactic theory.
Taught by: Santorini
Course usually offered in fall term
Activity: Lecture
1 Course Unit

LING 270 Language Acquisition
An introduction to language acquisition in children and the development of related cognitive and perceptual systems. Topics include the nature of speech perception and the specialization to the native language; the structure and acquisition of words; children's phonology; the development of grammar; bilingualism and second language acquisition; language learning impairments; the biological basis of language acquisition; the role in language learning in language change. Intended for any undergraduate interested in the psychology and development of language.
Taught by: Yang
Course not offered every year
Activity: Lecture
1 Course Unit

LING 300 Tutorial in Linguistics
This tutorial allows students to deal in a concentrated manner with selected major topics in linguistics by means of extensive readings and research. Two topics are studied during the semester, exposing students to a range of sophisticated linguistic questions.
Taught by: Legate
Course usually offered in fall term
Prerequisites: Senior status or permission of the instructor. Majors only.
Activity: Seminar
1 Course Unit
LING 301 Conference
An independent study for majors in linguistics.
One-term course offered either term
Activity: Independent Study
1 Course Unit

LING 302 Linguistic Field Methods
Instruction and practice in primary linguistic research, producing a grammatical sketch and a lexicon through work with a native-speaker consultant and some reference materials. Consultant work is shared with LING 502.
Taught by: Buckley/Legate
Course not offered every year
Prerequisites: Ling 230 and Ling 250
Activity: Seminar
1 Course Unit

LING 310 History of the English Language
This course traces the linguistic history of English from its earliest reconstructable ancestor, Proto-Indo-European, to the present. We focus especially on significant large-scale changes, such as the restructuring of the verb system in Proto-Germanic, the intricate interaction of sound changes in the immediate prehistory of Old English, syntactic change in Middle English, and the diversification of English dialects since 1750.
Taught by: Ringe/Kroch
Course not offered every year
Activity: Lecture
1 Course Unit

LING 335 Psycholinguistics
Taught by: Dahan
Prerequisites: PSYC 151, or PSYC 235, or LING 001, or permission of instructor.
Activity: Lecture
1 Course Unit

LING 354 Language and Game Theory
This course is an introduction to game-theoretic pragmatics. It focuses on aspects of meaning that follow from rational, strategic decision making. The course covers an introduction to the theory of games with an emphasis on coordination games and cooperation. We develop a game theoretic account of truth conditional semantics using zero-sum games. We then cover Gricean implicature; focal points and coordination; polysemy vs homophony; and a game account of reference tracking and pronoun interpretation.
Taught by: Clark
Course not offered every year
Activity: Lecture
1 Course Unit

LING 380 Introduction to Semantics
This course provides an introduction to formal semantics for natural language. The main aim is to develop a semantic system that provides a compositional interpretation of natural language sentences. We discuss various of the aspects central to meaning composition, including function application, modification, quantification, and binding, as well as issues in the syntax-semantics interface. The basic formal tools relevant for semantic analysis, including set theory, propositional logic, and predicate logic are also introduced.
Taught by: Schwarz
Course usually offered in fall term
Prerequisite: Ling 250
Activity: Lecture
1 Course Unit

LING 398 Senior Thesis
One-term course offered either term
Activity: Independent Study
1 Course Unit

LING 404 Morphological Theory
This course will explore some issues concerning the internal structure of words. After a brief introduction to some basic terms and concepts, we will discuss the interaction of morphology with phonology. We will look both at how morphology conditions phonological rules and how phonology conditions morphology. Then we will turn to the interaction of syntax and morphology. We will look at some problems raised by inflectional morphology, clitics and compounds. The main requirement for the class will be a series of homework exercises in morphological analysis and a short paper at the end of the semester.
Taught by: Embick
Course not offered every year
Activity: Lecture
1 Course Unit

LING 405 Morphology Theory II
This course takes a detailed look at a number of central topics in morphological theory. The material examined in the course consists of primary readings and reviews, covering a number of central topics in the field. These topics include (but are not restricted to) allomorphy, blocking, the interface of phonology and morphology, syncretism, affixation, the syntax-morphology interface, and compounding. The primary requirements for the class involve short assignments that are based on the readings, in the form of both problem sets and critical appraisals of core theoretical positions. In addition to this, students will write a short paper at the end of the semester.
Taught by: Embick
Course not offered every year
Prerequisites: Morphology Theory I or permission of the instructor.
Activity: Lecture
1 Course Unit

LING 411 Old English
The main purpose of this course is to teach students to read Old English ("Anglo-Saxon"), chiefly but not exclusively for research in linguistics. Grammar will be heavily emphasized; there will also be lectures on the immediate prehistory of the language, since the morphology of Old English was made unusually complex by interacting sound changes. In the first eight weeks we will work through Moore and Knott's "Elements of Grammar" and learn the grammar; the remainder of the term will be devoted to reading texts.
Taught by: Kroch
Course not offered every year
Activity: Lecture
1 Course Unit

LING 440 Pidgins and Creoles
The origins and development of pidgins (languages of intercommunication that have evolved for practical reasons in situations of trade, conquest, or colonization, and spoken as second or auxiliary languages) and creoles (languages with native speakers that have developed from previous pidgins); relations between creoles and other languages; implications of creole studies for general theories of language and language change.
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit
LING 449 Language and Computation
The computational study of natural language and its implications for linguistic theories. Topics include finite state tools, computational morphology and phonology, grammar and parsing, computational models of language learning in children and machines.
Taught by: Yang
Course not offered every year
Activity: Seminar
1 Course Unit

LING 455 Experiments in the Study of Meaning
This course provides an introduction to the experimental study of meaning in natural language. We begin by introducing some basic notions of formal semantics and pragmatics and review relevant technical background. Next we discuss recent developments in studying meaning-related phenomena experimentally, which, in addition to theoretical questions, involves issues in the acquisition and processing of semantic information. In the course of this, we will also introduce the basics of experimental design and relevant psycholinguistic methodology. In addition to readings and homework assignments, students will embark on a small research project (individually or jointly), which will be presented in class at the end of the semester and written up as a term paper.
Taught by: Schwarz
Course not offered every year
Prerequisites: Ling 106, 170, 250, 380/580, 550 or permission by instructor
Activity: Seminar
1 Course Unit

LING 470 Narrative Analysis
The course will develop our understanding of narrative structure on the basis of oral narratives of personal experience, told by speakers from a wide range of geographic backgrounds and social classes. It will link the principles governing oral narratives to the narratological examination of myth, literature and film by Propp, Greimas, Prince, Chatman, and others. The principles that emerge from the study of oral narrative will be re-examined in literary narrative, including Scandinavian, Greek and Hebrew epics, medieval romances, film, and modern novels, with attention to the differences between vernacular, literary and academic style. The class will then consider the work of psychologists on how narratives are remembered and understood, based on the causal network theory of Trabasso, and apply these principles to narratives written to teach children to read, particularly those designed to reflect the cultural and linguistic framework of African American children.
Course not offered every year
Activity: Seminar
1 Course Unit

LING 495 Games and Signals
Game Theory has provided a new way of looking at linguistic meaning, particularly pragmatics (the use of language). This course will survey the use of Game Theory in linguistics as well as develop the techniques for studying signaling behavior. We will look at the formal foundations of signaling with particular attention paid to games of incomplete information (games where even which game is being played is uncertain). This will allow us to extend pragmatics beyond Gricean conversational maxims to areas like deception and polite signaling.
Taught by: Robin Clark
Course not offered every year
Activity: Lecture
1 Course Unit

LING 496 Agents and Evolution
The course surveys Evolutionary Game Theory and Agent-Based Models with special reference to language. We will develop systems for modeling various types of language change as well as the dynamics of linguistic micro-variation. Topics include semantic/pragmatic cycles in signaling, the maintenance of conventional meaning, and testing for selection in language change.
Taught by: Clark
Course not offered every year
Activity: Lecture
1 Course Unit

LING 500 Research Workshop
This course is intended for advanced graduate students who are interested in developing a research paper. Each student will present his or her topic several times during the semester as the analysis develops, with feedback from the instructor and other students to improve the organization and content of the analysis. The goal is an end product appropriate for delivery at a national conference or submission to a journal.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

LING 502 Linguistic Field Methods
Instruction and practice in primary linguistic research, producing a grammatical sketch and a lexicon through work with a native-speaker consultant and some reference materials. Consultant work is shared with LING 302. Each student will write a final paper on some aspect of the language.
Taught by: Buckley/Legate
Course not offered every year
Prerequisites: LING 530 and Ling 550
Activity: Seminar
1 Course Unit

LING 503 Sound Structure of Language
An introduction to articulatory and acoustic phonetics; phonetic transcription; basic concepts and methods of phonological analysis.
Taught by: Noyer
Course usually offered in spring term
Activity: Lecture
1 Course Unit

LING 510 Historical and Comparative Linguistics
Taught by: Ringe
Course usually offered in fall term
Activity: Lecture
1 Course Unit

LING 511 Language Variation & Change
Speech communities as a focus for the understanding of language evolution and change: language variation in time and space. The relationship between language structure and language use; between language change and social change. Populations as differentiated by age, sex, social class, race, and ethnicity, and the relationship of these factors to linguistic differentiation.
Taught by: Tamminga
Course usually offered in spring term
Activity: Lecture
1 Course Unit
LING 515 Dynamics of Language  
This course introduces the tools, techniques, as well as current research on the approach to language as a dynamical system, which seeks to fruitfully integrate linguistic theory, psycholinguistics, corpus linguistics, and historical linguistics through the means of mathematical modeling. Topics include: string processing, dynamical systems and stability, stochastic processes, mathematical models of population dynamics, and dynamical models of language learning, processing, and change.  
Taught by: Liberman  
One-term course offered either term  
Prerequisite: Ling 510  
Activity: Seminar  
1 Course Unit  

LING 520 Phonetics I  
Speech: its linguistic transcription, its quantitative physical description, and its relationship to the categories and dimensions of language structure and use. The physical basis of speech: acoustics, vocal tract anatomy and physiology, hearing and speech perception, articulation and motor control. Phonetic variation and change. Prosody: stress, intonation, phrasing speech rate. Phonetic instrumentation, the design and interpretation of phonetic experiments, and the use of phonetic evidence in linguistic research, with emphasis on computer techniques. Introduction to speech signal processing. Speech technology: introduction to speech recognition, text-to-speech synthesis, speech coding. This course will emphasize the phonetics of natural speech, and its connections to issues in other areas of linguistics and cognitive science.  
Taught by: Liberman/Kuang  
Course usually offered in fall term  
Prerequisites: An introductory course in linguistics, or consent of instructor  
Activity: Lecture  
1 Course Unit  

LING 521 Phonetics II  
This is a methodology course, which focuses on how to conduct phonetics research using very large speech corpora. Topics include scripting and statistical techniques, automatic phonetic analysis, integration of speech technology in phonetics studies, variation and invariability in large speech corpora, and revisiting classic phonetic and phonological problems from the perspective of corpus phonetics.  
Taught by: Kuang/Liberman  
Course usually offered in spring term  
Prerequisite: LING 520  
Activity: Lecture  
1 Course Unit  

LING 525 Computer Analysis and Modeling of Biological Signals and Systems  
A hands-on signal and image processing course for non-EE graduate students needing these skills. We will go through all the fundamentals of signal and image processing using computer exercises developed in MATLAB. Examples will be drawn from speech analysis and synthesis, computer vision, and biological modeling.  
Taught by: Liberman  
Course usually offered in fall term  
Also Offered As: CIS 558  
Activity: Lecture  
1 Course Unit  

LING 530 Phonology I  
First half of a year-long introduction to the formal study of phonology. Basic concepts in articulatory phonetics; the distribution of sounds (phonemes and allophones); underlying and surface forms, and how to relate them using both ordered-rule and surface-constraint approaches. The survey of theoretical topics in this term includes distinctive features (context, organization, underspecification); the autosegmental representation of tone; and the theory of phonological domains and their interaction with morphological and syntactic constituency. Emphasizes hands-on analysis of a wide range of data.  
Taught by: Noyer  
Course usually offered in fall term  
Prerequisite: LING 503 or equivalent  
Activity: Lecture  
1 Course Unit  

LING 531 Phonology II  
Second half of a year-long introduction; continues LING 530. Topics to be surveyed include syllable structure and moraic theory; the prosodic hierarchy; the properties and representation of geminates; templatic and prosodic morphology; reduplication and emergence of the unmarked; and metrical phonology (properties of stress, foot typology, and issues of constituency). Emphasizes hands-on analysis of a wide range of data.  
Taught by: Buckley  
Course usually offered in spring term  
Prerequisite: LING 530  
Activity: Lecture  
1 Course Unit  

LING 550 Syntax I  
A general introduction at the graduate level to the analysis of sentence structure. The approach taken is that of contemporary generative-transformational grammar.  
Taught by: Kroch  
Course usually offered in fall term  
Activity: Lecture  
1 Course Unit  

LING 551 Syntax II  
The second half of a year-long introduction to the formal study of natural language syntax. Topics to be covered include grammatical architecture; derivational versus representational statement of syntactic principles; movement and locality; the interface of syntax and semantics; argument structure; and other topics. The emphasis is on reading primary literature and discussing theoretical approaches, along with detailed case-studies of specific syntactic phenomena in different languages.  
Taught by: Legate  
Course usually offered in spring term  
Prerequisite: LING 550 or permission of instructor  
Activity: Lecture  
1 Course Unit  

LING 556 Historical Syntax  
Introduction to the study of the syntax of languages attested only in historical corpora. The course will cover methods and results in the grammatical description of such languages and in the diachronic study of syntactic change.  
Taught by: Kroch  
Course not offered every year  
Prerequisite: LING 551 or the equivalent  
Activity: Seminar  
1 Course Unit
LING 568 Dialect Geography
This course traces the origins and characteristics of regional dialects. Beginning with a survey of the traditional dialectology literature beginning in the 19th century, we will discuss the influences of social, political, and physical geography on language change. We will then move on to examine the foundations of North American English dialect regions and the large-scale language changes that underlie their development. Students enrolled in 368 will complete a final project on American English accents; students enrolled in 568 will write an original research paper on a non-English dialect topic of their choosing.
Taught by: Tamminga
Course not offered every year
Activity: Lecture
1 Course Unit

LING 570 Developmental Psycholinguistics
The generative literature on language acquisition has produced many accurate and insightful descriptions of child language, but relatively few explicit accounts of learning that incorporate the role of individual experience into the knowledge of specific languages. Likewise, the experimental approach to language development has identified processes that could provide the bridge between the data and the grammar, but questions remain whether laboratory findings can sufficiently generalize to the full range of linguistic complexity. This course is an overview of research in language acquisition with particular focus on the important connection between what children know and how they come to know it.
Taught by: Yang
Course usually offered in spring term
Activity: Seminar
1 Course Unit

LING 575 Mental Lexicon
An investigation of the psychological representations and processing of words. Topics include: the extraction of words from speech; lexical access and production; the induction of morphological and phonological regularities in word learning; decomposition of morphologically complex words; frequency effects in morphological processing; storage vs. computation in the lexicon; the past tense debate; morphological change. This course makes extensive use of linguistic corpora. Students will also be familiarized with experimental design issues in the psycholinguistic study of the lexicon.
Taught by: Yang
Course not offered every year
Activity: Lecture
1 Course Unit

LING 580 Semantics I
This course provides an introduction to formal semantics for natural language. The main aim is to develop a semantic system that provides a compositional interpretation of natural language sentences. We discuss various of the aspects central to meaning composition, including function application, modification, quantification, and binding, as well as issues in the syntax-semantics interface. The basic formal tools relevant for semantic analysis, including set theory, propositional logic, and predicate logic are also introduced.
Taught by: Schwarz
Course usually offered in fall term
Prerequisite: Ling 550
Corequisite: Ling 550
Activity: Lecture
1 Course Unit

LING 581 Semantics II
The first part of the course expands the system from LING 580 to include intensional contexts. In particular, we discuss analyses of modals, attitude verbs, and conditionals, as well as the scope of noun phrases in modal environments. The second part of the course discusses a selection of topics from current work in semantics, such as the semantics of questions, tense and aspect, donkey anaphora, indefinites, genericity, degree constructions, events and situations, domain restriction, plurality and focus.
Taught by: Schwarz
Course usually offered in spring term
Prerequisite: Ling 551
Corequisite: Ling 551
Activity: Lecture
1 Course Unit

LING 595 Game Theoretic Pragmatics
A great deal of linguistic meaning can be explained if we conceive of language as being a signaling system used by rational agents. Game theory provides an explicit mathematical account of rational, strategic interaction. This course will lay out the fundamentals of game theory, evolutionary game theory and multi-agent systems necessary to develop a theory of “radical pragmatics.” We will discuss game theoretic models of implicature; presupposition and accomodation; reference tracking; scalar implicature as well as a number of other phenomena.
Taught by: Clark
Course not offered every year
Activity: Lecture
1 Course Unit

LING 596 Pragmatics Workshop
Pragmatics Workshop
Taught by: Clark
Course not offered every year
Activity: Seminar
1 Course Unit

LING 598 Topics in Phonology
Topics are chosen from such areas as featural representations; syllable theory; metrical structure; tonal phonology; prosodic morphology; interaction of phonology with syntax and morphology.
Taught by: Buckley/Noyer
Course not offered every year
Prerequisite: LING 530-531
Activity: Seminar
1 Course Unit

LING 607 Topics in Psycholinguistics
Topics in Psycholinguistics
Taught by: Schuler
Activity: Seminar
1 Course Unit

LING 608 Topics in Semantics and Pragmatics
Topics in Semantics & Pragmatics
Taught by: Clark/Schwarz
Course not offered every year
Activity: Seminar
1 Course Unit
LING 610 Seminar in Historical and Comparative Linguistics
Selected topics either in Indo-European comparative linguistics or in historical and comparative method.
Taught by: Ringe
One-term course offered either term
Activity: Seminar
1 Course Unit

LING 615 Comparative Indo-European Grammar
A survey of phonology and grammar of major ancient Indo-European languages and the reconstruction of Proto-Indo-European. A knowledge of at least one ancient Indo-European language is required.
Taught by: Ringe
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

LING 616 Comparative Indo-Europian Grammar II
A survey of phonology and grammar of major ancient Indo-European languages and the reconstruction of Proto-Indo-European. A knowledge of at least one ancient Indo-European language is required.
Taught by: Ringe
One-term course offered either term
Activity: Seminar
1 Course Unit

LING 620 Topics in Phonetics
Topics in Phonetics
Taught by: Liberman/Kuang
Course not offered every year
Activity: Seminar
1 Course Unit

LING 630 Seminar in Morphology
Readings in modern morphological theory and evaluation of hypotheses in the light of synchronic and diachronic evidence from various languages.
Taught by: Noyer/Embick
Course not offered every year
Prerequisite: LING 530
Activity: Seminar
1 Course Unit

LING 650 Topics in Natural-Language Syntax
Detailed study of topics in syntax and semantics, e.g., pronominalization, negation, complementation. Topics vary from term to term.
Taught by: Kroch/Legate
One-term course offered either term
Prerequisite: LING 551 or permission of instructor
Activity: Seminar
1 Course Unit

LING 653 Topics in the Syntax-Semantics Interface
Topics in the Syntax-Semantics Interface
Taught by: Kroch
Course usually offered in fall term
Activity: Seminar
1 Course Unit

LING 660 Research Seminar in Sociolinguistics
Students approaching the dissertation level will explore with faculty frontier areas of research on linguistic change and variation. Topics addressed in recent years include: experimental investigation of the reliability of syntactic judgments; the development of TMA systems in creoles; transmission of linguistic change across generations. The course may be audited by those who have finished their course work or taken for credit in more than one year.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course will have different topics each term.

LING 662 Topics in Experimental Sociolinguistics
Topics in Experimental Sociolinguistics
Course not offered every year
Activity: Seminar
1 Course Unit

LING 670 Topics in the Cultural Evolution of Language
Readings in the cultural evolution of language. This encompasses research on the contribution of processes of cultural change to the emergence of language in the human species, the emergence of new languages, and language change viewed as a cultural-evolutionary process. There will be an emphasis on research employing empirical methods, particularly experimentation. Otherwise focus varies from term to term.
Course not offered every year
Activity: Seminar
1 Course Unit

LING 675 Language and Cognition
Activity: Seminar
1 Course Unit

LING 999 Independent Study and Research
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Student must submit brief proposal for approval. May be repeated for credit.
LOGIC, INFORMATION AND COMPUTATION (LGIC)

LGIC 010 Ideas in Logic and Computation
This course provides an introduction to some of the fundamental ideas of logic and computation. Topics will include truth functional logic, quantificational logic, and logical decision problems.
Taught by: Weinstein
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: This is a Formal Reasoning course.

LGIC 210 Applied Mathematics of Information and Computation I
The first semester of a two-semester course designed to introduce students to a range of mathematical subjects useful in the analysis of information and computation. This course will treat topics chosen from set theory, combinatorics, graph theory, and number theory.
Taught by: Scedrov, Towsner
Course usually offered in fall term
Prerequisite: MATH 114 or MATH 115 or permission of the instructor
Activity: Lecture
1 Course Unit

LGIC 220 Applied Mathematics of Information and Computation II
The second semester of a two-semester course devoted to mathematical subjects useful in the analysis of information and computation. Topics will be drawn from automata theory, formal languages, computability and complexity, and information theory.
Taught by: Scedrov, Towsner
Course not offered every year
Prerequisite: LGIC 210 or permission of the instructor
Activity: Lecture
1 Course Unit

LGIC 310 Logic I
Taught by: Scedrov, Towsner, Weinstein
One-term course offered either term
Prerequisite: MATH 371 or MATH 503
Activity: Lecture
1 Course Unit

LGIC 320 Logic II
The second semester of a two-semester course on the fundamental results and techniques of mathematical logic. Topics will be drawn from model theory, proof theory, recursion theory, and set theory. Connections between logic and algebra, analysis, combinatorics, computer science, and the foundations of mathematics will be emphasized.
Taught by: Scedrov, Towsner, Weinstein
One-term course offered either term
Prerequisite: LGIC 310 or permission of the instructor
Activity: Seminar
1 Course Unit

LGIC 499 Topics in Logic
This course will focus on the fundamental results and techniques of mathematical logic. Topics will be drawn from model theory, proof theory, recursion theory, and set theory. Connections between logic and algebra, analysis, combinatorics, computer science, and the foundations of mathematics will be emphasized.
Taught by: Weinstein
Course not offered every year
Activity: Seminar
1 Course Unit
MALAYALAM (MLYM)

MLYM 408 Beginning Malayalam Part I
This course is designed to develop skills in reading, writing, and speaking. It will focus on the alphabet, basic vocabulary, nouns (cases, gender and number), verbs and their basic tenses, numerals, rules of joining words, adjectives, adverbs, and sentence structure. Guided conversation will be a part of every class. Students will receive considerable training in speaking and writing their own sentences and paragraphs.
For BA Students: Language Course
Taught by: Kurichi
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MLYM 409 Beginning Malayalam Part II
This course is designed to develop skills in reading, writing, and speaking. It will focus on the alphabet, basic vocabulary, nouns (cases, gender and number), verbs and their basic tenses, numerals, rules of joining words, adjectives, adverbs, and sentence structure. Guided conversation will be a part of every class. Students will receive considerable training in speaking and writing their own sentences and paragraphs.
For BA Students: Language Course
Taught by: Kurichi
Course usually offered in spring term
Prerequisites: Beginning Malayalam Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

MLYM 428 Intermediate Malayalam Part I
This course is designed to further the language skills learned in Beginning Malayalam. Direct and indirect speech, passive voice, postpositions, and rules of joining words, will be included. Reading and discussion of texts from current Malayalam literature (essays, narration, short stories, and poems) will be a major portion of the course.
For BA Students: Language Course
Taught by: Kurichi
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

MLYM 429 Intermediate Malayalam Part II
This course is designed to further the language skills learned in Beginning Malayalam. Direct and indirect speech, passive voice, postpositions, and rules of joining words, will be included. Reading and discussion of texts from current Malayalam literature (essays, narration, short stories, and poems) will be a major portion of the course.
For BA Students: Language Course
Taught by: Kurichi
Course usually offered in spring term
Prerequisites: Intermediate Malayalam Part I or equivalent ascertained through placement exam or permission of instructor.
Activity: Seminar
1 Course Unit
MGMT 100 Leadership and Communication in Groups
Through the process of action, reflection, and experimentation, and application, MGMT 100 aims to develop your leadership, teamwork, and communication skills. The course provides many occasions to strengthen your ability to exercise leadership through service, to speak and write persuasively, and to work collaboratively with a diverse group of individuals. Through the course of the term, you will have a heightened sense of your individual strengths and opportunities for growth. Eleven sections of approximately 60 students are scheduled each year (nine in the fall; two in the spring). Attached to each section are six recitations. Your recitation determines your project team. Whether you are in lecture participating in role plays or simulations, in recitation doing impromptu speeches, or out in the field working on your project, Management 100 is highly interactive and participative. The hallmark of the course is experiential learning.
Activity: Lecture
1 Course Unit
Notes: This course is exclusively reserved for Wharton undergraduate students.

MGMT 101 Introduction To Management
We all spend much of our lives in organizations. Most of us are born in organizations, educated in organizations, and work in organizations. Organizations emerge because individuals can’t (or don’t want to) accomplish their goals alone. Management is the art and science of helping individuals achieve their goals together. Managers in an organization determine where their organization is going and how it gets there. More formally, managers formulate strategies and implement those strategies. This course provides a framework for understanding the opportunities and challenges involved in formulating and implementing strategies by taking a “system” view of organizations, which means that we examine multiple aspects of how managers address their environments, strategy, structure, culture, tasks, people, and outputs, and how managerial decisions made in these various domains interrelate. The course will help you to understand and analyze how managers can formulate and implement strategies effectively. It will be particularly valuable if you are interested in management consulting, investment analysis, or entrepreneurship - but it will help you to better understand and be a more effective contributor to any organizations you join, whether they are large, established firms or startups.
One-term course offered either term
Prerequisite: NONE
Activity: Recitation
1 Course Unit

MGMT 104 Industrial Relations and Human Resource Management
This undergraduate core course introduces students to a combination of basic concepts and timely topics around work and employment. As such, it is divided into two main sections and two quarters within each of those. The first main section deals with micro-level work issues, while the second main section deals with macro-level work issues. Within each of those sections, the first quarter focuses on basic concepts, while the quarter section deals with more applied topics.
One-term course offered either term
Prerequisites: MGMT 100 and MGMT 101
Activity: Lecture
1 Course Unit

MGMT 111 Multinational Management
Multinational management is the study of the international corporation and the global political and economic environment. This course provides an introduction to the more advanced offerings. It covers the historical origins of the multinational corporation, the economics of trade, money and investment in the world economy, and the policies and behavior of governments and international organizations. We place considerable emphasis in understanding the national and historic origins of the international firm, as well as on current issues regarding emerging economies and shifts in the political economy of global markets.
Prerequisites: MGMT 100 and MGMT 101
Activity: Lecture
1 Course Unit

MGMT 205 Multinational Corporate Strategies
This course focuses on the creation of competitive advantage in the multinational firm. It examines the nature of global competition by exploring the characteristics of global versus non-global industries and firms. We also explore different types of international strategy and structure and examine the specific challenges of managing in multiple countries and markets. Finally, we consider the strategic allocation of resources along the value chain and the role of strategic alliances as a crucial element of an effective global strategy.
Course usually offered in spring term
Prerequisites: MGMT 100, MGMT 101, and MGMT 111
Activity: Lecture
1 Course Unit

MGMT 208 Globalization and International Political Economy
Globalization and International Political Economy is an upper level undergraduate course designed to provide the background necessary to understand globalization and the changes taking place in the international political-economy. The course objective is to help students develop a conceptual framework that will provide an understanding of the current international political-economic environment, provide a basis for thinking about the fundamental changes which are now taking place, and to build a solid foundation to which new material can be added throughout the students' careers. Format: Class discussions will be interactive and structured to encourage maximum student participation.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
MGMT 209 The Political Environment of the Multinational Firm
Are you well prepared to manage or analyze business challenges and competitive threats in a variety of political and social environments? For example, what should you do to dissuade or counter an individual critic armed with a camera phone and a YouTube account? Or a decentralized grassroots organization that seemingly pops up overnight, appears to have no single leader or headquarters, and yet is quite successful in capturing media attention? Or a government official who because of a tight reelection campaign or an internal challenge from a populist general turns on you? Lone individuals, small activist groups and unexpected political shifts have done extensive damage to the reputations - and value - of multinationals in recent years. And yet most companies don’t plan for, or even think about, investing in building the kinds of solid relationships with community leaders, governments, NGOs, and other key players that can help them avoid such crises and, when necessary, draw upon their reservoir of stakeholder capital to respond quickly and decisively when a challenge or threat emerges. This semester-long class provides an integrative perspective towards the management of these risks and opportunities. It highlights that better assessment of stakeholder opinion, understanding of how stakeholders impact firm value and of how to infuse stakeholder relationships with trust to unlock that value are increasingly critical elements of a firm’s long-term success, particularly in emerging markets. Firms must also focus on continual improvement in their stakeholder engagement, reinforcing their actions with strategic communications and via organizational culture. The course will give students a combination of practical tools and the latest academic thinking in the emerging field of corporate diplomacy.
Activity: Lecture
1 Course Unit

MGMT 211 Competitive Strategy
This is an advanced course in competitive strategy. The course will apply the tools of industrial organization economics and game theory to examine the strategic decisions that managers make. We will examine those decisions concerning pricing, capacity investment, advertising, new product introductions, and research and development. Emphasis will be placed on the strategic interaction among rival sellers. In particular we will look at the various methods of entry deterrence and strategic commitment. The course will attempt to integrate traditional economic models with case study materials.
Course usually offered in fall term
Prerequisites: MGMT 100 and MGMT 101 and some knowledge of microeconomics is suggested. The course will be discussion oriented and based largely on case materials and mini-lectures.
Activity: Lecture
1 Course Unit

MGMT 212 Social Entrepreneurship
This is a course on creating a business to attack a social problem and thereby accomplish both social impact and financial sustainability. For this course, social entrepreneurship is defined as entrepreneurship used to profitably confront social problems. This definition therefore views social entrepreneurship as a distinct alternative to public sector initiatives. The basic thesis is that many social problems, if looked at through an entrepreneurial lens, create opportunity for someone to launch a venture that generates profits by alleviating that social problem. This sets in motion a virtuous cycle - the entrepreneur is incented to generate more profits and in so doing, the more the profits made, the more the problem is alleviated. Even if it is not possible to eventually create a profit-making enterprise, the process of striving to do so can lead to a resource-lean not-for-profit entity. Creating a profitable social entrepreneurship venture is by no means a simple challenge. It involves deeply understanding how to prioritize a multi-mission entity, how to analyze and engage traditional agencies, how to formulate political strategies to develop influence and social assets in target beneficiary markets, how to forge negotiating strategies for securing resources, how to capture publicity for the enterprise, and generally how to minimize resource requirements. Students in teams will develop a PowerPoint deck proposing a social enterprise start up using the tools and principles of the course.
Prerequisite: MGMT 230 RECOMMENDED
Activity: Lecture
0.5 Course Units

MGMT 214 Market Dynamics and Technical Change
The course is designed to meet the needs of future managers, entrepreneurs, consultants and investors who must analyze and develop business strategies in technology-based industries. The emphasis is on learning conceptual models and frameworks to help navigate the complexity and dynamism in such industries. This is not a course in new product development or in using information technology to improve business processes and offerings. We will take a perspective of both established and emerging firms competing through technological innovations, and study the key strategic drivers of value creation and appropriation in the context of business ecosystems. There is definitely an overlap in content with other courses in intermediate microeconomics, or managerial economics. Nevertheless, the treatment is sufficiently distinctive to make it complementary to those other treatments for a student who is particularly interested in economic change, or is otherwise interested in acquiring a broader view of economics.
Prerequisites: Students need to have taken a first college course in economics. Multivariate calculus is generally useful in economic theory at this level, but does not carry significant weight in this course. Similarly, an understanding of basic linear algebra enhances the value of the linear programming analysis of the firm, but is not a prerequisite. The course is reserved for Wharton juniors and seniors.
Activity: Lecture
1 Course Unit
MGMT 223 Business Strategy
This course encourages students to analyze the problems of managing the total enterprise in the domestic and international setting. The focus is on the competitive strategy of the firm, examining issues central to its long- and short-term competitive position. Students act in the roles of key decision-makers or their advisors and solve problems related to the development or maintenance of the competitive advantage of the firm in a given market. The first module of the course develops an understanding of key strategic frameworks using theoretical readings and case-based discussions. Students will learn concepts and tools for analyzing the competitive environment, strategic position and firm-specific capabilities in order to understand the sources of a firm's competitive advantage. In addition, students will address corporate strategy issues such as the economic logic and administrative challenges associated with diversification choices about horizontal and vertical integration. The second module will be conducted as a multi-session, computer-based simulation in which students will have the opportunity to apply the concepts and tools from module 1 to make strategic decisions. The goal of the course is for students to develop an analytical tool kit for understanding strategic issues and to enrich their appreciation for the thought processes essential to incisive strategic analysis. This course offers students the opportunity to develop a general management perspective by combining their knowledge of specific functional areas with an appreciation for the requirements posed by the need to integrate all functions into a coherent whole. Students will develop skills in structuring and solving complex business problems.
Prerequisites: MGMT 100 and MGMT 101; seniors and juniors that have completed introductory courses in finance, marketing, and accounting.
Activity: Lecture
1 Course Unit

MGMT 224 Leading Diversity in Org
People in the workplace are constantly interacting with peers, managers, and customers with very different backgrounds and experiences. When harnessed effectively, these differences can be the catalyst for creative breakthroughs and the pathway to team and organizational learning and effectiveness; but when misunderstood, these differences can challenge employees' values, performance, workplace relationships, and team effectiveness. This course is designed to help students navigate diverse organizational settings more effectively and improve their ability to work within and lead diverse teams and organizations. It also offers students the opportunity to develop their critical thinking on topics such as identity, relationships across difference, discrimination and bias, equality, and equity in organizations and society and how they relate to organizational issues of power, privilege, opportunity, inclusion, creativity and innovation and organizational effectiveness. Class sessions will be experiential and discussion-based. Readings, self-reflection, guest speakers from organizations, case studies and a final project will also be emphasized. By the end of this course, you should be able to: 1) Evaluate the aspects of your identity and personal experiences that shape how you interact and engage with others and how they interact and engage with you in organizations 2) Explain how issues of power, privilege, discrimination, bias, equality, and equity influence opportunity and effectiveness in organizations 3) Propose ways to make relationships across difference in organizations more effective 4) Describe current perspectives on the relationships among diversity, inclusion, creativity, and innovation in organizations 5) Analyze a company's current approach to leading diversity and use content from this course to propose ways to enhance learning and effectiveness in that company.
One-term course offered either term
Activity: Lecture
0.5 Course Units

MGMT 225 Value Creation and Value Capture in American Business History
This course concerns the history of capitalism in America viewed from the perspective of the people who operated (and in some cases owned) the firms. Its focus is on the activities of value creation and value capture and on how evolving opportunities and selection pressures have conditioned the historic development of competition, strategic analysis and initiatives, organizational structures, merger-and-acquisition activity, entrepreneurship, and the like. Accounting and control are also part of the story: the course in fact considers issues arising in a variety of different management disciplines and shows off their interrelationships. The maintenance (or otherwise) of value capture over the cycle and over time is a running theme. The course has a narrative element (running from Franklin's days through the early twenty-first century) but its deeper purpose is to give students some idea of how to think about the future evolution of firms and industries. It proceeds through a consideration of actual business decisions and performance in a series of challenging and otherwise interesting moments in the evolution of the American business environment. The materials are unusual for the Wharton School—they are often case-like and when possible draw on documents contemporary to the decisions such as correspondence, memoranda, minutes of meetings, old newspaper and magazine stories, and eyewitness accounts. They require thoughtful preparation. This course is much more focused on the students than many and a successful experience of its demands that the students both engage with the materials and take an active role in the class discussion. The largest single element in the grading is a substantial term paper on a topic agreeable to both the student and the instructor. For more information, please contact the instructor: raff@wharton.upenn.edu.
Activity: Lecture
1 Course Unit

MGMT 229 Intel Property Strategy
Announcing the first iPhone at Macworld 2007, Apple CEO Steve Jobs famously boasted: "And boy, have we patented it!" How, and to what extent, do patents and intellectual property really provide competitive advantage for innovative technology companies? What makes an IP asset strategically powerful? How do patents impact, and even drive, major corporate decisions including M&A, venture funding and exits, and entry into new markets? In this course, students will learn to critically analyze and answer these questions, gaining insights they can leverage in their future roles as innovation industry executives, entrepreneurs, strategist and investors. The course includes three major units. In Unit 1, Patents and Innovation Value, we examine closely the relationship between competitive advantage, value proposition, and intellectual property (particularly patents). We will apply our understanding of that relationship to critique and sharpen patent strategy to protect examples of cutting-edge technologies. In Unit 2, Patent Leverage and the Corporate Playbook, we study theory and examples of how intellectual property leverage strategically informs corporate transactions and decisions, for established companies as well as for start-ups. In unit 3, Limits and Alternatives to Patents, we confront the recent legal trend toward reigning in the power and scope of patents. We also consider the growing importance of data as a proprietary technology asset, and discuss options for adapting intellectual property strategy appropriately. Throughout, students will learn and practice applying the concepts we learn to decision-making in examples based on innovative real-world technologies and businesses.
Activity: Lecture
0.5 Course Units
Notes: See the description for MGMT 729. This is a cross-listed course.
MGMT 230 Entrepreneurship
MGMT 230 integrates the material introduced in business fundamental courses and applies it to the design and evaluation of new ventures. The purpose of this course is to explore the many dimensions of new venture creation and growth and to foster innovation and new business formations in independent and corporate settings. The course addresses both a theoretical perspective on venture initiation and the application of writing an actual business plan. In this course you are asked to get out of the habit of being a receiver of ideas, facts, concepts and techniques, and get into the habit of generating ideas, identifying problems, analyzing and evaluating alternatives, and formulating workable action plans, thus putting textbook knowledge into practice. Students will get this hands-on experience in the following ways: Through the formation and ongoing work of venture teams that will design a comprehensive business development plan for a particular start-up company. Teams are expected to utilize the tools and analytical approaches discussed in class to their venture, through simulations, labs, lectures and class discussions that are designed to familiarize students with the many dimensions of entrepreneurship and new venture initiation. Class format varies throughout the course. In some class sessions, there will be a lecture on specific topics. Other sessions will consist of live simulations, labs, in-class exercises, and discussions of a particular topic or venture ideas that students are developing. Guest speakers will also lead and participate in some class sessions.
Activity: Lecture
1 Course Unit

MGMT 231 Entrepreneurial Venture Initiation
This advanced course on entrepreneurship focuses on developing a validated opportunity into a venture that is ready for seed financing and/or launching the product or service. Participants in the workshop must previously have developed a validated opportunity, either in a previous course or through independent efforts. Students may participate as a team of up to three people. Ideally, participants are committed to pursuing their opportunity commercially, or at least to seriously explore that possibility. The workshop provides a practical guidance for developing the product or service, forming the entity, raising capital, building the team, establishing partnerships, and sourcing professional services. After completing the course, you will be "pitch ready" - whether submitting to campus venture competitions or to outside investors. Most coursework is focused on applying concepts and frameworks to project tasks in developing the venture. Format: Readings, discussion, and developing an implementation plan for a real venture. Course usually offered in spring term
Prerequisites: MGMT 230 recommended.
Activity: Lecture
1 Course Unit

MGMT 233 Strategies and Practices of Family-Controlled Companies
This course is designed for those persons who desire to understand the distinct strategies and practices of family-controlled companies and family wealth creation. It will focus on stakeholder decision making; financial and resource driven options for long-run competitiveness, organizational structures, management team issues; strategic planning from a resource-based perspective; transition planning for the corporate entity, family dynamics and communication issues; and leadership empowerment. The course is intended for those who plan to consult or provide professional services to family-controlled companies and for those planning a career in a family firm. Format: The class is structured around topical lectures with frequent utilization of case studies. There will be in-class discussion, as well as on-site and off-site project work time.
Course usually offered in spring term
Prerequisite: NONE
Activity: Lecture
1 Course Unit

MGMT 237 Management of Technology
The course is designed to meet the needs of the future managers, entrepreneurs, consultants and investors who must analyze and develop business strategies in technology-based industries. The emphasis is on learning conceptual models and frameworks to help navigate the complexity and dynamism in such industries. This is not a course in new product development or in using information technology to improve business processes and offerings. We will take a perspective of both established and emerging firms competing through technological innovations, and study the key strategic drivers of value creation and appropriation in the context of business ecosystems.
Course usually offered in spring term
Prerequisites: MGMT 100 and MGMT 101; this course is exclusively reserved for Management and Technology students.
Activity: Lecture
1 Course Unit

MGMT 238 Organizational Behavior
Management 238 is an organizational behavior course, examining individual, interpersonal, and group effectiveness at work. Topics range from decision-making, motivation, and personality to networks, influence, helping, leadership, teamwork, and organizational culture. The learning method is heavily experiential, with a focus on applying key principles to the human side of management in role-play exercises, simulations, a mini-TED talk, and group projects in local organizations. This course requires the instructor's permission. Registration is by application only; Penn InTouch requests will not be processed. The link to the application form will be available on the Management Department's website: https://mgmt.wharton.upenn.edu/programs/undergraduate, beginning March 12, 2018. The deadline for applications is March 16, 2018 at 5 PM. Students will be notified after March 30, 2018 regarding the status of their application.
Prerequisites: MGMT 100 and MGMT 101
Activity: Lecture
1 Course Unit
Notes: This course is open to juniors and seniors across Penn.
MGMT 240 Group Dynamics
Open to all sophomores, juniors, and seniors. This course develops your knowledge and skills for designing, leading, and consulting with teams in organizations. The goals are to provide both the conceptual understanding and the behavioral skills required to improve team effectiveness. This course makes use of analytic and reflective writing, peer feedback and coaching, simulations, and an intensive field project with a real team in the Philadelphia area. There are four kinds of teams that are the focus of your study: teams of which you’ve been a member in the past; your 240 Team, with three or four other classmates; a team outside of 240 that your 240 Team will observe, analyze, and report on – your Host Team; and a team you expect to be on in the future. The primary case material for applying course concepts (learned from readings and lectures) will be these teams you know from direct observation and experience. Expect to leave this course with new knowledge of how to diagnose and intervene – as leader, member, or consultant – to improve the performance sustainability, and impact on the members of any team. Prerequisite: Sophomore standing or above.
Activity: Lecture
1 Course Unit

MGMT 241 Knowledge for Social Impact: Analyzing Current Issues & Approaches
Recent technological changes have raised awareness of the magnitude and devastating long-term effects of poverty, food insecurity, limited and unequal access to education, and other social issues. Coupled with growing awareness of these issues is the emerging sense that traditional government programs and charities may be unable to solve these problems - at least, not alone. What may be needed are new strategies - strategies born of (a) a deep understanding of the issues; (b) interdisciplinary collaboration; and (c) access to business knowledge, frameworks, and resources. This course is designed to provide the information, strategies, examples, and analytical mindset to make students more rigorous, insightful, and effective in analyzing social ills and crafting potential solutions. Together, a cross-disciplinary group of undergraduate students, including students in Wharton, the College, and other Penn Schools, will examine the nature and extent of two pressing social problems - food insecurity and barriers to post-secondary education - and current approaches to solving these problems.
Taught by: Klein, Katherine
Activity: Lecture
1 Course Unit

MGMT 242 Corporate Governance, Executive Compensation and the Board
This course examines the relationships between corporate managers, the boards of directors charged with overseeing them, and investors. We'll review the responsibilities of the board, including financial statement approval, CEO performance assessment, executive compensation, and succession planning. While boards are legally bound to represent the interests of equity investors, in the course of carrying out this role they are often called on to respond to the needs of numerous other stakeholders, including customers, employees, government and society at large. With global brands at risk and mistakes instantly transmitted via Internet and social media, the reputational stakes are very high. The course is a combination of lecture, guest lecture, discussion, case analysis, and in-class research workshops. We will review some of the theory underlying modern governance practice, drawing from theories and evidence provided by research across diverse fields, including finance, sociology, and organization and management theory. We'll study specific situations where boards and management teams faced governance challenges, and assess the strategies used to deal with them. Finally, we'll examine the ways in which governance arrangements and external stakeholder involvement in governance affects corporate social behavior and global citizenship.
Prerequisites: MGMT 100 and MGMT 101
Activity: Lecture
1 Course Unit
Notes: Classes will comprise of a combination of mini-lectures and case discussions. Students will be expected to participate fully in class discussions. Effective participation will require sufficient and informed preparation of cases and assigned readings in advance of each class. Requires: Students will be expected to participate fully in class discussions. Effective participation will require sufficient and informed preparation of cases and assigned readings in advance of each class. In addition, there will be two course papers. See instructor regarding course materials.

MGMT 243 Work and Technology: Choices and Outcomes
This half-semester course is organized in two modules. The first module "Technology, Operations, and Strategy" takes an organizational-level look at the different ways human and social capital are deployed by firms under varying strategies and different production paradigms. In addition, we look at past and current approaches to automation and the diverse rationales, transactional modes, and consequences of outsourcing, particularly of technical labor. The second module "Technology and Managing People" examines how traditional practices of managing human and social capital are being transformed by new technologies that give managers new ways to enact control and new means to induce commitment, while also giving individuals with high levels of human capital ("talent") new sources of leverage in negotiating the employment contract (in both economic and psychological terms) and new opportunities for inter-firm mobility and skill acquisition.
Course not offered every year
Prerequisites: We anticipate that students will have taken the first-year required Wharton 101 (or its replacement course before taking this elective. Taking the core MGMT101 class, either before or together with this elective, will also be helpful in understanding how organizations either function in their environment and the context within which firms make strategic decisions.
Activity: Lecture
0.5 Course Units
Notes: Students will be evaluated on class participation, written work and group assignment.
MGMT 247 Employment Law
See LGST 208. This is a cross-listed course.
Activity: Lecture
1 Course Unit

MGMT 249 Mergers and Acquisitions
This course explores the role of mergers and acquisitions and alternative methods of corporate development in advancing the strategies of operating business. Emphasis is on the way companies use acquisitions to alter business mixes; seize opportunities in new products, technologies and markets; enhance competitive positioning; adjust to changing economics, and promote value-creating growth. Although the course will emphasize strategic acquisitions, it also will explore leveraged buy-outs and hostile financial acquisitions as well as their influence on corporate buyers. Please note that you must fulfill the prerequisites in order to enroll in this class.
Prerequisites: MGMT 100 and MGMT 101
Activity: Lecture
1 Course Unit

MGMT 251 Consulting to Growth Companies
This course offers students a unique opportunity to develop consulting skills and entrepreneurial expertise by working as consultants to thriving entrepreneurial ventures in the Philadelphia area. This capstone course combines both fieldwork and class work and allows students to apply knowledge and skills acquired through other course work to real world issues that must be addressed by operating companies. An understanding of characteristics producing rapid entrepreneurial growth and skills related to effective communications and management of a business relationship are emphasized. Team term consulting assignment, lectures, case analysis, and small group discussions.
Course usually offered in fall term
Prerequisites: Junior or Senior Standing Recommended.
Activity: Lecture
1 Course Unit

MGMT 264 Venture Capital and Entrepreneurial Management
This course focuses on venture capital management issues in the context of a high-growth potential start-up company. The course is motivated by rapid increases in both the supply of and demand for private equity over the past two decades. The topic is addressed from two distinct perspectives: issues that relate to the demand for private equity and venture capital (the entrepreneur’s perspective) on the one hand, and issues that relate to the supply of capital (the investor’s perspective) on the other. As well, we will address management issues that relate to how the VC and the entrepreneur work together once an investment has been made, compensation issues, and governance issues in the privately held venture capital backed company. Format: Case/discussion format, supplemented by lectures and guest speakers.
Course usually offered in fall term
Prerequisite: Junior or Senior Standing Recommended
Activity: Lecture
1 Course Unit

MGMT 267 Entrepreneurship and Technological Innovation
This course will give you an overview of entrepreneurial development, especially within the realm of technical innovation. We will be concerned with content and process questions as well as with formulation and implementation issues that related to conceptualizing, developing and managing successful new ventures. The class serves as both a stand-alone one and as a preparatory course to a more in-depth venture implementation class (MGMT 231) as well as other classes in the domain of management and entrepreneurship. Management 267 will appeal to individuals who have a desire to become entrepreneurs at some stage of their career. Similarly, students who intend to work in the entrepreneurial ecosystem (such as in the venture capital industry) will benefit from the course.
Activity: Lecture
0.5 Course Units

MGMT 272 Power and Politics in Organizations
The purpose of this course is to introduce you to the power dynamics in organizations. The course is designed so that you will learn concepts that are useful for understanding, analyzing, and developing political skill. But beyond discovering ways to extend your own power in organizations, we will also uncover lessons about ways in which power and politics can blind you, and how to navigate situations in which you are up against powerful people. Using a range of scholarly articles, cases, exercises, assessments and simulations, we will extract a variety of lessons about power and politics in organizations. Topics include voice, issue selling, building coalitions and networks, coping with intolerable bosses and incivility, and downsizing. Students will be expected to engage in field research for their coursework and final paper, and the course requires that students submit assignments for almost every class session. Thematically, this course highlights how your relationships with organizational stakeholders and an understanding of the organizational context are crucial to successfully navigating the political terrain of organizations. Organizations are inherently political arenas that require social astuteness, and an understanding of the “rules of the game.”
This course is designed for students aiming to develop their leadership, general management and career skills through a better understanding of power and politics, and relates to other courses on these topics in the Management department.
Activity: Lecture
0.5 Course Units

MGMT 276 Cultivating Judgment Skills: Forecasting in Business Politics
This course will explore the diverse ways in which scholars and practitioners have defined “good judgment.” And it will introduce students to practical tools for assessing and improving judgment, with special emphasis on probabilistic reasoning. Students will have the opportunity both to fine-tune their personal judgment skills as well as to master and then weave together insights from several bodies of scientific knowledge, including frequentist and Bayesian statistics, psychological work on judgment and choice, group dynamics, organizational behavior and political science (key concepts discussed in Tetlock’s (2015) book “Superforecasting”). We will focus on bottom-line accuracy in sizing up real world problems. Class work will be primarily exercises, including working as an individual and in teams. You will have opportunities to forecast on a wide range of political, business, and macro-economic questions, which we will use as feedback tools to help you calibrate your judgment. Assessments include a weekly concept test and a final group presentation aimed to help you improve your judgment. The goal is to launch you on the lifelong process of learning how much trust you should place in your judgments of trustworthiness.
Activity: Lecture
1 Course Unit
MGMT 288 Managing and Competing in China
This course provides an examination of some of the largest businesses in the People's Republic of China, acquainting students with the governance and management (both management structure and management teams) of some of the largest and best known Chinese firms. Students will also become acquainted with the capabilities and liabilities of Chinese firms and their strategic options. Tools needed to assess the investment potential of Chinese firms will be provided, and students will have an opportunity to do original research on issues of governance and management of Chinese firms.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MGMT 291 Negotiations
This course includes not only conflict resolution but techniques which help manage and even encourage the valuable aspects of conflict. The central issues of this course deal with understanding the behavior of individuals, groups, and organizations in conflict management situations. The purpose of this course is to understand the theory and processes of negotiations as it is practiced in a variety of settings. The course is designed to be relevant to the broad spectrum of problems that are faced by the manager and professional including management of multinationals, ethical issues, and alternative dispute resolutions. Cross listed w/ LGST 206 and OIDD 291.
Prerequisites: MGMT 100 and MGMT 101
Activity: Lecture
1 Course Unit

MGMT 292 Adv Topic Negotiation
See OIDD 292
Activity: Lecture
1 Course Unit

MGMT 353 Wharton Field Challenge
http://fap.wharton.upenn.edu/353 Students Info.htm
Taught by: Weigelt and Staff.
Activity: Lecture
1 Course Unit

MGMT 610 Foundations of Teamwork and Leadership
MGMT 610 is the first core course in the MBA Program and it cannot be waived. The first week of the fall term (in August) is dedicated to this formative and foundational experience. This course focuses on developing students' knowledge and skill set for teamwork and leadership. It is meant to be an intense immersion experience that draws strongly on the pedagogy of the Wharton Teamwork and Leadership Simulation, a team-based, highly interactive simulation that was custom-designed specifically to allow students to experience the core concepts they learn in this class. The three goals of this course are for students to learn: 1. Leadership behaviors: how to enact the skills that contribute to a team's effective performance. 2. Team dynamics: how to be an effective team member, as well as how to best design work teams; 3. Organizational awareness: understanding organizational culture. Format: A custom-designed Wharton-only simulation is paired with course sessions to deliver a unique learning experience. Classes will include experiential learning combined with debriefings, lectures, readings, class discussion and personal and group performance feedback. This course reflects the realities that informal leadership occurs in teams on an ongoing basis, that being a good team player is a part of leadership, and that many of one's early experiences with leadership will occur while working on teams. Because of the team-based nature of this course, and time intensive nature of this experience, attendance is mandatory for ALL five sessions of this class.
Activity: Lecture
0.5 Course Units

MGMT 611 Managing Established Enterprises
The management of large, established enterprises creates a range of multi-facet challenges for the general manager. A general manager needs to understand the internal workings of a firm, how to assess and create a strategy, and how to take into account increasing globalization. While these issues are distinct, they are very much intertwined. As a result, this course will provide you with an integrated view of these challenges and show you that effective of an established enterprise requires a combination of insights drawn from economics, sociology, psychology and political economy.
Activity: Lecture
1 Course Unit
MGMT 612 Management of Emerging Enterprises
Emerging enterprises, the focus in this course, are small, new, fast-growing organizations. Their founders and managers face multifaceted challenges: how to assess the competitive position of their business model and develop a strategy; how to develop the internal organizational structure, culture, and policies for selecting and managing employees; and how to pursue global opportunities. We cover these challenges in separate modules on strategy, human and social capital, and global issues. The human and social capital module covers classic management challenges of aligning interests of the individual and the organization; managing individual psychological needs and social influences; and developing employee capabilities that provide competitive advantage. Also covered are unique challenges that young organizations face, i.e. building an effective culture; recruiting, selecting, and retaining talent; building systematic approaches to motivating employees; coping with the stresses of rapid growth; and leveraging the benefits (and avoiding the liabilities) of the founder’s powerful imprint. The strategy module covers fundamental issues central to the competitiveness of the enterprise. Because the strategy field is broad, MGMT 612 emphasizes topics and frameworks that are most relevant for younger firms, such as innovation, disruption, managing resource constraints, and building capabilities. However, a key insight of the module is the importance of seeing the playing field from the perspective of the competition. Thus, by the end of this section, students will have a robust grounding in strategy that will allow them to succeed, whether their career path leads to a Fortune 100 firm or a garage start up.
Activity: Lecture
1 Course Unit

MGMT 624 Leading Diversity in Org
People in the workplace are constantly interacting with peers, managers, and customers with very different backgrounds and experiences. When harnessed effectively, these differences can be the catalyst for creative breakthroughs and the pathway to team and organizational learning and effectiveness; but when misunderstood, these differences can challenge employees’ values, performance, workplace relationships, and team effectiveness. This course is designed to help students navigate diverse organizational settings more effectively and improve their ability to work within and lead diverse teams and organizations. It also offers students the opportunity to develop their critical thinking on topics such as identity, relationships across difference, discrimination and bias, equality, and equity in organizations and society and how they relate to organizational issues of power, privilege, opportunity, inclusion, creativity and innovation and organizational effectiveness. Class sessions will be experiential and discussion-based. Readings, self-reflection, guest speakers from organizations, case studies and a final project will also be emphasized. By the end of this course, you should be able to: 1) Evaluate the aspects of your identity and personal experiences that shape how you interact and engage with others and how they interact and engage with you in organizations 2) Explain how issues of power, privilege, discrimination, bias, equality, and equity influence opportunity and effectiveness in organizations 3) Propose ways to make relationships across difference in organizations more effective 4) Describe current perspectives on the relationships among diversity, inclusion, creativity, and innovation in organizations 5) Analyze a company’s current approach to leading diversity and use content from this course to propose ways to enhance learning and effectiveness in that company.
Course not offered every year
Activity: Lecture
0.5 Course Units

MGMT 625 Corporate Governance, Executive Compensation and the Board
This course examines the relationships between corporate managers, the boards of directors charged with overseeing them, and investors. We’ll review the responsibilities of the board, including financial statement approval, CEO performance assessment, executive compensation, and succession planning. While boards are legally bound to represent the interests of equity investors, in the course of carrying out this role they are often called on to respond to the needs of numerous other stakeholders, including customers, employees, government and society at large. With global brands at risk and mistakes instantly transmitted via Internet and social media, the reputational stakes are very high. The course is a combination of lecture, guest lecture, discussion, case analysis and in-class research workshops. We will review some of the theory underlying modern governance practice, drawing from theories and evidence provided by research across diverse fields, including finance, sociology, and organization and management theory. We’ll study specific situations where boards and management teams faced governance challenges, and assess the strategies used to deal with them. Finally, we’ll examine the ways in which governance arrangements and external stakeholder involvement in governance affects corporate social behavior and global citizenship.
Taught by: Mary-Hunter McDonnell
Activity: Lecture
0.5 Course Units

MGMT 671 Executive Leadership
Leaders mobilize resources toward valued goals. In this course, the focus is on growing the student’s capacity as a leader in all parts of life. The purpose is to learn practical and customized lessons about how to improve performance and results at work, at home, in the community, and in the private self (mind, body, spirit) by finding mutual value among these four domains. The core idea is that leadership is about making a difference in all aspects of one’s life. This course offers students the opportunity to practice the skills needed to do so, now and in the future. Students learn and apply key leadership principles and actively explore what it means for them to be real (to act with authenticity by clarifying what’s important), to be whole (to act with integrity by respecting the whole person), and to be innovative (to act with creativity by experimenting with how things get done). Please visit www.totalleadership.org to learn more. Special registration for MGMT 671: This course is only available to Wharton MBA students. The first step in the registration process for it is to apply for admission by writing a response to the email Professor Friedman send in the Fall term to all Wharton MBA students. This course is not included in MBA Course Match.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MGMT 690 Mang Decsn Making
See OIDD 690. This is a cross-listed course with OIDD 690.
Activity: Lecture
1 Course Unit
MGMT 691 Negotiations
This course examines the art and science of negotiation. This course develops managerial skills by combining lectures with practice, using exercises where students negotiate with each other. Over the course of the semester, students will engage in a number of simulated negotiations ranging from simple one issue transactions to multi-party joint ventures. Through these exercises and associated readings, students explore the basic theoretical models of bargaining and have an opportunity to test and improve their negotiation skills. Cross-listed with LGST 806 and OIDD 691.
Activity: Lecture
1 Course Unit

MGMT 701 Strategy and Competitive Advantage
This course is concerned with strategy issues at the business unit level. Its focus is on the question of how firms can create and sustain a competitive advantage. A central part of the course deals with concepts that have been developed around the notions of complementarities and fit. Other topics covered in the course include the creation of competitive advantage through commitment, competitor analysis, different organizational responses to environmental changes, modularity, and increasing returns. An important feature of the course is a term-length project in which groups of students work on firm analyses that require the application of the course concepts.
Prerequisite: MGMT 611 or MGMT 612
Activity: Lecture
1 Course Unit

MGMT 711 Competitive Strategy and Industrial Structure
This is a course in analyzing competitive interactions. The course emphasizes a vision of strategy in which each competitor simultaneously chooses its strategy, taking into account the strategies of its opponents. Crucial to this vision is the anticipation of the moves of your opponent and, in particular, the expectation that your opponent is (almost) as smart as you are. Equal attention will be given to the development of techniques for analyzing competitive interactions and to the application of those techniques. Game theory and the economics of industrial organization provide the basis for the theoretical constructs developed in the course. Topics that will be explored include: market failures and profitability, competitive bidding, signaling, entry deterrence, agenda setting, regulations, and price wars.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MGMT 712 Managing strategic partnerships
This course explores the management of strategic partnerships between firms, which have surged in recent years in response to globalization, technological evolution, deregulation, shortened product life cycles, and intensified competition. Today’s alliances drive corporate growth and change, and vary greatly in terms of partner type, commitment, equity investment, degree of control, between scale, and scope. They range from bilateral arrangements to ecosystems to outsourcing, often blurring traditional organizational boundaries and leading to the creation of globally distributed enterprises. In view of these contemporary developments, the objectives of the course are two-fold: (1) to arm you with a set of tools to facilitate the selection of an appropriate alliance strategy in a given situation; and, (2) to provide you with frameworks to help the initiate and implement different kinds of partnerships. The emphasis lies on strategic and organizational aspects in the formation and management of these transactions, rather than financial considerations. Alternative growth strategies to strategic alliances (e.g., acquisitions), the impact of these partnerships on competition within an industry, and regulatory constraints will also be discussed. In terms of its pedagogical approach, this is designed to be an interactive, applied, case-based course with accompanying conceptual readings to help structure your thinking. Given the nature of the course, we will also apply the lessons from the cases to understand the challenges and implications of relevant recent and on-going deals. In addition, guest speakers with experience in investment banking, consulting, and industry will be invited to share their perspectives. A group project is intended to give you the opportunity to apply your learning from the course to a context that is most interesting and relevant to you.
Course not offered every year
Prerequisite: MGMT 611 or MGMT 612
Activity: Lecture
0.5 Course Units

MGMT 714 Value Creation and Value Capture in American Business History
This course examines how the kind of firms in which most Wharton students will spend the next stage of their careers came to be as they are today. At a superficial level, the course’s objectives are descriptive and narrative. Its deeper purpose is to give students some idea of how to think about the future evolution of firms and industries. The course will discuss the historical development of the business enterprise as an institution. It will also cover the evolution of competition and strategy and of corporate finance. The focus will be on American developments, since many of the innovations took place here, but there is scope for comparison with institutions in Japan and the leading European economies if there is student interest. The course considers issues arising in anumber of different management disciplines and shows off their interrelationships. In terms of the Wharton curriculum and of recent research, strategy issues, and in particular the set of issues concerning how value can be created and captured at the enterprise level, are a running theme. Format: There will be occasional lecturing but this is principally a discussion course. The readings are predominantly primary source documents, supplanted when helpful by background notes from the instructor; with occasional readings from secondary sources. Evaluation is based on class participation, weekly brief written responses to the readings, and a term paper, with the great bulk of the grade weight on the last of these.
Taught by: Raff.
Prerequisite: MGMT 611 or MGMT 612
Activity: Lecture
1 Course Unit
MGMT 715 Political Environment of the Multinational Firm
All successful firms go global. This course provides a broad introduction to international business. You will learn about who loses and who gains from trade, what are the effects of tariffs and non-tariff barriers, the World Trade Organization (WTO), regional trading blocs, and NAFTA. The course then turns to the international financial architecture, focusing on exchange rate risk. We then move to multinational firm strategies, including a discussion of the reasons for why firms choose to do business globally through trade or FDI, international tax strategy, joint ventures, technology transfer, different ways to be a multinational firm, and ethical dilemmas. The class is a mix of lectures and cases that allow students to synthesize the extensive materials on multinational management, international institutions, economic policies, and politics with a goal towards formulating multinational firm strategy.
Activity: Lecture
0.5 Course Units

MGMT 720 Corporate Diplomacy
Are you well prepared to manage or analyze business challenges and competitive threats in a variety of political and social environments? For example, what should you do to dissuade or counter an individual critic armed with a camera phone a YouTube account? Or a decentralized grassroots organization that seemingly pops up overnight, appears to have no single leader or headquarters, and yet is quite successful in capturing media attention? Or a government official who because of a tight reelection campaign or an internal challenge from a populist general turns on you? Lone individuals, small activist groups and unexpected political shifts have done extensive damage to the reputations - and value - of multinationals in recent years. And yet most companies don’t plan for, or even think about, investing in building the kinds of solid relationships with community leaders, governments, NGOs, and other key players that can help them avoid such crises and, when necessary, draw upon their reservoir of stakeholder capital to respond quickly and decisively when a challenge or threat emerges. This semester-long class provides an integrative perspective towards the management of these risks and opportunities. It highlights that better assessment of stakeholder opinion, understanding of how stakeholders impact firm value and of how to infuse stakeholder relationships with trust to unlock that value are increasingly critical elements of a firm’s long-term success, particularly in emerging markets. Firms must also focus on a continual improvement in their stakeholder engagement, reinforcing their actions with strategic communications and via organizational culture. The course will give students a combination of practical tools and the latest academic thinking in the emerging field of corporate diplomacy.
Taught by: Witold Henisz
Prerequisites: There are no formal prerequisites but participants should be able to contribute some individual expertise from previous coursework, training, and work experience and will, at other times, rely heavily on their peers to summarize and introduce key concepts and perspectives from other disciplines, industries or countries with which they may be less familiar.
Activity: Lecture
1 Course Unit

MGMT 721 Corporate Development: Mergers and Acquisitions
This course explores the role of mergers and acquisitions and alternative methods of corporate development in advancing the strategies of operating business. Emphasis is on the way companies use acquisitions to alter business mixes; seize opportunities in new products, technologies and markets; enhance competitive positioning; adjust to changing economics, and promote value-creating growth. Although the course will emphasize strategic acquisitions, it also will explore leveraged buy-outs and hostile financial acquisitions as well as their influence on corporate buyers. Please note that you must fulfill the prerequisites in order to enroll in this class.
Prerequisite: MGMT 611 or MGMT 612
Activity: Lecture
1 Course Unit

MGMT 729 Intel Property Strategy
Announcing the first iPhone at Macworld 2007, Apple CEO Steve Jobs famously boasted: “And boy, have we patented it!” How, and to what extent, do patents and intellectual property really provide competitive advantage for innovative technology companies? What makes an IP asset strategically powerful? How do patents impact, and even drive, major corporate decisions including M&A, venture funding and exits, and entry into new markets? In this course, students will learn to critically analyze and answer these questions, gaining insights they can leverage in their future roles as innovation industry executives, entrepreneurs, strategist and investors. This course is cross-listed with LGST 729/MGMT229. The course includes three major units. In Unit 1, Patents and Innovation Value, we examine closely the relationship between competitive advantage, value proposition, and intellectual property (particularly patents). We will apply our understanding of that relationship to critique and sharpen patent strategy to protect examples of cutting-edge technologies. In Unit 2, Patent Leverage and the Corporate Playbook, we study theory and examples of how intellectual property leverage strategically informs corporate transactions and decisions, for established companies as well as for start-ups. In unit 3, Limits and Alternatives to Patents, we confront the recent legal trend toward reignining in the power and scope of patents. We also consider the growing importance of data as a proprietary technology asset, and discuss options for adapting intellectual property strategy appropriately. Throughout, students will learn and practice applying the concepts we learn to decision-making in examples based on innovative real-world technologies and businesses.
Activity: Lecture
0.5 Course Units

MGMT 731 Technology Strategy
The course is designed to meet the needs of future managers, entrepreneurs, consultants and investors who must analyze and develop business strategies in technology-based industries. The emphasis is on learning conceptual models and frameworks to help navigate the complexity and dynamism in such industries. This is not a course in new product development or in using information technology to improve business processes and offerings. We will take a perspective of both established and emerging firms competing through technological innovations, and study the key strategic drivers of value creation and appropriation in the context of business ecosystems. The course uses a combination of cases, simulation and readings. The cases are drawn primarily from technology-based industries. Note, however, that the case discussions are mainly based on strategic (not technical) issues. Hence, a technical background is not required for fruitful participation.
Activity: Lecture
1 Course Unit
MGMT 740 Leading Effective Teams
This course develops your knowledge and skills for designing, leading, and consulting with teams in organizations. The goals are to provide both the conceptual understanding and the behavioral skills required to improve effectiveness. This course emphasizes class participation, readings, analytic and reflective writing, assessments, peer feedback and coaching, lectures, simulations, and an intensive field project with a real team in the Philadelphia area. Four kinds of teams are the focus of study: teams of which you've been a member in the past; your 740 team, with three or four classmates; a team outside of 740 that your 740 Team will observe, analyze, and report on - your Host Team; and a team that you expect to be on in the future. The course material for learning and applying course concepts will be these teams that you know from direct observation and experience. Expect to leave this course with new knowledge of how to diagnose and intervene - as leader, member, or consultant - to improve the performance, sustainability, and impact on the members of any team in any setting. The text is by J. Richard Hackman, Leading Teams (Harvard Business).
Prerequisite: MGMT 610
Activity: Lecture
1 Course Unit

MGMT 765 Venture Capital and Entrepreneurial Management: Practices and Institutions of Silicon Valley
This elective half-semester course will highlight venture capital and entrepreneurship in general and will explore selected aspects of this industry, including: industry trends and dynamics in Silicon Valley and the South of Market area (SOMA) of San Francisco; the recent emergence of alternative sources of startup financing, including incubators/accelerators and crowdfunding platforms, angel groups and stage-agnostic institutional investors; business and operational aspects of early stage companies in transition to mezzanine-level stages of growth; and company "exits," including both initial public offerings and merger/sale transactions. MGMT765 and MGMT804 cover separate issues within the same general industry and are not redundant. This course addresses issues faced by later stage VC backed firms, while MGMT804 centers on early stage, pre-revenue startups. The format of this course relies heavily on site visits and recognized leaders within the Bay Area to bring forth on-the-ground perspectives of a changing and important industry. While MGMT804 is not a prerequisite, the two courses are complementary.
Prerequisite: MGMT 801 recommended
Activity: Lecture
0.5 Course Units
Notes: Requirements: Individual participation in lectures, discussions, and company visits, student presentations, and final paper.

MGMT 772 Power and Politics in Organizations
The purpose of this course is to introduce you to the power dynamics in organizations. The course is designed so that you will learn concepts that are useful for understanding, analyzing, and harnessing power. But beyond discovering ways to extend your own power, influence and political skill in organizations, we will also uncover lessons about ways in which power and politics can blind you, and how to navigate situations in which you are up against powerful people. Using a range of theoretical and business articles, cases, exercises, assessments, and simulations, we will extract a variety of lessons about power and politics in organizations. Topics include political skill, influence, issue selling, change management, networks, hierarchy, political conflict, corruption, coping with intolerable bosses, speaking up, redemption, and downsizing. Thematically, this course highlights how your relationships with organizational stakeholders and an understanding of the organizational context are crucial to successfully navigating the political terrain of organizations. Organizations are inherently political arenas that require social astuteness, and an understanding of the "rules of the game." This course is designed for students aiming to develop their leadership, general management and career skills through a better understanding of power and politics, and relates to other courses on these topics in the Management department.
Activity: Lecture
0.5 Course Units

MGMT 776 Cultiv Judgment Skills
A world-class poker player defined the difference between serious players and amateurs this way: serious players know the difference between 40-60 and 60-40 propositions. In other words, serious players are well calibrated (skilled at distinguishing what they know from what they don't). This course gives you chances to explore how well calibrated you are in a low-risk setting. The course should appeal to students with interests in strategy, international business, political-risk analysis, and the managerial challenges of maximizing the judgmental accuracy of key personnel. The class will pit its wits against competitors in a global-forecasting tournament sponsored by the Intelligence Advanced Research Projects Agency (IARPA) - as well as design forecasting exercises around your individual career and business plans. Key challenges include: (a) learning to translate "interesting questions" into "testable propositions," (b) getting into the habit of translating vague hunches into probability metrics and making good use of feedback on how well calibrated you are, (c) applying tools for enhancing accuracy, (d) making solo forecasts - and exploring methods of making team forecast more than the sum of their individual-contributor parts.
Prerequisites: None (but an interest in links between business and politics is helpful).
Activity: Lecture
0.5 Course Units
MGMT 782 Strategic Implementation
This course is directed toward the attainment of five interdependent objectives: 1) to develop an understanding of strategy implementation in complex organizations; 2) to understand how organizational planning, design, control, and human resource decisions are interdependent and critical to successful implementation; 3) to develop a sensitivity to the "realities" of strategy implementation in "real world" organizations; 4) to obtain a deeper understanding of your personal management style and how it may help or hinder strategy implementation; and 5) to become a better communicator and implementer of strategy. To meet these course objectives, the emphasis will be on learning powerful ideas about how to be systematic in strategy implementation efforts, making use of research about case problems, class discussions, class exercises, and student presentations. Much of the learning will take place in group discussions outside the classroom in preparation for the time we meet in the classroom.
Activity: Lecture
1 Course Unit

MGMT 784 Managerial Economics and Game Theory
The purpose of this course is to develop students' abilities to apply game theory to decision making. Development of the tools of game theory and the application of those tools is emphasized. Game theory has become an important tool for managers and consultants in analyzing and implementing tactical as well as strategic actions. This course will primarily focus on examples useful for developing competitive strategy in the private sector (pricing and product strategy, capacity choices, contracting and negotiating, signaling and bluffing, takeover strategy, etc.). Game theory can also be used to address problems relevant to a firm's organizational strategy (e.g., internal incentives and information flow within a firm) and to a firm's non-market environment (e.g., strategic trade policies, litigation and regulation strategy).
Prerequisites: (Intermediate microeconomics) or equivalent. It is expected that the student has been introduced to some basic game theory. There will be a quick review of the basics and some recommended supplemental readings for those who have little or no background in game theory.
Activity: Lecture
0.5 Course Units

MGMT 794 Understanding Careers and Executive Labor Markets
This course examines the structure of executive careers in order to help understand how those careers can be managed most effectively. By drawing on extensive economic, sociological and psychological research on careers, we will examine such questions as when executives should move on to the next job or even change fields altogether, and what are effective means of finding jobs, achieving promotions, managing networks, and achieving work-life balance. The first few sessions of the course explore the basic building blocks of the career, outlining our knowledge on the different orientations that individuals take to their careers, how approaches to the career change as people get older, and how different kinds of job moves within and across firms advance careers. The second part of the course explores more detail the social resources that affect careers, notably social networks and relationships with mentors. The third section of the course then examines a number of the most important and difficult issues affecting modern careers, including making successful transitions, the effects of gender on careers, work life balance, and international careers.
Prerequisites: There are no prerequisites for this course.
Activity: Lecture
0.5 Course Units

MGMT 801 Entrepreneurship
MGMT 801 is the foundation course in the Entrepreneurial Management program. The purpose of this course is to explore the many dimensions of new venture creation and growth. While most of the examples in class will be drawn from new venture formation, the principles also apply to entrepreneurship in corporate settings and to non-profit entrepreneurship. We will be concerned with content and process questions as well as with formulation and implementation issues that relate to conceptualizing, developing, and managing successful new ventures. The emphasis in this course is on applying and synthesizing concepts and techniques from functional areas of strategic management, finance, accounting, managerial economics, marketing, operations management, and organizational behavior in the context of new venture development. The class serves as both a stand alone class and as a preparatory course to those interested in writing and venture implementation (the subject of the semester-long course, MGMT 806).
Format: Lectures and case discussions
Prerequisites: MGMT 801 strongly recommended.
Activity: Lecture
0.5 Course Units

MGMT 802 Change, Innovation & Entrepreneurship
Designed for students with a serious interest in entrepreneurship, this course will provide you with an advanced theoretical foundation and a set of practical tools for the management of startups and entrepreneurial teams in fast-changing and innovative environments. Building on the skills of MGMT 801, every class session is built around an experience where you have to put learning into practice, including the award-winning Looking Glass entrepreneurial simulation, role-playing exercises, and a variety of other games and simulations. The goal is to constantly challenge you to deal with entrepreneurial or innovative experiences, as you learn to navigate complex and changing environments on the fly, applying what you learned to a variety of scenarios. MGMT 802 is built to be challenging and will require a desire to deal with ambiguous and shifting circumstances.
Format: Lectures, discussion, interim reports, class participation, readings report, and presentations, and an innovation assessment in PowerPoint format.
Prerequisites: MGMT 801 strongly recommended.
Activity: Lecture
0.5 Course Units
MGMT 804 Venture Capital and Entrepreneurial Management
This elective half-semester course focuses on venture capital management issues in the context of the typical high-growth potential early stage start-up company. The course is fundamentally pragmatic in its outlook. It will cover seven principal areas relevant to the privately held high-growth start-up which include: commentary on the venture capital industry generally, as well as a discussion of the typical venture fund structure and related venture capital objectives and investment strategies; common organizational issues encountered in the formation of a venture backed start-up, including issues relating to initial capitalization, intellectual property and early stage equity arrangements; valuation methodologies that form the basis of the negotiation between the entrepreneur and the venture capitalist in anticipation of a venture investment; the challenges of fundraising, financing strategies and the importance of the business plan and the typical dynamics that play out between VC and entrepreneur; typical investment terms found in the term sheet and the dynamics of negotiation between the entrepreneur and the venture capitalist; compensation practices in a venture capital backed company, and corporate governance in the context of a privately-held, venture capital-backed start-up company and the typical dynamics that play out between VC and entrepreneur in an insider-led, "down round" financing.
Prerequisite: MGMT 801 recommended
Activity: Lecture
0.5 Course Units

MGMT 806 Formation and Implementation of Entrepreneurial Ventures
This advanced course on entrepreneurship focuses on developing a validated opportunity or concept into a venture that is ready for seed financing and/or launching the product or service. Participants in this course must previously have developed a validated opportunity, either in a previous course or through independent efforts. Students may participate as a team of up to three people. Ideally, participants are committed to pursuing their opportunity commercially, or at least to seriously explore that possibility. The course provides a practical guidance for developing the product or service, forming the entity, raising capital building the team, establishing partnerships, and sourcing professional services. After completing the course, you will be "pitch ready" - whether submitting to campus venture competitions or to outside investors. Most coursework is focused on applying concepts and frameworks to project tasks in developing the venture. Students must have successfully completed MGMT 801 before enrolling in this course. Students must have successfully completed MGMT 801 before enrolling in this course.
Format: Highly interactive
Prerequisites: MGMT 801 REQUIRED.
Activity: Lecture
1 Course Unit

MGMT 809 Private Equity in Emerging Markets
The course investigates the private equity industry in emerging markets. The goal of the course is to give students a realistic understanding of the roles, responsibilities and analytical skills required of market practitioners, as well as the tensions that arise between various stakeholders, including government officials, investors, entrepreneurs, and the press. The underlying premise is that private equity in those countries has evolved as a distinctly different asset class from private equity in industrialized countries in areas such as valuations, governance, structure, contract enforcement and regulatory transparency. The course will require high level of preparation and class participation. Classes will be a mix of guest speakers from the industry and business cases, to provide students with a practical grasp of the private equity industry and the particular issues involved with how the business works in emerging markets. Cases will highlight the challenges and tasks at each stage of the investment cycle, such as structuring a new fund, originating new deals, conducting due diligence, creating value and monitoring performance of portfolio companies, and exiting.
Prerequisites: Completion or waiver of FNCE 601.
Activity: Lecture
0.5 Course Units

MGMT 811 Entrepreneurship Through Acquisition
MGMT 811 focuses on the theoretical, strategic, analytics, and practical issues of acquiring a business. Topics include: locating a business, due diligence, reviewing and analyzing data, valuation, raising capital/financing the deal, structuring the acquisition, letters of intent, contracts/asset purchase agreements, and integrating the target. Format: The class consists of lectures, in-class discussions of caseletts, assigned readings, homework problems, and a group or individual project.
Prerequisites: MGMT 801 recommended.
Activity: Lecture
0.5 Course Units

MGMT 812 Social Entrepreneurship
This is a course on creating a business to attack a social problem and thereby accomplish both social impact and financial sustainability. For this course, social entrepreneurship is defined as entrepreneurship used to profitably confront social problems. This definition therefore views social entrepreneurship as a distinct alternative to public sector initiatives. The basic thesis is that many social problems, if looked at through an entrepreneurial lens, create opportunity for someone to launch a venture that generates profits by alleviating that social problem. This sets in motion a virtuous cycle - the entrepreneur is incented to generate more profits and in so doing, the more the profits made, the more the problem is alleviated. Even if it is not possible to eventually create a profit-making enterprise, the process of striving to do so can lead to a resource-lean not-for-profit entity. Creating a profitable social entrepreneurship venture is by no means a simple challenge. Cross-listed with MGMT 212.
Activity: Lecture
0.5 Course Units

MGMT 815 Sports Business Management
See LGST 809.
Activity: Lecture
1 Course Unit
MGMT 816 Building Human Assets in Entrepreneurial Ventures
The success of entrepreneurial endeavors depends, even more so than in larger more bureaucratic organizations, on the ability to locate and manage talent effectively. Specifically, on the need to find the right people and keep them engaged in working on the organization's goals. We focus in this course on leading, building, and maintaining human assets in start-up and small, growing operations. The course is designed with several key components, these are: conceptual and practical readings relevant to the topic; case studies illustrating key concepts and issues; lecture on practical application and examples; and lastly every class will also feature a presentation by and conversation with an outside expert whose work is relevant to guiding or advising start-ups and fast-growing small firms. We will focus on the following objectives: identifying the talent needed to initiate and sustain an entrepreneurial endeavor; structuring human resource policies and corporate culture to prepare for and facilitate firm growth; assessing the human aspects of valuing entrepreneurial companies; and responding to conflict and organizational threats within nascent firms. This course will apply recent research from strategic human resource management, personnel economics and organizational behavior to the practical issues of building and managing human assets in new ventures.
Prerequisites: MBA students only.
Activity: Lecture
0.5 Course Units

MGMT 833 Strategies and Practices of Family-controlled Companies
This course is designed for those persons who desire to understand the distinct strategies and practices of family-controlled companies and family wealth creation. It will focus on stakeholder decision making; financial and resource driven options for long-run competitiveness, organizational structures, management team issues; strategic planning from a resource-based perspective; transition planning for the corporate entity, family dynamics, communication issues; and leadership empowerment. The course is intended for those who plan to consult or provide professional services to family-controlled companies and for those planning a career in a family firm. The class is structured around topical lectures with frequent utilization of case studies requiring active class participation, as well as on-site and off-site project work time. Submission of several written case studies, and a term project are required.
Prerequisites: Open to Wharton MBA and Penn graduate students
Activity: Lecture
1 Course Unit

MGMT 896 Decision Making in the Leadership Chair
Contact the Management Department for additional information at: Courseinfo@wharton.upenn.edu. Decision making in the leadership chair is a complex task and one that is difficult to teach in a business school setting. To bridge this gap, Mr. William P. Lauder and invited executives will bring their experiences into the classroom, primarily addressing key decision they made, how they weighed their options, and what they learned from the outcomes. The framework for the class centers around two crucial aspects of decision making in the leadership chair: the need to manage many groups of stakeholders, and the need to play many roles when doing this. This course is by application only to second-year Wharton MBAs and a maximum of 48 students will be selected. A communication will be sent regarding the application details.
Activity: Independent Study
0.5 Course Units

MGMT 897 Global Modular Course A: Lesson From Israeli Innovation
Activity: Lecture
0.5 Course Units

MGMT 900 Economic Foundations of Management
This course examines some of the central questions in management with economic approaches as a starting point, but with an eye to links to behavioral perspectives on these same questions. It is not a substitute for a traditional microeconomics course. Economics concerns itself with goal directed behavior of individuals interacting in a competitive context. We adopt that general orientation but recognize that goal directed action need not take the form of maximizing behavior and that competitive processes do not typically equilibrate instantaneously. The substantive focus is on the firm as a productive entity. Among the sorts of questions we explore are the following: What underlies a firms capabilities? How does individual knowledge aggregate to form collective capabilities? What do these perspectives on firms say about the scope of a firms activities, both horizontally (diversification) and vertically (buy-supply relationships)? We also explore what our understanding of firms says about market dynamics and industry evolution, particularly in the context of technological change. A central property of firms, as with any organization, is the interdependent nature of activity within them. Thus, understanding firms as "systems" is quite important Among the issues we explore in this regard are the following. Organizational "systems" have internal structure, in particular elements of hierarchy and modularity. Even putting aside the question of individual goals and objectives and how they may aggregate, the question of organizational goal is non-trivial. To say that a firms objective is to maximize profits is not terribly operational. How does such an overarching objective get decomposed to link to the actual operating activities of individual subunits, including individuals themselves. This issue of goals has links to some interesting recent work that links the valuation process of financial markets to firm behavior. Financial markets are not only a reflection of firm value, but may guide firms initiatives in systematic ways.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

MGMT 918 Personnel Economics A
This is a half-semester PhD course in the Management Department that is also open to any current PhD students at Wharton. The canonical model in economics views an agent as a fully rational, atomistic individual making optimal choices under scarcity. This approach has been very powerful theoretically and empirically to explain and to predict behavior in the workplace. This model has also been enriched to accommodate other phenomena arguably affecting behavior in the workplace like the social context (e.g. peer effects, altruism, or social comparison), non-standard time preferences, loss aversion, and cognitive costs. Incorporating these ideas into the standard model can be accomplished in various ways but the real stress test for these theories is whether they predict behavior more generally (i.e. we don't just use theory to explain one choice but choices more generally) and to generate empirical predictions that can be tested using experiments. In this mini-course we start-off with a tour de force of the fundamental principal-agent model and the various behavioral extensions. The core of the course is, however, not theoretical but a practical course on how to design field experiments to test these ideas.
Activity: Seminar
0.5 Course Units
MGMT 919 Personnel Economics B
This is a half-semester PhD course in the Management Department that is also open to any current PhD students at Wharton. It is a continuation and builds on MGMT 918 - please see the course description for MGMT 918. As in MGMT 918 we expand on the canonical model in economics and introduce views from behavioral economics and introduce views from behavioral economics to derive novel theories with empirically testable implications on workplace behavior and individual performance in labor markets and health. In this mini-course the focus is on continuing our review of the literature but the primary aim is to work towards a project description and paper that can be developed into a PhD chapter or journal article.
Activity: Seminar
0.5 Course Units

MGMT 920 Seminar in Human Resources Research
This class is designed to give students an overview of the fundamental topics and arguments in the area of employment, how different social science paradigms consider employment topics, and some the new and emerging approaches to this topic.
Activity: Seminar
0.5 Course Units

MGMT 925 Seminar in Corporate Strategy
This course explores current research on corporate strategy. Over the past two decades, research in the area of corporate strategy has evolved considerably. The fundamental focus of the field has been on sources of competitive advantage at the of the firm, and the process of building and maintaining competitive advantage. In this class, we explore current research articles that best represent the development of rent-generating resources at the level of the firm. Topics addressed include the concept of strategy, research on the evolution of firm capabilities, competitive interaction, top management teams and strategy formation, and changes in firm scope through acquisitions, divestitures and alliances.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units

MGMT 926 Corporate Transactions & Strategy
This course explores current research on firm boundaries and scope. Issues of firm boundaries and scope have received much attention in the strategic management field over the past twenty years. Theoretical frameworks explaining firm boundaries have been proposed, and empirical research on key success factors within particular boundary choices has flourished. Firm scope is one of the long-standing domains of research in strategic management that is still drawing substantial attention. While certain core perspectives have academic and empirical support, there is much debate and many new research questions to examine, particularly in a global context. In this class, we explore current research articles that best represent the research. Topics addressed include corporate diversification, choices between modes of market entry, key success factors in acquisitions and alliances, and impact of diversification on innovation.
Activity: Seminar
0.5 Course Units

MGMT 932 Proseminar in Management
Innovation is currently a hot topic. The popular stereotype holds that firms that are not innovating, or that are not at least saying that they are innovating, are backward at best and at risk of extinction at worst. Behind the hype is more than half a century of theory and research on organizational and managerial innovation, and the seminar will focus on this domain. A useful overview of the domain is available in Fariborz Damanpour “Organizational Innovation” in Oxford Research Encyclopedia on Business and Management Oxford University Press 2018. We will examine a number of theoretical and empirical approaches to understanding the phenomenon that have emerged during this period and identify key questions explored, principal contributions to the literature, and remaining questions and areas for future research. At the same time, we will embark on a journey in the sociology of knowledge, to encourage you to understand how the evolution of these approaches is linked to changes in the larger world.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Topics for pro-seminars vary. Please contact the instructor as course content may vary.

MGMT 933 Psychological and Sociological Foundations of Research in Management
This course, is required of all first-year doctoral students in Management and open to other Penn students with permission, provides an introduction to the psychological and sociological roots of management theory and research. The course is predicated on the belief that to be effective as a contemporary management scholar one needs a background in “the classics.” Therefore, we will be reading classics from the fields of psychology and sociology in their original form during this semester.
Course usually offered in fall term
Activity: Seminar
0.5 Course Units

MGMT 935 Network Theory and Applications
This course explores network models and their applications to organizational phenomena. By examining the structure of relations among actors, network approaches seek to explain variations in beliefs, behaviors, and outcomes. The beauty of network analysis is its underlying mathematical nature - network ideas and measures, in some cases, apply equally well at micro and macro levels of analysis. Therefore, we read and discuss articles both at the micro level (where the network actors are individuals within organizations) and at the macro level (where the network actors are organizations within larger communities) that utilize antecedents or consequences of network constructs such as small worlds, cohesion, structural equivalence, centrality, and autonomy. We begin by examining the classic problem of contagion of information and behaviors across networks, and follow by considering the various underlying models of network structure that might underlie contagion and other processes. The next two sessions address a variety of mechanisms by which an actor's position in a network affects its behavior or performance. Then, the following two sessions address antecedents of network ties via the topics of network evolution and network activation. We close with a “grab bag” session of articles chosen to match class interests.
Activity: Seminar
0.5 Course Units
MGMT 937 Entrepreneurship Research Seminar
The seminar seeks to expose students to theoretical and empirical perspectives on entrepreneurship research. We will focus on the main questions that define the field and attempt to critically examine how, using a range of methodologies, researchers have approached these questions. As we review the literature, we will seek to identify promising research areas, which may be of interest to you in the context of your dissertation research. In addition to addressing the content of the received literature, we will examine the process of crafting research papers and getting them published in top tier journals. Towards that end we will characterize the key elements of high impact papers and review the development process of such studies. Students are expected to come fully prepared to discuss and critique the readings that are assigned to each class meeting (see details below). Each student will serve as the discussion leader for one or more of the class sessions. Discussion leaders are expected to critically review several articles, identify new insights in the research that is being reviewed and evaluate its contribution to the literature, position the articles within the literature on the subject matter, raise discussion question, and act as the discussion moderator for the class session. Each discussion leader is asked to prepare a one or two page summary of the assigned papers which includes a statement of the main research question(s), the methodology, data set if any, summary of findings, a commentary with your thoughts on the reading, and proposed discussion questions. Prior to each class, the discussion leader will meet the instructor to help plan the class meeting. Towards the end of each class meeting, each student will be asked to articulate a research question that emerged from the session and describe the research design used to investigate the issue.
Activity: Seminar
0.5 Course Units

MGMT 938 Family Business Research Seminar
Family firms differ in a number of ways from non-family firms. These differences may result in differential behavior by and performance of family firms versus non-family firms. Although family-controlled firms make up the vast majority of businesses around the world, academic research in this space is sparse. This seminar seeks to expose students to theoretical and empirical perspectives on family businesses. Throughout the course, we will focus on the ownership, control, and management issues that set family firms apart. We will focus on the main issues faced by family firms, and attempt to critically examine how, using a range of methodologies, researchers have approached these issues. As we review the literature, we will seek to identify promising research areas, which may be of interest to you in the context of your dissertation research. In addition to addressing the content of the received literature, we will examine the process of crafting research papers and getting them published in top tier journals. Towards that end, we will characterize the key elements of high-impact papers and review the development process of such studies. Students are expected to come fully prepared to discuss and critique the readings that are assigned to each class (see details below). Each class will center on discussing in depth 4-5 papers from the reading list assigned to that class. Before each class, I will let you know which papers to prepare. Each student will serve as the discussion leader for one of more of the class sessions. Discussion leaders are expected to critically review several articles, identify new insights in the research that is being reviewed and evaluate its contribution to the literature, position the articles within the literature on the subject matter, raise discussion questions, and act as the discussion moderator for the class session. Each discussion leader is asked to prepare a one or two page summary of the assigned papers which includes a statement of the main research question(s), the methodology, data set if any, summary of findings, a commentary with your thoughts on the reading, and proposed discussion questions. Prior to each class, the discussion leader will meet the instructor to help plan the class meeting. Towards the end of each class, each student will be asked to articulate a research question that emerged from the session and describe the research design used to investigate the issue.
Activity: Seminar
0.5 Course Units

MGMT 939 Seminar in Entrepreneurial Innovation
This quarter-length class explores topics in entrepreneurial innovation. While innovation management from the perspective of the industry incumbent is a relatively more established literature, our collective knowledge of entrepreneurial innovation is still emerging. This Ph.D. class draws primarily on the smaller literature focused on entrepreneurial innovation while placing the discussion within the context of the larger literature on incumbent innovation management.
Taught by Professor David Hsu
Activity: Seminar
0.5 Course Units

MGMT 951 Seminar in Micro-Organizational Behavior
The purpose of this course is to examine and understand theory and empirical research in the field of micro-organizational behavior. We will study a blend of classic and contemporary literature and examine theoretical propositions of individual and group behavior in organizations as well as discussing and critically evaluating empirical studies based on these theories. Sample topics include the What is Micro-OB?, the person versus situation debate, motivation, job design, group dynamics, leadership and organizational culture and socialization. MGMT 951 is a companion class to MGMT 961, and you can take it in either order.
Activity: Lecture
0.5 Course Units
MGMT 952 Seminar in Macro-Organizational Behavior
Organizations are ubiquitous, and so is organization. This half-semester course explores organization theory (OT) from the 1960s through the end of the 20th century. We will examine the proliferation of organizational theories during this time period (such as contingency theory, resource dependence theory, ecological theory, and institutional theory) and understand how each theory attempts to relate structure and action over varying levels of analysis. We will determine one or two additional schools to add once we discuss your exposure in other management classes to other potential topics such as behavioral decision theory, sense-making and cognition, organizational economics, corporate governance, social networks, and the like.
Activity: Seminar
0.5 Course Units

MGMT 953 Seminar on Research Methods
This is an introductory doctoral seminar on research methods in management. We examine basic issues involved in conducting empirical research for publication in scholarly management journals. We start by discussing the framing of research questions, theory development, the initial choices involved in research design, and basic concerns in empirical testing. We then consider these issues in the context of different modes of empirical research (including experimental, survey, qualitative, archival, and simulation). We discuss readings that address the underlying fundamentals of these modes as well studies that illustrate how management scholars have used them in their work, separately and in combination.
Activity: Seminar
0.5 Course Units

MGMT 955 Seminar in International Management
The goal of the course is to provide you with a foundation in some of the major research areas that underpin the study of Multinational Management. International Business (and the study of MNCs) is an interdisciplinary field. As such, our survey of the seminal articles in the field will span a number of different theoretical and empirical approaches (i.e., economic, managerial, organizational and institutional). Much of our seminar discussions will focus on identifying and developing interesting research questions raised by this interdisciplinary literature, which offers many opportunities for systematic empirical study.
Taught by: Kohut
Activity: Seminar
1 Course Unit

MGMT 956 Multinational Firms Global Economy A
This course builds on the foundational material presented in MGMT 955 with a deeper focus on current research examining institutional influences on multinational management. These include regulatory supports (e.g., laws, regulations, contracts and their enforcement through litigation, arbitration of incentive compatible self-regulation) but also normative (e.g., socially shared expectations of appropriate behavior, and social exchange processes) and cognitive (e.g., creating shared identity to bridge differences in values, beliefs and framing) elements of the institutional environment. We will examine not only strategic responses in the market environment but also influence strategies of multinational and domestic firms that seek to alter the institutional environment in which they operate. We will draw not only upon the international business literature but also related literatures including political economy, law, finance, communications, institutional theory, strategic corporate social responsibility, tourist management, construction management, management of extractive industries, negotiations, social movements and network theory (really!).
Activity: Seminar
0.5 Course Units

MGMT 960 Institutions and Multinational Management
This course builds on the foundational material presented in MGMT 955 with a deeper focus on current research examining institutional influences on multinational management. These include regulatory supports (e.g., laws, regulations, contracts and their enforcement through litigation, arbitration of incentive compatible self-regulation) but also normative (e.g., socially shared expectations of appropriate behavior, and social exchange processes) and cognitive (e.g., creating shared identity to bridge differences in values, beliefs and framing) elements of the institutional environment. We will examine not only strategic responses in the market environment but also influence strategies of multinational and domestic firms that seek to alter the institutional environment in which they operate. We will draw not only upon the international business literature but also related literatures including political economy, law, finance, communications, institutional theory, strategic corporate social responsibility, tourist management, construction management, management of extractive industries, negotiations, social movements and network theory (really!).
Activity: Seminar
0.5 Course Units

MGMT 961 Advanced Topics in Micro-Organizational Behavior
The purpose of this quarter course is to continue to explore key concepts and research programs in the field of micro-organizational behavior that we began to study in MGMT 951. To do so, we will cover a blend of classic and contemporary literature so that we can appreciate the prevailing theories and findings in various areas of micro-organizational behavior. In addition, for each topic we will then try to go beyond the existing literature. We will work to increase our understanding by re-framing the research variables, altering the perspective, bringing in new theory, and comparing levels of analysis. Building on the topics we examined in MGMT 951, we will explore further organizational behavior topics including identity, fit, extra role behaviors, job design, creativity, status, power and influence.
Activity: Seminar
0.5 Course Units

MGMT 962 Multinational Firms Global Economy A
This is a graduate course focusing on the empirical aspects of multinational firms and international trade. We will focus on a variety of issues that are related to the multinational firm, beginning with trends in multinational activity, then moving to both horizontal and vertical theories of the multinational firm. In the first half of the course (MGMT962), the topics will include patterns in the expansion of multinational firms, horizontal and vertical multinationals, the linkages between openness to trade and investment and growth, trade orientation and firm performance, and labor markets and multinational firms. We complete the first half of the course reviewing the evidence on offshoring and multinationals and the implications for the US labor market, as well as new evidence on corporate social responsibility and the multinational firm.
Activity: Seminar
0.5 Course Units

MGMT 957 Emotions in Organizations
This is a one quarter class where we examine and understand basics in emotions theory and its application in organizational behavior. To do so, we will cover a blend of basic psychological theories and organizational behavior literature so that we can appreciate the prevailing theories and findings in various areas of emotions and organizations, and gain a deep understanding of the psychological basis necessary to fully understand organizational behavior research. Specifically, we will examine how affect (consisting of emotions, moods, and affective traits) influences perceptions, cognitions and behavior within organizations. We will critically examine the existing knowledge of emotions in organizational life and identify possible future venues of research. We will begin by examining the nature of emotions in general and then focus on the organizational context, examining specific types of emotions and content areas that have been investigated within organizational behavior research.
Activity: Lecture
0.5 Course Units
MGMT 963 Multinational Firms Global Economy B
This is continuation of Multinational Firms in Global Economies (A). It is a graduate course focusing on the empirical aspects of multinational firms and international trade. We will focus on a variety of issues that are related to the multinational firm, beginning with trends in multinational activity then moving to both horizontal and vertical theories of the multinational firm. In the first half of the course (MGMT962) the topics will include patterns in the expansion of multinational firms, horizontal and vertical multinationals; the linkages between openness to trade and investment and growth; trade orientation and firm performance, and labor markets and multinational firms. We complete the first half of the course reviewing the evidence on offshoring and multinationals and the implications for the US labor market, as well as new evidence on corporate social responsibility and the multinational firm.
Activity: Seminar
0.5 Course Units

MGMT 970 Applied Methods for Management Research
Students taking the course will be introduced to the seminal readings on a given method, have a hands-on discussion regarding their application often using a paper and dataset of the faculty member leading the discussion. The goal of the course is to make participants more informed users and reviewers of a wide variety of methodological approaches to Management research including Ordinary Least Squares, Discrete Choice, Count Models, Panel Data, Dealing with Endogeneity, Survival/failure/event history and event studies, experiments, factor analysis and structural equation modeling, hierarchical linear modeling, networks, comparative qualitative methods, coding of non-quantitative data, unstructured text and big data simulations.
Course usually offered in fall term
Activity: Seminar
1 Course Unit
MANAGEMENT OF ECONOMICS (MGEC)

MGEC 611 Microeconomics for Managers: Foundations
This course establishes the micro-economic foundations for understanding business decision-making. The course will cover consumer theory and market demand under full information, market equilibrium and government intervention, production theory and cost optimization, producing in perfectly competitive and monopoly markets, vertical relations, and game theory, including simultaneous, sequential, and infinitely repeated games. Finally, we will wrap up game theory with an application to auctions. Students are expected to have mastered these materials before enrolling in the second quarter course: Microeconomics for Managers: Advanced Applications.
One-term course offered either term
Activity: Lecture
0.5 Course Units

MGEC 612 Microeconomics for Managers: Advanced Applications
This course will cover the economic foundations of business strategy and decision-making in market environments with other strategic actors and less than full information, as well as advanced pricing strategies. Topics include oligopoly models of market competition, creation, and protection, sophisticated pricing strategies for consumers with different valuations or consumers who buy multiple units (e.g. price discrimination, bundling, two-part tariffs), strategies for managing risk and making decisions under uncertainty, asymmetric information and its consequences for markets, and finally moral hazard and principle-agent theory with application to incentive contacts.
Taught by: Staff.
One-term course offered either term
Activity: Lecture
0.5 Course Units
MARKETING (MKTG)

MKTG 101 Introduction to Marketing
The objective of this course is to introduce students to the concepts, analyses, and activities that comprise marketing management, and to provide practice in assessing and solving marketing problems. The course is also a foundation for advanced electives in Marketing as well as other business/social disciplines. Topics include marketing strategy, customer behavior, segmentation, market research, product management, pricing, promotion, sales force management and competitive analysis.
Taught by: Niedermeier
One-term course offered either term
Activity: Recitation
1 Course Unit
Notes: For fall and spring semesters, you must be registered for one of the 20 recitation sections (MKTG101201 through MKTG101220) AND a lecture section (MKTG101001 or MKTG101002). Failure to sign up for both a recitation and a lecture will result in you being dropped from the course. PLEASE NOTE: Recitation Section MKTG101220 is reserved only for Joseph Wharton Scholars.

MKTG 211 Consumer Behavior
This course is concerned with how and why people behave as consumers. Its goals are to: (1) provide conceptual understanding of consumer behavior, (2) provide experience in the application of buyer behavior concepts to marketing management decisions and social policy decision-making; and (3) to develop analytical capability in using behavioral research.
Taught by: Melamud, Sharif, Riis
One-term course offered either term
Prerequisite: MKTG 101
Activity: Lecture
1 Course Unit

MKTG 212 Data and Analysis for Marketing Decisions
Firms have access to detailed data of customers and past marketing actions. Such data may include in-store and online customer transactions, customer surveys as well as prices and advertising. Using real-world applications from various industries, the goal of the course is to familiarize students with several types of managerial problems as well as data sources and techniques, commonly employed in making effective marketing decisions. The course would involve formulating critical managerial problems, developing relevant hypotheses, analyzing data and, most importantly, drawing inferences and telling convincing narratives, with a view of yielding actionable results.
Taught by: Eliashberg, Nave
One-term course offered either term
Prerequisites: MKTG 101, and STAT 101 or equivalent. CNPS minors may take STAT 111 or STAT 430 instead of STAT 101.
Activity: Lecture
1 Course Unit
Notes: (Former course title Marketing Research.)

MKTG 221 New Product Management
Examination of the marketing aspects of products or services exclusive of their promotion, pricing or distribution. Focuses on decisions regarding product introduction, positioning, improvements, and deletion, and the tools available for making these decisions.
One-term course offered either term
Prerequisites: MKTG 101; NOTE: Students may not take this course and MKTG 262 for credit.
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Check meeting dates. Students must register for this course before the end of the Course Selection period (September for Fall, January for Spring) for sections offered in the SECOND half of the term.

MKTG 224 Advertising Management
Immersion in the advertising development process and examination of the practice of advertising. Focuses on decisions regarding advertising objectives, copy selection, budget setting and media selection.
One-term course offered either term
Prerequisites: MKTG 101 or permission of instructor; NOTE: Students may not take this course and MKTG 265 (formerly MKTG 235) for credit.
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Check meeting dates. Students must register for this course before the end of the Course Selection period (September for Fall, January for Spring) for sections offered in the SECOND half of the term.

MKTG 225 Principles of Retailing
This course explores the domain of retailing: marketing to the final consumer. Emphasis is placed on marketing aspects of retailing not covered in other courses: retail strategy, merchandising, vendor relations and location.
Course usually offered in spring term
Prerequisite: MKTG 101
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Check meeting dates. Students must register for this course before the end of the Course Selection period (September for Fall, January for Spring) for sections offered in the SECOND half of the term.
MKTG 227 Digital Marketing and Electronic Commerce
The effect of the Internet and related technologies on business and social institutions is more profound than that of any prior invention, including the printing press and the internal combustion engine. Furthermore, marketing is critical to the success of firms that will shape the consumption-led economies that are fueled by these technologies. MKTG 227 provides a research-based and framework-driven approach to succeeding in this environment, through a rigorous approach to understanding digital marketing and electronic commerce. The course is organized into two sections and utilizes relevant theory, empirical analysis, and practical examples, to develop the key learning points. Guest speakers will participate as well, as appropriate.
Taught by: Bell, Goldstein
One-term course offered either term
Prerequisite: MKTG 101
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Check meeting dates. Students should register for this course before the end of the Course Selection period (September for Fall, January for Spring) for sections offered in the SECOND half of the term. Students may not take both MKTG 227 and the full semester version of this course, MKTG 270 (formerly MKTG 230x) for credit.

MKTG 234 Idea Generation & the Systematic Approach for Creativity
The ability to solve problems creatively and generate change is a recognized standard of success and plays an important role in gaining a competitive advantage in many areas of business management. This course is designed to teach students several creative problem solving methodologies that complement other managerial tools acquired in undergraduate and graduate studies. The course offers students the opportunity to learn how to solve problems, identify opportunities, and generate those elusive ideas that potentially generate enormous benefits to organizations. The objectives of this course are to enhance the students’ (a) creativity, (b) ability to innovate and (c) ability to identify, recruit, develop, manage, retain, and collaborate with creative people. The course includes: 1. A review of the literature on creativity, creative people, innovation, and design as well as the leadership and management of creative people and innovation. 2. Hands on learning of approaches for generating creative ideas. Students will have the opportunity of implementing the techniques studied in class. 3. Applications of creativity to selected management domains - Approaches to the generation of creative options are not limited to the development of products and services or businesses, but can be applied to all areas of management, business, and life. The purpose of these sessions is to explore the applications of creative approaches to marketing, advertising, organizational design, negotiations, and other management challenges. 4. Integration - Both via individual assignments and a group project in which interdisciplinary teams of students generate a creative product/service/customer.
Taught by: Rom Schrift
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: Students may not take both MKTG 292 and MKTG 234 for credit. Students should check the course start date as this mini course may be held during the first or second half of the semester.

MKTG 237 Introduction to Brain Science for Business
Brain science offers the potential to unlock the future of business, by providing new insights that can enhance decision-making, improve precision in design and marketing, build team chemistry and cultivate leadership, fine-tune selection and human performance, drive creativity and innovation, create social value, and optimize digital interaction. New developments in biometrics, implantable and wearable devices, genomics, proteomics, metabolomics, nutrition, and the human microbiome, offer the opportunity for enhanced precision and impact in marketing, finance, management, analytics, and education. This course will provide an overview of contemporary brain science and its applications to business. Students first will be introduced to the basic anatomy and physiology of the brain and become familiar with important techniques for measuring and manipulating brain function. The course will then survey major findings in neuroscience with applications to business, including selective attention and advertising; valuation and marketing; decision making; learning, innovation and creativity; and social influence, team-building, and leadership. The course will end with a discussion of ethics, brain-machine interactions, and artificial intelligence. Applications to business, education, sports, law, and policy will be discussed throughout.
Taught by: Platt
Course usually offered in spring term
Prerequisite: None
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Students may not take both MKTG 351 (Special Topics version) and MKTG 237x for credit. Check meeting dates. Students must register for this course before the end of the Course Selection period (September for fall, January for spring). The same deadline applies to all sections whether they are offered in the FIRST half and or SECOND half of the semester.

MKTG 241 Entrepreneurial Marketing
This course focuses on the real life marketing challenges involved in launching an entrepreneurial venture. The primary goal of the course will be to provide a roadmap for students seeking to actively engage as entrepreneurs, investors or managers in the startup culture. Many of the entrepreneurial marketing principles studied in this course will be equally applicable to mid-size and larger companies seeking new approaches to drive top-line growth. The course will address how start-ups, early growth stage and more mature companies have used entrepreneurial marketing as an essential competitive weapon to grow their businesses by gaining customers, driving revenue, acquiring funding and recruiting A-level employees, advisors and directors. Students will form teams and select an idea/concept for an entrepreneurial venture, and by the conclusion of the course will have developed a fully fleshed out and testable marketing plan. Preferably, the selected venture will be one that one or more members of the team would consider implementing, should their plan prove feasible.
Taught by: Lodish, Lautman
Course usually offered in fall term
Prerequisites: MKTG 101; MKTG 212 (can take concurrently); students are discouraged from taking this course and MKTG 221 without the permission of the marketing undergraduate faculty advisor.
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Check meeting dates. Students must register for this course before the end of the Course Selection period (September for Fall, January for Spring) for sections offered in the SECOND half of the term.
MKTG 242 Multinational Marketing
Global marketing is an extremely demanding discipline but, from a career standpoint, one which is both challenging and rewarding. Inherent to the success of any global marketing professional, yet many times overlooked and/or underappreciated, is the critical nature of human understanding and relationships in business planning and execution. This is especially relevant in today’s business environment when you consider the dual multinational company imperative of continued revenue and profit growth in mature markets and successfully expanding into new growth and emerging markets. This course assumes an understanding of marketing principles and some exposure to and appreciation of the global environment. The objective of the course is to provide an understanding of how the global environment (particularly cultural diversity) affects the application of marketing principles and business practice on a global basis and the competencies necessary to be a successful global manager.
One-term course offered either term
Prerequisite: MKTG 101
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term (Former MKTG 282)

MKTG 254 Pricing Policy
The pricing decision process including economic, marketing, and behavioral phenomena which constitute the environment for pricing decisions and the information and analytic tools useful to the decision maker.
One-term course offered either term
Prerequisites: MKTG 101 and sophomore standing.
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Students can not take both MKTG 254 and the full semester version of this course, MKTG 288, for credit. Check meeting dates. Students must register for this course before the end of the Course Selection period (September for fall, January for spring) for sections offered in the second half of the term.

MKTG 250 Law of Marketing and Antitrust
See Legal Studies, LGST 205
Prerequisite: MKTG 101
Activity: Lecture
1 Course Unit
Notes: (Former MKTG 236)

MKTG 252 New Product Development
In this hands-on experiential course, students will partner with a local start-up to apply design thinking steps taught throughout the course. Students will learn how to uncover deep consumer needs, effectively ideate, and create rapid prototypes to test their ideas with real customers. This class is well suited for those interested in careers in innovation or management consulting, marketing, product management, technology, or entrepreneurship. No prior experience or requirements are needed for this course.
Course not offered every year
Prerequisite: MKTG 101 recommended but not required
Activity: Lecture
1 Course Unit
Notes: NOTE: Students may not take both MKTG 262 and MKTG 221 for credit

MKTG 265 Principles of Advertising
This course focuses on advertising via all media - print, digital, video, TV, Internet, etc. Emphasis is placed on understanding the communication development process and consumer behavior (psychology), the measurement and evaluation of advertising effects, and developing appropriate media plans.
One-term course offered either term
Prerequisites: MKTG 101
Activity: Lecture
1 Course Unit
Notes: Students should not take both MKTG 265 (full semester version) and MKTG 224 (mini course version), since credit will not be given for both courses.

MKTG 266 Marketing for Social Impact
Private and public sector firms increasingly use marketing strategies to engage their customers and stakeholders around social impact. To do so, managers need to understand how best to engage and influence customers to behave in ways that have positive social effects. This course focuses on the strategies for changing the behavior of a target segment of consumers on key issues in the public interest (e.g., health behaviors, energy efficiency, poverty reduction, fundraising for social causes). How managers partner with organizations (e.g., non-profits, government) to achieve social impact will also be explored.
Taught by: Deborah Small
Course usually offered in fall term
Prerequisite: MKTG 101 or instructor permission
Activity: Lecture
1 Course Unit
Notes: Students may not take both MKTG 266 and MKTG 233 for credit.

MKTG 267 Digital Marketing, Social Media and E-Commerce
MKTG 270 explores the digital marketing environment from both a consumer and business perspective. The course provides an overview of various online business models and delves into digital advertising and social media marketing techniques and technologies. A mixture of case studies, guest speakers and assignments, including one that uses real advertising data, translates theory into practice. It is recommended that students enrolling in the course be comfortable using Excel and are knowledgeable in applying regression analysis techniques. Students who would prefer a less technical course may wish to take MKTG 227, Digital Marketing and Electronic Commerce, a half cu course offered by the department.
Taught by: Bell
One-term course offered either term
Prerequisite: MKTG 101
Activity: Lecture
1 Course Unit
Notes: Students may not take both MKTG 270 and the half semester version of this course, MKTG 227 for credit. This course replaces experimental course MKTG 230x.
**MKTG 271 Models for Marketing Strategy**

In today’s business environment, marketing executives are involved in complex decision-making and they become responsible for return on their marketing investments. The first objective of this course is to help participants become better executives. By exposing students to various analytical and computer-based tools, developed for solving marketing problems, it will help to prepare them for careers in industries such as consumer packaged goods, hi-tech, financial services, media and entertainment, pharmaceutical, consulting, and venture capital.

The course’s main focus is on various existing models, such as models that predict the consumer’s dynamic adoption of an innovative product. However, at some point in their career, students may find themselves facing business problems for which a model can assist in making decisions, but no existing model is available. Hence, the second objective of the course is to provide participants with critical skills necessary to evaluate new models to which they may be exposed by attending presentations or reading the literature. The models to be discussed in the class have been implemented and proven useful in a wide range of industries (e.g., business-to-consumers and business-to-business).

Taught by: Eliashberg

Course usually offered in fall term
Prerequisites: MKTG 101, STAT 101 and some tolerance for expressing critical ideas in simple math
Activity: Lecture
1 Course Unit

**MKTG 277 Marketing Strategy**

This course views marketing as both a general management responsibility and an orientation of an organization that helps one to create, capture and sustain customer value. The focus is on the business unit and its network of channels, customer relationships, and alliances. Specifically, the course attempts to help develop knowledge and skills in the application of advanced marketing frameworks, concepts, and methods for making strategic choices at the business level.

Taught by: Robertson, Yildirim

Course usually offered in fall term
Prerequisites: MKTG 101 or permission from instructor.
Activity: Lecture
1 Course Unit
Notes: Lectures, discussions, cases

**MKTG 278 Strategic Brand Management**

Which brands make you happy? Apple? Amazon? Starbucks? Everlane? Soulcycle? Sweetgreen? What draws you into these brands? How do companies create compelling brand experiences? How could you cultivate a well-loved brand? This course explores such questions with the goal of identifying the ingredients for building an inspired brand.

The course is created for students interested in building a brand and/or immersing themselves in the enhancement of an existing brand, and it is comprised of lectures, cases, guest speakers, discussions, in and out of class exercises, and a final project. Broadly, the course will be divided into four parts: 1) Understanding Brand, 2) Crafting Brand, 3) Measuring Brand, and 4) Managing Brand. The course will provide students with an appreciation of the role of branding and (taking a consumer-centric approach) will augment students’ ability to think creatively and critically about the strategies and tactics involved in building, leveraging, defending, and sustaining inspired brands.

Taught by: Williams

Course usually offered in spring term
Prerequisite: MKTG 101
Activity: Lecture
1 Course Unit

**MKTG 288 Pricing Strategies**

This course is designed to equip students with the concepts, techniques, and latest thinking on pricing issues, with an emphasis on ways in which to help a firm improve its pricing. The orientation of the course is about practice of pricing, not theory. We will focus on how firms can improve profitability through pricing, look at how firms set their prices and how to improve current practices to increase profitability. The first part of the course focuses on how to analyze costs, customers, and competitors in order to formulate proactive pricing strategies. The second part focuses on price promotions, price bundling, price discrimination, versioning, nonlinear pricing, pricing through a distribution channel, dynamic pricing, etc.

Taught by: Zhang

Course usually offered in spring term
Prerequisite: MKTG 101
Activity: Lecture
1 Course Unit
Notes: Students may not take both MKTG 288 and MKTG 254 for credit.

**MKTG 292 Creativity**

The ability to solve problems creatively and generate change is a recognized standard of success and plays an important role in gaining a competitive advantage in many areas of business management. This course is designed to teach students several creative problem solving methodologies that complement other managerial tools acquired in undergraduate and graduate studies. The course offers students the opportunity to learn how to solve problems, identify opportunities, and generate those elusive ideas that potentially generate enormous benefits to organizations. The objectives of this course are to enhance the student’s (a) creativity (b) ability to innovate and (c) ability to identify, recruit, develop, manage, retain, and collaborate with creative people.

The course includes: interaction with guest lecturers; a review of the literature on creativity, creative people, innovation, and design as well as the leadership and management of creative people and innovation; hands on learning of approaches for generating creative ideas; applications of creativity to selected management domains; and integration via individual assignments and a group project in which interdisciplinary teams of students generate a creative product, service, customer experience, business or strategy.

Taught by: Schrift

Course usually offered in fall term
Prerequisite: MKTG101
Activity: Lecture 101
1 Course Unit
Notes: Format: Lecture, class discussion, guest speakers.
MKTG 306 Special Topics: Retail Merchandising
RETAIL MERCHANDISING: This course introduces the role of merchandising at various retailers with an emphasis on apparel and soft-line businesses. Selected topics will include product development, line planning, sourcing, product lifecycle, forecasting, buying, planning and vendor relations. Special emphasis will be placed on current trends in retail merchandising through current articles and industry guest speakers. The objective of this course is to familiarize students with merchandising theory and strategies considered to be current best practices in retailing.
Course usually offered in fall term
Prerequisite: MKTG 101 or MKTG 225
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u., One-half term. Check meeting dates. Students must register for this course before the end of the Course Selection period (September for Fall, January for Spring) for sections offered in the SECOND half of the term.

MKTG 309 Special Topics: Experiments for Business Decision Making
EXPERIMENTS FOR BUSINESS DECISION MAKING: In the past decade, massive shifts in how companies interact with their customers have suddenly made field experiments an economically feasible way to learn about a variety of business questions such as what types of promotions are most effective, what products should be stocked at a store, how e-mail promotions should be designed, how sales staff should be compensated, etc. Many marketers engaged in online retailing, direct-marketing, online advertising, media management, etc. are rapidly embracing a "test and learn" philosophy and a number of platforms such as Google Website Optimizer, have been developed to facilitate rigorous field experiments in the online environment. Just as with the quality revolution in manufacturing during the 1980s and 1990s, the rapid rise of the "test and learn" philosophy in marketing has created a huge demand for those who can design, field, and analyze marketing experiments. Through this course, you will learn and practice a wide range of critical skills, from the statistical methods used to design and analyze experiments to the management and strategy required to execute an experiment and act on the results. Although the cases and examples will focus on marketing problems, the material covered can be applied in a number of other domains particularly operations management and product design.
Course offered fall; even-numbered years
Prerequisites: MKTG 101 or faculty permission is required; STAT 101, STAT 431, or equivalent is recommended.
Activity: Lecture
1 Course Unit
Notes: (Former MKTG 269)

MKTG 350 Special Topics - Consumer Neuroscience
CONSUMER NEUROSCIENCE: How can studying the brain improve our understanding of consumer behavior? While neuroscience made tremendous strides throughout the 20th century, rarely were meaningful applications developed outside of medicine. Recently, however, breakthroughs in measurement and computation have accelerated brain science and created a dizzying array of opportunities in business and technology. Currently, applications to marketing research and product development are experiencing explosive growth that has been met with both excitement and skepticism. This mini-course provides an overview of the neuroscience behind and the potential for these developments. Topics will range from well-known and widely used applications, such as eye-tracking measures in the lab and field, to emerging methods and measures, such as mobile technologies, face-reading algorithms, and neural predictors of marketing response. The course will also discuss applications in branding and product development, including wearable physiological devices and apps, sensory branding for foods and fragrances, pharmaceuticals and medical devices, and neuroscience-based products designed to enhance cognitive functions. These applications stem from many subfields of cognitive neuroscience, including attention, emotion, memory, and decision making. This course is self-contained and has no prerequisites. However, students with some background in business, economics, psychology, and/or neuroscience are likely to find the material covered in this course complementary to their existing knowledge.
Taught by: John Clithero
Course usually offered in spring term
Prerequisites: None.
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Check meeting dates. Students should register for this course before the end of the Course Selection period (September for fall, January for spring) for sections offered in the SECOND half of the term.

MKTG 351 Special Topics: Introduction to Brain Science for Business
INTRODUCTION TO BRAIN SCIENCE FOR BUSINESS: Brain science offers the potential to unlock the future of business, by providing new insights that can enhance decision-making, improve precision in design and marketing team chemistry and cultivate leadership, fine-tune selection and human performance, drive creativity and innovation, create social value, and optimize digital interactions. New developments in biometrics, implantable and wearable devices, genomics, proteomics, metabolomics, nutrition, and human microbiome, offer the opportunity for enhanced precision and impact in marketing, finance, management, analytics, and education. This course will provide an overview of contemporary brain science and its applications to business. Students first will be introduced to the basic anatomy and physiology of the brain and become familiar with important techniques for measuring and manipulating brain function. The course will then survey major findings in neuroscience with applications to business, including selective attention and advertising; valuation and marketing; decision making; learning, innovation and creativity; and social influence, team-building, and leadership. The course will end with a discussion of ethics, brain-machine interactions, and artificial intelligence. Applications to business, education, sports, law and policy will be discussed throughout.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. This course has been replaced by MKTG 237x.
**MKTG 352 Special Topics - Marketing Analytics**

**Marketing Analytics**: Companies are currently spending millions of dollars on data-gathering initiatives - but few are successfully capitalizing on all this data to generate revenue and increase profit. Moving from collecting data to analysis to profitable results requires the ability to forecast and develop a business rationale based on identified data patterns. Marketing Analytics will cover the three pillars of analytics - descriptive, predictive and prescriptive. Descriptive Analytics examines different types of data and how they can be visualized, ultimately helping you leverage your findings and strengthen your decision making. Predictive Analytics explores the potential uses of data once collected and interpreted. You will learn to utilize different tools, such as regression analysis, and estimate relationships among variables to predict future behavior. Prescriptive Analytics takes you through the final step - formulating concrete recommendations. These recommendations can be directed toward a variety of efforts including pricing and social-platform outreach.

Taught by: Iyengar
Course usually offered in fall term
Prerequisites: MKTG 101, and STAT 101 or equivalent
Activity: Lecture
0.5 Course Units
Notes: 0.5 cu credit course. Check course start date. You must register for sections that meet in the second half of the semester by the course selection deadline in September.

**MKTG 353 Special Topics**

Course usually offered in spring term
Prerequisite: MKTG101
Activity: Lecture
0.5 Course Units

**MKTG 354 Special Topics: Visual Marketing**

**Visual Marketing**: As consumers, we are constantly exposed to advertisements and experience visual messages from product packages in stores, retail displays, and products already owned. In essence, visual marketing collateral is omnipresent and is an essential part of corporate visual identity, strategy, and communication. Some of this falls to creative graphic design, but advertising, design, and marketing can also be significantly enhanced by knowledge of how visual information and its presentation context can be optimized to deliver desirable and advantageous messages and experiences. This course will emphasize how to measure, interpret, and optimize visual marketing, and will provide an overview of visual perception and visual cognition, eye movements, and attention, and their role and influence on consumer memory, persuasion, choice, and other behaviors.

Taught by: Johnson
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. In-class exercises, team-based learning, discussions, and lectures. Check meeting dates.

**MKTG 399 Independent Study**

One-term course offered either term
Prerequisites: MKTG 212 and written permission of instructor and the department undergraduate advisor
Activity: Independent Study
1 Course Unit
Notes: Content arranged by project supervisor, 1.0 c.u

**MKTG 401 Marketing Analytics Capstone: Learning by Doing**

In this class students will (1) Apply knowledge to practice for an actual client, with a focus on the synthesis of knowledge acquired across curriculum (2) Practice analytical thinking skills (analyzing and framing business problems and problem-solving techniques), including consideration of ethical issues. (3) Practice written and oral communication skills, as well as working in an (assigned) team environment, by leveraging the experience developed in earlier years of the leadership Journey. (4) Reflect on their own social and intellectual development over their time at Wharton and Penn.

Taught by: Iyengar
Course usually offered in spring term
Prerequisites: Permission from the Instructor is required. Senior Standing is required.
Activity: Lecture
0.5 Course Units
Notes: MKTG401x fulfills the Wharton Senior capstone requirement. Students should have proficient knowledge of R/Python and SQL. Online courses are available through WCAI (Wharton Customer Analytics Initiative) if needed.

**MKTG 476 Applied Probability Models for Marketing**

This course will expose students to the theoretical and empirical "building blocks" that will allow them to construct, estimate, and interpret powerful models of consumer behavior. Over the years, researchers and practitioners have used these models for a wide variety of applications, such as new product sales, forecasting, analyses of media usage, and targeted marketing programs. Other disciplines have seen equally broad utilization of these techniques. The course will be entirely lecture-based with a strong emphasis on real-time problem solving. Most sessions will feature sophisticated numerical investigations using Microsoft Excel. Much of the material is highly technical.

Taught by: Fader
Course usually offered in spring term
Prerequisites: A high comfort level with basic integral calculus and recent exposure to a formal course in probability and statistics such as STAT 430 is strongly recommended.
Activity: Lecture
1 Course Unit

**MKTG 611 Marketing Management**

This course addresses how to design and implement the best combination of marketing efforts to carry out a firm's strategy in its target markets. Specifically, this course seeks to develop the student's (1) understanding of how the firm can benefit by creating and delivering value to its customers, and stakeholders, and (2) skills in applying the analytical concepts and tools of marketing to such decisions as segmentation and targeting, branding, pricing, distribution, and promotion. The course uses lectures and case discussions, case write-ups, student presentations, and a comprehensive final examination to achieve these objectives.

Taught by: Kahn, Berger, Meyer, Riis
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: One half term. 0.5 cu
MKTG 612 Dynamic Marketing Strategy
Building upon Marketing 611, the goal of this course is to develop skills in formulating and implementing marketing strategies for brands and businesses. The course will focus on issues such as the selection of which businesses and segments to compete in, how to allocate resources across businesses, segments, and elements of the marketing mix, as well as other significant strategic issues facing today's managers in a dynamic competitive environment. A central theme of the course is that the answer to these strategic problems varies over time depending on the stage of the product life cycle at which marketing decisions are being made. As such, the PLC serves as the central organizing vehicle of the course. We will explore such issues as how to design optimal strategies for the launch of new products and services that arise during the introductory phase, how to maximize the acceleration of revenue during the growth phase, how to sustain and extend profitability during the mature phase, and how to manage a business during the inevitable decline phase.
Taught by: Van den Bulte, Bradlow
One-term course offered either term
Prerequisite: MKTG 611
Activity: Lecture
0.5 Course Units
Notes: One half term. 0.5 cu

MKTG 613 Strategic Marketing Simulation
Building upon Marketing 611, Marketing 613 is an intensive immersion course designed to develop skills in formulating and implementing marketing strategies for brands and businesses. The central activity will be participation in a realistic integrative product management simulation named SABRE. In SABRE, students will form management teams that oversee all critical aspects of modern product management: the design and marketing of new products, advertising budgeting and design, sales force sizing and allocation, and production planning. As in the real world, teams will compete for profitability, and the success that each team has in achieving this goal will be a major driver of the class assessment. The SABRE simulation is used to convey the two foci of learning in the course: the changing nature of strategic problems and their optimal solutions as industries progress through the product life cycle, and exposure to the latest analytic tools for solving these problems. Specifically, SABRE management teams will receive training in both how to make optimal use of marketing research information to reduce uncertainty in product design and positioning, as well as decision support models to guide resource allocation.
Taught by: Reibstein
Course usually offered in spring term
Prerequisite: MKTG 611
Activity: Lecture
0.5 Course Units
Notes: 0.5 cu

MKTG 711 Consumer Behavior
Marketing begins and ends with the customer, from determining customers' needs and wants to providing customer satisfaction and maintaining customer relationships. This course examines the basic concepts and principles in customer behavior with the goal of understanding how these ideas can be used in marketing decision making. The class will consist of a mix of lectures, discussions, cases, assignments, project work and exams. Topics covered include customer psychological processes (e.g., motivation, perception, attitudes, decision-making) and their impact on marketing (e.g., segmentation, branding, and customer satisfaction). The goal is to provide you with a set of approaches and concepts to consider when faced with a decision involving understanding customer responses to marketing actions.
Taught by: Reed
One-term course offered either term
Prerequisite: Completion of MKTG 611
Activity: Lecture
1 Course Unit
Notes: Format: Lectures and discussion, case analyses, presentations.

MKTG 712 Data and Analysis for Marketing Decisions
Firms have access to detailed data of customers and past marketing actions. Such data may include in-store and online customer transactions, customer surveys as well as prices and advertising. Using real-world applications from various industries, the goal of the course is to familiarize students with several types of managerial problems as well as data sources and techniques, commonly employed in making effective marketing decisions. The course would involve formulating critical managerial problems, developing relevant hypotheses, analyzing data and, most importantly, drawing inferences and telling convincing narratives, with a view of yielding actionable results.
Taught by: Iyengar, Eliashberg, Nave
One-term course offered either term
Prerequisite: MKTG 611; STAT 613
Activity: Lecture
1 Course Unit
Notes: Format: Lecture, discussion, and cases.

MKTG 721 New Product Management
This course provides a total immersion in the new product development process - from sourcing ideas and innovation, through new product sales forecasting. The focus is on collective learning, what works, what doesn't, and why. While the primary focus is the new product development process within a corporate structure, some coverage is given to key issues surrounding start-ups.
One-term course offered either term
Prerequisite: MKTG 611
Activity: Lecture
0.5 Course Units
Notes: Format: Lectures, cases, simulations, class discussions, and guest speakers.
MKTG 724 Advertising Management
The purpose of this course is to provide students with an opportunity to learn and apply the major frameworks, theories, current research findings, principles and practices of effective advertising management as part of an Integrated Marketing Communications (IMC) program. By the end of this course, students should not only be familiar with a large body of advertising knowledge, but should also be able to apply this information to create and evaluate effective advertising strategies and tactics. The emphasis will be on: 1) understanding the psychology of customer motivation and persuasion; 2) crafting effective and creative messages; 3) making efficient selections and use of media; and 4) understanding metrics, all within the broader Integrated Marketing Communications perspective.
One-term course offered either term
Prerequisites: Completion of MKTG 611; and MKTG 612 or MKTG 613.
(May be taken concurrently with MKTG 612 or 613)
Activity: Lecture
0.5 Course Units
Notes: Format: Case discussions, in-class exercises, lectures, group projects, guest lectures by marketing professionals.

MKTG 725 Principles of Retailing
This course provides an interdisciplinary overview of the retailing industry. Primary focus will be on the customer facing activities of retailers, including assortment planning, private-label development and the management of in-store operations, and the back-door activities (forecasting and supply chain management) that support customer interaction. In addition, current issues facing retailers, such as customer relationship management, industry consolidation and supplier relations, will be explored. The course will also survey topics in finance, operations, information technology and real estate as they relate to retail.
Course usually offered in spring term
Prerequisites: MKTG 611; and MKTG 612 or MKTG 613; or permission of instructor
Activity: Lecture
0.5 Course Units
Notes: Format: Lecture and discussion, case analyses, and guest speakers.

MKTG 727 Digital Marketing and Electronic Commerce
The effect of the Internet and related technologies on business and social institutions is more profound than that of any prior invention, including the printing press and the internal combustion engine. Furthermore, marketing plays a key role in shaping the modern consumption-led economies fueled by these technologies. MKTG 727 provides a research-based and framework-driven approach to understanding digital marketing and electronic commerce. The course is organized into two sections and utilizes relevant theory, empirical analysis, and practical examples, to develop the key learning points. Guest speakers will participate as well, as appropriate.
Taught by: Bell, Goldstein
One-term course offered either term
Prerequisites: Completion of MKTG 611; and MKTG 612 or MKTG 613.
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. Students may not take both MKTG 727 and the full semester version of this course, MKTG 730x or MKTG 770 for credit.

MKTG 733 Marketing for Social Impact
Private and public sector firms increasingly use marketing strategies to engage their customers and stakeholders around social impact. To do so, managers need to understand how best to engage and influence customers to behave in ways that have positive social effects. This course focuses on the strategies for changing the behavior of a target segment of consumers on key issues in the public interest (e.g., health behaviors, energy efficiency, poverty reduction, fund-raising for social causes). How managers partner with organizations (e.g., non-profits, government) to achieve social impact will also be explored.
Taught by: Deborah Small
Course usually offered in fall term
Prerequisite: MKTG 611 or permission of instructor
Activity: Lecture
0.5 Course Units
Notes: Format: Lecture, class discussion, simulations, cases and guest lecturers.

MKTG 734 Idea Generation and the Systematic Approach for Creativity
The ability to solve problems creatively and generate change is a recognized standard of success and plays an important role in gaining a competitive advantage in many areas of business management. This course is designed to teach students several creative problem solving methodologies that complement other managerial tools acquired in undergraduate and graduate studies. The course offers students the opportunity to learn how to solve problems, identify opportunities, and generate those elusive ideas that potentially generate enormous benefits to organizations. The objectives of this course are to enhance the students’ (a) creativity, (b) ability to innovate and (c) ability to identify, recruit, develop, manage, retain, and collaborate with creative people.
The course includes: 1. A review of the literature on creativity, creative people, innovation, and design as well as the leadership and management of creative people and innovation. 2. Hands on learning of approaches for generating creative ideas. Students will have the opportunity of implementing the techniques studied in class. 3. Applications of creativity to selected management domains - Approaches to the generation of creative options are not limited to the development of products and services or businesses, but can be applied to all areas of management, business, and life. The purpose of these sessions is to explore the applications of creative approaches to marketing, advertising, organizational design, negotiations, and other management challenges.
4. Integration - Both via individual assignments and a group project in which interdisciplinary teams of students generate a creative product/service/customer
Taught by: Rom Schrift
Course usually offered in fall term
Prerequisite: None
Activity: Lecture
0.5 Course Units
Notes: Students may not take both MKTG 792 and MKTG 734 for credit. Students should check the course start date as this mini course may be held during the first or second half of the semester.
MKTG 737 Introduction to Brain Science for Business
Brain science offers the potential to unlock the future of business, by providing new insights that can enhance decision-making, improve precision in design and marketing, build team chemistry and cultivate leadership, fine-tune selection and human performance, drive creativity and innovation, create social value, and optimize digital interaction. New developments in biometrics, implantable and wearable devices, genomics, proteomics, metabolomics, nutrition, and the human microbiome, offer the opportunity for enhanced precision and impact in marketing, finance, management, analytics, and education. This course will provide an overview of contemporary brain science and its applications to business. Students first will be introduced to the basic anatomy and physiology of the brain and become familiar with important techniques for measuring and manipulating brain function. The course will then survey major findings in neuroscience with applications to business, including selective attention and advertising; valuation and marketing; decision making; learning, innovation and creativity; and social influence, team-building, and leadership. The course will end with a discussion of ethics, brain-machine interactions, and artificial intelligence. Applications to business, education, sports, law, and policy will be discussed throughout.
Taught by: Platt
Course usually offered in spring term
Prerequisite: None
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. (Half semester course) Check meeting dates. Students may not take both MKTG 851 (Special Topics version) and MKTG 737x for credit.

MKTG 741 Entrepreneurial Marketing
This course focuses on the real life marketing challenges involved in launching an entrepreneurial venture. The primary goal of the course will be to provide a roadmap for students seeking to actively engage as entrepreneurs, investors or managers in the startup culture. Many of the entrepreneurial marketing principles studied in this course will be equally applicable to mid-size and larger companies seeking new approaches to drive top-line growth. The course will address how start-ups, early growth stage and more mature companies have used entrepreneurial marketing as an essential competitive weapon to grow their businesses by gaining customers, driving revenue, acquiring funding and recruiting A-level employees, advisors and directors. Students will form teams and select an idea/concept for an entrepreneurial venture, and by the conclusion of the course will have developed a fully fleshed out and testable marketing plan. Preferably, the selected venture will be one that one or more members of the team would consider implementing, should their plan prove feasible.
Taught by: Lodish, Lautman
Course usually offered in fall term
Prerequisites: Completion of MKTG 611; and MKTG 612 or MKTG 613; and MKTG 712; (May take MKTG 612 or 613, and MKTG 712 concurrently); Students are discouraged from taking this course and MKTG 721 except with permission of an MBA adviser.
Activity: Lecture
0.5 Course Units
Notes: Format: Guest speakers, lecture, class discussions, team project

MKTG 742 Multinational Marketing
Global marketing is an extremely demanding discipline but, from a career standpoint, one which is both challenging and rewarding. Inherent to the success of any global marketing professional, yet many times overlooked and/or underappreciated, is the critical nature of human understanding and relationships in business planning and execution. This is especially relevant in today's business environment when you consider the dual multinational company imperative of continued revenue and profit growth in mature markets and successfully expanding into new growth and emerging markets. This course assumes an understanding of marketing principles and some exposure to and appreciation of the global environment. The objective of the course is to provide an understanding of how the global environment (particularly cultural diversity) affects the application of marketing principles and business practice on a global basis and the competencies necessary to be a successful global manager.
One-term course offered either term
Prerequisites: Completion of MKTG 611; and MKTG 612 or MKTG 613.
MKTG 612 or 613 may be taken concurrently with MKTG 742.
Activity: Lecture
0.5 Course Units
Notes: Format: Cases, lectures, discussions. (Former MKTG 782)

MKTG 754 Pricing Policy
The course provides a systematic presentation of the factors to be considered when setting price, and shows how pricing alternatives are developed. Analytical methods are developed and new approaches are explored for solving pricing decisions.
Taught by: Raju, Zhang
One-term course offered either term
Prerequisites: Completion of MKTG 611; and MKTG 612 or MKTG 613. (May be taken concurrently with MKTG 612 or 613.) OIDD 612 and STAT 613 are recommended.
Activity: Lecture
0.5 Course Units
Notes: Format: Lecture and discussion

MKTG 760 Law of Marketing and Antitrust
See Legal Studies, LGST 205/805.
Course not offered every year
Activity: Lecture
1 Course Unit
MKTG 768 Contagious: How Products, Ideas and Behaviors Catch On
Why do some products catch on and achieve huge popularity while others fail? Why do some behaviors spread like wildfire while others languish? How do certain ideas seem to stick in memory while others disappear the minute you hear them? More broadly, what factors lead to trends, social contagion, and social epidemics? Interactive media, word of mouth, and viral marketing are important issues for companies, brands, and organizations. This course looks at these and other topics as it examines how products, ideas, and behaviors catch on and become popular. Marketers want their product to be popular, organizations want their social change initiative to catch on and entrepreneurs want their ideas to stick. This course will touch on four main aspects: (1) Characteristics of products, ideas, and behaviors that lead them to be successful. (2) Aspects of individual psychology that influence what things are successful. (3) Interpersonal processes, or how interactions between individuals drive success. (4) Social networks, or how patterns of social ties influence success.
Taught by: Berger
One-term course offered either term
Prerequisites: MKTG 711 and MKTG 712 are recommended but not required.
Activity: Lecture
1 Course Unit
Notes: Lecture, class discussion, cases. (Former MKTG 728)

MKTG 770 Digital Marketing, Social Media and E-Commerce
MKTG 770 explores the digital marketing environment from both a consumer and business perspective. The course provides an overview of various online business models and delves into digital advertising and social media marketing techniques and technologies. A mixture of case studies, guest speakers and assignments, including one that uses real advertising data, translates theory into practice. It is recommended that students enrolling in the course be comfortable using Excel and are knowledgeable in applying regression analysis techniques. Students who would prefer a less technical course may wish to take MKTG 727, Digital Marketing and Electronic Commerce, a half cu course offered by the department.
Taught by: Berman, Bell
One-term course offered either term
Prerequisites: MKTG 611, and one of the following: MKTG 612 or MKTG 613
Activity: Lecture
1 Course Unit
Notes: Students may not take both MKTG 770 and the half semester version of this course, MKTG 727 for credit. This course replaces experimental course MKTG 730x.

MKTG 771 Models for Marketing Strategy
In today's business environment, marketing executives are involved in complex decision-making and they become responsible for return on their marketing investments. The first objective of this course is to help participants become better executives. By exposing students to various analytical and computer-based tools, developed for solving marketing problems, it will help to prepare them for careers in industries such as consumer packaged goods, hi-tech, financial services, media and entertainment, pharmaceutical, consulting, and venture capital. The course's main focus is on various existing models, such as models that predict the consumer's dynamic adoption of an innovative product. However, at some point in their career, students may find themselves facing business problems for which a model can assist in making decisions, but no existing model is available. Hence, the second objective of the course is to provide participants with critical skills necessary to evaluate new models to which they may be exposed by attending presentations or reading the literature. The models to be discussed in the class have been implemented and proven useful in a wide range of industries (e.g., business-to-consumers and business-to-business). The course is not only about models, however. It also covers modeling needs. Some industries such as the media and entertainment or the pharmaceutical industries present unique problems and modeling needs. The third objective of the course is to expose participants to the nature and essence of such idiosyncratic problems as well as modeling needs in such industries. Overall, the course will make participants understand better critical marketing problems by analyzing them rigorously and will enhance their skills in either designing or evaluating models-based strategies.
Taught by: Eliashberg
Course usually offered in fall term
Prerequisites: Completion of: MKTG 611; and MKTG 612 or MKTG 613; basic calculus; exposure to basic statistical analysis, and some tolerance for expressing critical ideas in simple math.
Activity: Lecture
1 Course Unit
Notes: Format: Evaluating marketing models; practicing with computer-based models and software; discussing case studies that describe modeling applications; group presentations of model-based marketing analysis and strategy.
MKTG 775 Managing Customer Value
As the concept of CRM becomes common parlance for every marketing executive, it is useful to take a step back to better understand the various different behaviors that underlie the development of successful CRM systems. These “behaviors” include customer-level decisions, firm actions, and the delicate but complex interplay between the two. Accordingly this course is comprised of four main modules. We start with the discussion of customer profitability - focusing on the concepts of “customer lifetime value” and “customer equity”. We will examine how to measure long-run customer profitability in both business-to-business and business-to-business environments, and the uses of these measures as major components assessing overall firm valuation. Second, we move to the value that the firm provides to its customers - better understanding the true nature of customer satisfaction and its non-trivial relationship with firm profitability. Third, we examine each of the three main components of the firm’s management of its customer base: customer acquisition, development, and retention - and the complex resource allocation task that must be balanced across them. Finally, we conclude with a discussion of various tactical and organizational aspects of customer relationship management.
Taught by: Fader
Course usually offered in spring term
Prerequisites: None.
Activity: Lecture
1 Course Unit
Notes: Format: Lecture and discussion

MKTG 776 Applied Probability Models in Marketing
This course will expose students to the theoretical and empirical "building blocks" that will allow them to develop and implement powerful models of customer behavior. Over the years, researchers and practitioners have used these methods for a wide variety of applications, such as new product sales forecasting, analyses of media usage, customer valuation, and targeted marketing programs. These same techniques are also very useful for other types of business (and non-business) problems. The course will be entirely lecture-based with a strong emphasis on real-time problem solving. Most sessions will feature sophisticated numerical investigations using Microsoft Excel. Much of the material is highly technical.
Taught by: Fader
Course usually offered in spring term
Prerequisites: Students must have a high comfort level with basic integral calculus, and recent exposure to a formal course in probability and statistics is strongly recommended.
Activity: Lecture
1 Course Unit
Notes: Format: Lecture, real-time problem solving

MKTG 777 Marketing Strategy
This course views marketing as both a general management responsibility and an orientation of an organization that helps one to create, capture and sustain customer value. The focus is on the business unit and its network of channels, customer relationships, and alliances. Specifically, the course attempts to help develop knowledge and skills in the application of advanced marketing frameworks, concepts, and methods for making strategic choices at the business level.
Taught by: Robertson, Yildirim
Course usually offered in fall term
Prerequisites: Completion of MKTG 611, and MKTG 612 or MKTG 613.
Activity: Lecture
1 Course Unit
Notes: Format varies by instructor. Typically: case, lecture, group projects and class discussion. See syllabus.

MKTG 778 Strategic Brand Management
Which brands make you happy? Apple? Amazon? Starbucks? Everlane? Soulcycle? Sweetgreen? What draws you into these brands? How do companies create compelling brand experiences? How could you cultivate a well-loved brand? This course explores such questions with the goal of identifying the ingredients for building an inspired brand. The course is created for students interested in building a brand and/or immersing themselves in the enhancement of an existing brand, and it is comprised of lectures, cases, guest speakers, discussions, in and out of class exercises, and a final project. Broadly, the course will be divided into four parts: 1) Understanding Brand, 2) Crafting Brand, 3) Measuring Brand, and 4) Managing Brand. The course will provide students with an appreciation of the role of branding and (taking a consumer-centric approach) will augment students’ ability to think creatively and critically about the strategies and tactics involved in building, leveraging, defending, and sustaining inspired brands.
Taught by: Williams
Course usually offered in spring term
Prerequisites: MKTG 611; and MKTG 612 or MKTG 613.
Activity: Lecture
1 Course Unit
Notes: Format: Lectures, cases, discussions, exercises, and a group project.

MKTG 806 Special Topics: Retail Merchandising
RETAIL MERCHANDISING; This course introduces the role of merchandising at various retailers with an emphasis on apparel and soft-line businesses. Selected topics will include product development, line planning, sourcing, product lifecycle, forecasting, buying, planning and vendor relations. Special emphasis will be placed on current trends in retail merchandising through current articles and industry guest speakers. The objective of this course is to familiarize students with merchandising theory and strategies considered to be current best practices in retailing.
Course usually offered in fall term
Prerequisite: MKTG 611 or MKTG 725
Activity: Lecture
0.5 Course Units
Notes: 0.5 cu half credit course. Format: Lecture, discussion.
MKTG 809 Special Topics: Experiments for Business Decision Making

EXPERIMENTS FOR BUSINESS DECISION MAKING: In the past decade, massive shifts in how companies interact with their customers have suddenly made field experiments an economically feasible way to learn about a variety of business questions such as what types of promotions are most effective, what products should be stacked at a store, how e-mail promotions should be designed, how sales staff should be compensated, etc. Many marketers engaged in online retailing, direct-marketing, online advertising, media management, etc. are rapidly embracing a "test and learn" philosophy and a number of platforms such as Google Website Optimizer, have been developed to facilitate rigorous field experiments in the online environment. Just as with the quality revolution in manufacturing during the 1980s and 1990s, the rapid rise of the "test and learn" philosophy in marketing has created a huge demand for those who can design, field, and analyze marketing experiments. Through this course, you will learn and practice a wide range of critical skills, from the statistical methods used to design and analyze experiments to the management and strategy required to execute an experiment and act on the results. Although the cases and examples will focus on marketing problems, the material covered can be applied in a number of other domains particularly operations management and product design.

One-term course offered either term
Prerequisites: MKTG 611 required; STAT 431 or equivalent required; MKTG 712 recommended but not required.
Activity: Lecture
1 Course Unit

MKTG 850 Special Topics - Consumer Neuroscience

CONSUMER NEUROSCIENCE: How can studying the brain improve our understanding of consumer behavior? While neuroscience made tremendous strides throughout the 20th century, rarely were meaningful applications developed outside of medicine. Recently, however, breakthroughs in measurement and computation have accelerated brain science and created a dizzying array of opportunities in business and technology. Currently, applications to marketing research and product development are experiencing explosive growth that has met with both excitement and skepticism. This mini-course provides an overview of the neuroscience behind the potential for these developments. Topics will range from well-known and widely used applications, such as eye-tracking measures in the lab and field, to emerging methods and measures, such as mobile technologies, face-reading algorithms, and neural predictors of marketing response. The course will also discuss applications in branding and product development, including wearable physiological devices and apps, sensory branding for foods and fragrances, pharmaceuticals and medical devices, and neuroscience-based products designed to enhance cognitive functions. These applications stem from many subfields of cognitive neuroscience, including attention, emotion, memory, and decision making. This course is self-contained and has no prerequisites. However, students with some background in business, economics, psychology, and/or neuroscience are likely to find the material covered in this course complementary to their existing knowledge.

Taught by: John Clithero
Course usually offered in spring term
Prerequisite: None
Activity: Lecture
0.5 Course Units
Notes: 0.5 CU half credit course

MKTG 851 Special Topics: Introduction to Brain Science for Business

INTRODUCTION TO BRAIN SCIENCE FOR BUSINESS: Brain science offers the potential to unlock the future of business, by providing new insights that can enhance decision-making, improve precision in design and marketing team chemistry and cultivate leadership, fine-tune selection and human performance, drive creativity and innovation, create social value, and optimize digital interactions. New developments in biometrics, implantable and wearable devices, genomics, proteomics, metabolomics, nutrition, and human microbiome, offer the opportunity for enhanced precision and impact in marketing, finance, management, analytics, and education. This course will provide an overview of contemporary brain science and its applications to business. Students first will be introduced to the basic anatomy and physiology of the brain and become familiar with important techniques for measuring and manipulating brain function. The course will then survey major findings in neuroscience with applications to business, including selective attention and advertising; valuation and marketing; decision making; learning, innovation and creativity; and social influence, team-building, and leadership. The course will end with a discussion of ethics, brain-machine interactions, and artificial intelligence. Applications to business, education, sports, law and policy will be discussed throughout.

Taught by: Michael Platt
Course usually offered in spring term
Prerequisite: None
Activity: Lecture
0.5 Course Units
Notes: 0.5 cu. One-half term. This course is now offered as MKTG737x.

MKTG 852 Special Topics - Marketing Analytics

MARKETING ANALYTICS: Companies are currently spending millions of dollars on data-gathering initiatives - but few are successfully capitalizing on all this data to generate revenue and increase profit. Moving from collecting data to analysis to profitable results requires the ability to forecast and develop a business rationale based on identified data patterns. Marketing Analytics will cover the three pillars of analytics - descriptive, predictive and prescriptive. Descriptive Analytics examines different types of data and how they can be visualized, ultimately helping you leverage your findings and strengthen your decision making. Predictive Analytics explores the potential uses of data once collected and interpreted. You will learn to utilize different tools, such as regression analysis, and estimate relationships among variables to predict future behavior. Prescriptive Analytics takes you through the final step - formulating concrete recommendations. These recommendations can be directed toward a variety of efforts including pricing and social-platform outreach.

Taught by: Iyengar
Course usually offered in fall term
Prerequisites: MKTG 611 and STAT 613
Activity: Lecture
0.5 Course Units
Notes: 0.5 cu half credit course. Check course meeting dates. Students should register for this course before the end of the Course Selection period (September for fall, January for spring) for sections offered in the SECOND half of the term.
MKTG 853 Special Topics: Design Thinking - A Human-Centered Approach to Innovation

DESIGN THINKING - A HUMAN-CENTERED APPROACH TO INNOVATION: In this hands-on experiential course, students will partner with a local start-up to apply design thinking steps taught throughout the course. Students will learn how to uncover deep consumer needs, effectively ideate, and create rapid prototypes to test their ideas with real customers. This class is well suited for those interested in careers in innovation or management consulting, marketing, product management, technology, or entrepreneurship. No prior experience or requirements are needed for this course.

Taught by: Caputo
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MKTG 854 Special Topics: Visual Marketing

VISUAL MARKETING: As consumers, we are constantly exposed to advertisements and experience visual messages from product packages in stores, retail displays, and products already owned. In essence, visual marketing collateral is omnipresent and is an essential part of corporate visual identity, strategy, and communication. Some of this falls to creative graphic design, but advertising, design, and marketing can also be significantly enhanced by knowledge of how visual information and its presentation context can be optimized to deliver desirable and advantageous messages and experiences. This course will emphasize how to measure, interpret, and optimize visual marketing, and will provide an overview of visual perception and visual cognition, eye movements, and attention, and their role and influence on consumer memory, persuasion, choice, and other behaviors.

Taught by: Johnson
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
Notes: 0.5 c.u. One-half term. In-class exercises, team-based learning, discussions, and lectures.

MKTG 890 Advanced Study Project (ASP)

RETAIL ECOSYSTEM ACTION LEARNING PROJECTS: This course offers graduate students from Wharton and other Penn schools an opportunity to work on real-world projects for companies in the retail industry and in the wider retail ecosystem. It requires the exploration and analysis of actual business issues or opportunities identified by sponsoring/client companies, as well as the formulation of recommendations. It combines 1) academic principles, 2) application of prior business knowledge to the project at hand, and 3) a solutions-oriented mentality. In addition to supervised project work and regular updates to the corporate client/project sponsor, the course involves classroom meetings and discussions on topics pertaining to the projects. While this course focuses on "marketing" topics, projects might also incorporate topics from related disciplines such as operations, management of innovation & technology, data analytics, international management, design, and real estate. Indeed, the goal will be to constitute interdisciplinary teams from Wharton and other relevant Penn graduate schools.

ADVANCED STUDY PROJECT (GENERAL): The principal objectives of this course are to provide opportunities for undertaking an in-depth study of a marketing problem and to develop the students’ skills in evaluating research and designing marketing strategies for a variety of management situations. Selected projects can touch on any aspect of marketing as long as this entails the elements of problem structuring, data collection, data analysis, and report preparation. The course entails a considerable amount of independent work. (Strict library-type research is not appropriate) Class sessions are used to monitor progress on the project and provide suggestions for the research design and data analysis. The last portion of the course often includes an oral presentation by each group to the rest of the class and project sponsors. Along with marketing, the projects integrate other elements of management such as finance, production, research and development, and human resources.

Taught by: Tom Robertson
One-term course offered either term
Prerequisites: MKTG 611 and MKTG 725. Students who do not fulfill the prerequisites should contact the instructor to be admitted. Completion of MKTG 725 or a background in retailing is preferred.
Activity: Seminar
1 Course Unit
**MKTG 893 Advanced Study: Marketing in Emerging Economies: Understanding & Marketing to the Chinese and Indian Consumer**

This course is a two part series. The first part concentrates on the Indian Consumer and the second part concentrates on the Chinese Consumer. India and China add up to half of the world's population. Each presents its own challenges and opportunities. US and European MNC's have been in both countries for many years, but emerging market MNC's are becoming stronger and in many cases overtaking US and European companies despite their strong brands and know-how. Marketing to the Indian Consumer will provide a careful understanding of: 1) The opportunity and challenges in the Indian consumer market 2) Various segments within the Indian consumer market. 3) Consumer psychology and decision making processes in each segment 4) Distribution channels in India: Mass, Local and non-traditional. 5) Bottom of the pyramid consumers and rural markets. 6) Product design and development decisions. The course will focus on the following industries: consumer packaged goods, mobile phones, financial services (insurance and banking), healthcare, sports and entertainment, and transportation. The course will involve case studies from local and international companies, guest lecturers, and visits to consumer homes to observe their tastes, habits, and preferences.

Taught by: Raju and Zhang
Course not offered every year
Activity: Lecture
0.5 Course Units
Notes: Indian Consumer Section of the Course offered in Mumbai, India. The Chinese Consumer Section of the Course will be taught in Beijing, China.

**MKTG 895 Global Business Week**

GLOBAL BUSINESS WEEK: MKTG 895 is one in an array of Global Business Week (GBW) study tour courses offered by various departments across Wharton. Each of the GBW courses offered in a term, will entail travel to a different part of the world and address a different element of economic driver for a country or industry. A faculty member will drive the topic and curriculum associated with a study tour to a region of the world where the study of a topic will provide insights and clarity available only by being in country. In country lectures from the lead faculty and area experts in industry, academia and government will form much of the basis of class time. In addition, students will experience relevant company and cultural settings where they will again hear from industry experts. Each course will require an individual student paper, a participation component, and a pre-travel or in-country set of assignments. See course syllabus for details.

**CUSTOMER CENTRICITY AT THE LEADING EDGE OF ANALYTICS AND TECHNOLOGY: LEARNING FROM SCANDINAVIA.** Instructor: Peter Fader. The concept of "customer centricity," i.e., that not all customers are created equal, is gaining credibility and traction. More and more firms are coming to the realization that understanding and leveraging the behavioral differences across customers can potentially be more sustainably profitable than more conventional product-centric thinking that continues to dominate today's business landscape. At the heart of this transformation are three critical ingredients data, analytics, and technology. Using customer data at a granular level allows firms greater visibility into customer interactions, their use of social media, biometrics, and geolocation as tools to enhance business models and even create new ones. It allows a firm to be deliberate about which customers to go after and what kinds of services to provide them. For many, the key to profitable growth lies in successfully harnessing and developing the tools, organizational structures, and corporate cultures that create and enhance these capabilities.

Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: Wharton Executive MBA Course. Course must be taken for a grade (no pass/fail option) and will be subject to the standard CMGPA and LT requirements for MBA courses.

**MKTG 897 Advanced Study: Luxury Branding and Retailing in Italy and Beyond**

New retail brands and opportunities for growth are emerging at an unprecedented rate, for online retailers and offline retailers alike. In this course we will: (1) articulate key principles for successful branding and for understanding consumer shopping behavior in retail environments, (2) demonstrate unique challenges and opportunities that luxury brands face, and (3) discuss concepts and empirical methods for analyzing consumer shopping behavior.

Taught by: David Bell, Barbara Kahn
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
MKTG 899 Independent Study
A student contemplating an independent study project must first find a faculty member who agrees to supervise and approve the student's written proposal as an independent study (MKTG 899). If a student wishes the proposed work to be used to meet the ASP requirement, he/she should then submit the approved proposal to the MBA adviser who will determine if it is an appropriate substitute. Such substitutions will only be approved prior to the beginning of the semester.
One-term course offered either term
Prerequisites: MKTG 611; and MKTG 612 or MKTG 613; and the written permission of instructor and the department MBA faculty advisor
Activity: Independent Study
1 Course Unit

MKTG 940 Measurement and Data Analysis in Marketing - Part A
In this course we consider models for binary, count, and continuous data including contingency table models, logistic and probit regression, ANOVA, ANCOVA, conjoint analysis, and OLS. In addition we cover multidimensional techniques such as MDS, cluster analysis, principal components analysis, factor analysis, and discriminant analysis.
We utilize the statistics package SPlus 2000, and also BUGS for implementing many of the techniques described in a Bayesian manner.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 966) 0.5 cu

MKTG 941 Measurement and Data Analysis in Marketing - Part B
In this course we consider models for binary, count, and continuous data including contingency table models, logistic and probit regression, ANOVA, ANCOVA, conjoint analysis, and OLS. In addition we cover multidimensional techniques such as MDS, cluster analysis, principal components analysis, factor analysis, and discriminant analysis.
We utilize the statistics package SPlus 2000, and also BUGS for implementing many of the techniques described in a Bayesian manner.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 966) 0.5 cu

MKTG 942 Research Methods in Marketing - Part A
This course provides an introduction to the fundamental methodological issues that arise in experimental and quasi-experimental research. Illustrative examples are drawn from the behavioral sciences with a focus on the behavior of consumers and managers. Topics that are covered include: the development of research ideas; data collection and reliable measurement procedures; threats to validity; control procedures and experimental designs; and data analysis. Emphasis is placed on attaining a working knowledge of the use of regression methods for non-experimental and quasi-experimental data and analysis of variance methods for experimental data. The primary deliverable for this course is a meta-analysis of a research problem of the students choosing that investigates the effects of research methods on empirical results.
Course usually offered in fall term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 967) 0.5 cu

MKTG 943 Research Methods in Marketing - Part B
This course provides an introduction to the fundamental methodological issues that arise in experimental and quasi-experimental research. Illustrative examples are drawn from the behavioral sciences with a focus on the behavior of consumers and managers. Topics that are covered include: the development of research ideas; data collection and reliable measurement procedures; threats to validity; control procedures and experimental designs; and data analysis. Emphasis is placed on attaining a working knowledge of the use of regression methods for non-experimental and quasi-experimental data and analysis of variance methods for experimental data. The primary deliverable for this course is a meta-analysis of a research problem of the students choosing that investigates the effects of research methods on empirical results.
Course usually offered in fall term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 967) 0.5 cu
**MKTG 952 Information Processing Perspectives on Consumer Behavior - Part A**
The purpose of this seminar is to provide graduate students with a solid foundation for critical thinking and research in psychology and marketing on information processing related topics. Topics of discussion include consumer knowledge (learning, memory and categorization), attitude theory, persuasion, affect and social influence. The course draws from the literature in marketing, psychology and economics. The course will enable students to conceptualize, operationalize, and develop research ideas. Therefore, the focus is on understanding theoretical and methodological approaches to various aspects of consumer behavior, as well as advancing this knowledge by developing testable hypotheses and theoretical perspectives that build on the current knowledge base.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 963) 0.5 cu

**MKTG 953 Information Processing Perspectives on Consumer Behavior - Part B**
The purpose of this seminar is to provide graduate students with a solid foundation for critical thinking and research in psychology and marketing on information processing related topics. Topics of discussion include consumer knowledge (learning, memory and categorization), attitude theory, persuasion, affect and social influence. The course draws from the literature in marketing, psychology and economics. The course will enable students to conceptualize, operationalize, and develop research ideas. Therefore, the focus is on understanding theoretical and methodological approaches to various aspects of consumer behavior, as well as advancing this knowledge by developing testable hypotheses and theoretical perspectives that build on the current knowledge base.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 963) 0.5 cu

**MKTG 954 Economic/OR Models of Marketing - Part A**
This doctoral seminar reviews analytical models relevant to improving various aspects of marketing decisions such as new product launch, product line design, pricing strategy, advertising decisions, sales force organization and compensation, distribution channel design and promotion decisions. The primary focus will be on analytical models. The seminar will introduce the students to various types of analytical models used in research in marketing, including game theory models for competitive analysis, agency theory models for improving organization design and incentives within organizations, and optimization methods to improve decision making and resource allocation. The course will enable students to become familiar with applications of these techniques in the marketing literature and prepare the students to apply these and other analytical approaches to research problems that are of interest to the students.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 964) 0.5 cu

**MKTG 955 Economic/OR Models of Marketing - Part B**
This is a continuation of MKTG 954. This doctoral seminar reviews analytical models relevant to improving various aspects of marketing decisions such as new product launch, product line design, pricing strategy, advertising decisions, sales force organization and compensation, distribution channel design and promotion decisions. The primary focus will be on analytical models. The seminar will introduce the students to various types of analytical models used in research in marketing, including game theory models for competitive analysis, agency theory models for improving organization design and incentives within organizations, and optimization methods to improve decision making and resource allocation. The course will enable students to become familiar with applications of these techniques in the marketing literature and prepare the students to apply these and other analytical approaches to research problems that are of interest to the students.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 964) 0.5 cu

**MKTG 956 Empirical Models in Marketing - Part A**
This course is designed to generate awareness and appreciation of the way several substantive topics in marketing have been studied empirically using quantitative models. This seminar reviews empirical models of marketing phenomena including consumer choice, adoption of new products, sales response to marketing mix elements, and competitive interaction. Applies methods and concepts developed in econometrics and statistics but focuses on substantive issues of model structure and interpretation, rather than on estimation techniques. Ultimately, the goals are a) to prepare students to read and understand the literature and b) to stimulate new research interests. By the end of the course, students should be familiar with the key issues and approaches in empirical marketing modeling.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 964) 0.5 cu

**MKTG 957 Empirical Models in Marketing - Part B**
This course is designed to generate awareness and appreciation of the way several substantive topics in marketing have been studied empirically using quantitative models. This seminar reviews empirical models of marketing phenomena including consumer choice, adoption of new products, sales response to marketing mix elements, and competitive interaction. Applies methods and concepts developed in econometrics and statistics but focuses on substantive issues of model structure and interpretation, rather than on estimation techniques. Ultimately, the goals are a) to prepare students to read and understand the literature and b) to stimulate new research interests. By the end of the course, students should be familiar with the key issues and approaches in empirical marketing modeling.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: PhD Course. (Formerly part of MKTG 964) 0.5 cu
MKTG 971 Advanced Topics in Marketing - Part A
Taught collectively by the faculty members from the Marketing Department, this course investigates advanced topics in marketing. It is organized in a way that allows students to 1) gain depth in important areas of research identified by faculty; 2) gain exposure to various faculty in marketing and their research values and styles; and 3) develop and advance their own research interests.
Course usually offered in fall term
Activity: Seminar
0.5 Course Units
Notes: 0.5 cu. Course meets entire semester.

MKTG 972 Advanced Topics in Marketing - Part B
Taught collectively by the faculty members from the Marketing Department, this course investigates advanced topics in marketing. It is organized in a way that allows students to 1) gain depth in important areas of research identified by faculty; 2) gain exposure to various faculty in marketing and their research values and styles; and 3) develop and advance their own research interests.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: 0.5 cu. Course meets entire semester.

MKTG 973 Research Seminar in Marketing - Part A
This course is taught collectively by the faculty members from the Marketing Department. It is designed to expose Doctoral students to the cutting-edge research in marketing models in order to help them to define and advance their research interests. This course will offer: in-depth discussions on some important topics in marketing by experts in respective areas; tools, and methodologies required for conducting research in those areas; broad exposure to our faculty members and their proven research styles.
Course usually offered in fall term
Activity: Seminar
0.5 Course Units
Notes: 0.5 cu. Course meets entire semester.

MKTG 974 Research Seminar in Marketing - Part B
This course is taught collectively by the faculty members from the Marketing Department. It is designed to expose Doctoral students to the cutting-edge research in marketing models in order to help them to define and advance their research interests. This course will offer: in-depth discussions on some important topics in marketing by experts in respective areas; tools, and methodologies required for conducting research in those areas; broad exposure to our faculty members and their proven research styles.
Course usually offered in spring term
Activity: Seminar
0.5 Course Units
Notes: 0.5 cu. Course meets entire semester.

MKTG 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit

MKTG 999 Supervised Independent Study
Requires written permission of instructor and the department graduate adviser.
One-term course offered either term
Activity: Independent Study
1 Course Unit
MASTER OF CHEMICAL SCIENCES (MCS)

MCS 541 Proseminar II: Capstone Proposal Preparation
Highly recommended course during the semester prior to starting a capstone project. Students will review the scientific communication, research design, and prepare and submit an original proposal for the capstone project. Current opinions in the study of chemistry and presentations by guest lecturers will add content to areas of concentration.
Activity: Hybrid Course
0.5 Course Units

MCS 542 Proseminar III: Capstone Report Preparation
Highly recommended while taking MCS 699. Students will prepare and submit the report and poster for the capstone project.
Activity: Hybrid Course
0.5 Course Units

MCS 598 Independent Studies: Literature Review
Advanced study of literature and current research in various branches of chemistry with the goal of learning a new topic or research trend supervised by a faculty member. Students will be evaluated based on the work plan designed with the faculty mentor and director of the program. To obtain a grade, students will submit a report at the end of the semester.
Activity: Independent Study
1 Course Unit

MCS 599 MCS Independent Studies
May be taken for multiple course unit credit for (1) advanced study and research in various branches of chemistry, (2) seminar in current chemical research, (3) individual tutorial in advanced selected topics.
Taught by: Mayol-Cabassa, Ana-Rita
One-term course offered either term
Activity: Independent Study
1 Course Unit
MASTER OF SCIENCE IN SOCIAL POLICY (MSSP)

MSSP 601 The Power of Partnerships between Government, Non-profits, and the Private Sector
Everything from the Affordable Care Act to the Mayor’s Rebuild Initiative here in Philadelphia could not be implemented by government without strong and vital partnerships with non-profits and the private sector. These collaborations provide an opportunity to help people, impact and change policy, improve outcomes, and multiply the impact that non-profit and private sector organizations can have. The course will help graduate (and advanced undergraduate) students not only understand the theory, policy, and practice of these collaborations but also learn how they actually happen. Students will also learn the characteristics of these three sectors, their roles and contributions, and competitive forces that are often at work in the collaborative process. Topics for discussion will include attitudes and expectations in the public sector, the ingredients of effective partnerships, and effective communication strategies with elected and appointed officials. The course will be conducted on a seminar basis. Graduate students are expected to take an active part in shaping the discussion. Students will be expected to rotate leadership for the class discussions and to supplement course materials with independent study of relevant magazine and newspaper articles. Course grades are assigned as follows: 20 percent for class participation, 15 percent for an in-class written exam, 30 percent for a group presentation and write up of a case study, and 35 percent for a final project. High quality written work and accurate citations is an expectation in all assignments.
Activity: Seminar
1 Course Unit

MSSP 606 Data for Equitable Justice Lab
Data for Equitable Justice Lab is a non-credit research group that gives SP2 Masters students an opportunity to analyze some of today’s most important social issues through data and, with faculty support, create a product for audiences well beyond our classrooms and campus. With guidance from the lab faculty, students develop a project - either individually or as part of a team - to examine a contemporary social policy or political issue through or on data or digital technology. Through these projects students will produce an op-ed, blog post, podcast, academic article, short film, or other product of their choosing that creates or contributes to contemporary discourse.
Activity: Laboratory
0 Course Units

MSSP 628 Policy: Analysis of Issues, Strategy and Process
Policy analysis requires an understanding of social problems/social issues and the processes by which policy is developed and implemented. Critical skills in many policy frameworks include: problem definition and analysis, review of relevant research, identification of possible actions, implementation and evaluation, and fiscal analysis. Competency in written and oral communication is also essential. To develop these related skills, this course utilizes as a base a dynamic social problem analysis framework that addresses issues of equity, equality and adequacy. It also examines multiple theoretical and analytical perspectives. Through the review of contemporary and historical social policy debates and provisions, selected case examples and policy briefs, this course provides students with an understanding of the policy roles of the legislative and executive branches of government, including goal setting, policy rule making and enactment, allocation of resources, financing, regulation, and implementation. The policy process at state and local levels of government will also be addressed. The primary focus is on U.S. policy although global policies will be discussed when relevant.
Course usually offered in fall term
Prerequisite: Enrolled in MSSP program or permission of instructor
Activity: Lecture
1 Course Unit

MSSP 629 Research and Evaluation Design
Research and Evaluation Design introduces social research methods in the context of social policy and program evaluation. The course provides a conceptual and practical understanding in the design of experimental, quasi-experimental, and non-experimental research and in the application of quantitative and qualitative methods. Students learn about the application of the research process and skills in all phases of assessing a social policy and developing a social program, including needs assessment, implementation analysis, and evaluation of policy or program effectiveness. Students learn to be critical and informed consumers of research and to apply guidelines of research ethics in social policy settings.
Taught by: Summerville
One-term course offered either term
Prerequisite: Enrolled in MSSP program or permission of instructor
Activity: Lecture
1 Course Unit

MSSP 630 Quantitative Reasoning/Social Statistics
The primary goals of this course are (1) to provide students with a solid understanding of the logic of social science research as well as (2) to provide students with an introduction to a broad range of statistical methods commonly used in social science research. The first portion of the semester concentrates on defining research problems, research design (including sampling, measurement, and causal inference), and assessing research quality. The latter portion of the semester focuses upon data analysis including descriptive statistics, measures of association for categorical and continuous variables, introduction to t-tests, ANOVA and regression, and the language of data analysis. Students will learn how to choose and apply statistical tools to data sources, how to interpret quantitative studies, and will gain experience using SPSS - a statistical software package.
Course usually offered in fall term
Prerequisite: Enrolled in MSSP program or permission of instructor
Activity: Lecture
1 Course Unit
MSSP 631 Law and Social Policy
This course introduces students to the basics of the American legal system, focusing on the interplay between litigation and social policy. Students will learn how law, and particularly case law, is made, how to read case law and evaluate precedent, legal reasoning and argument. This course will utilize various teaching methods including introduction to the "Socratic" lecturing method which is frequently utilized in the study of law. Students will also study the structure of court systems at both state and federal levels as well as the litigation process and the role of law and courts in shaping and addressing social policy issues. Students will also learn the basics of several areas of substantive law, with an eye toward consideration of how that law has been, and can be, used to effect social change.
Course usually offered in spring term
Prerequisite: Enrolled in MSSP program or permission of instructor
Activity: Lecture
1 Course Unit

MSSP 632 Capstone Seminar I: Policy Communications
The focus of the Capstone Seminar is three-fold: 1) to enhance student integration of the theory and practice of social policy analysis; 2) to enhance the student’s competencies in the written and oral communication processes and procedures necessary for the policy world; and 3) to ensure basic knowledge about federal budget processes, stakeholder roles, and inter-organizational collaboration.
Course usually offered in spring term
Prerequisites: Enrolled in MSSP program.
Activity: Lecture
0.5 Course Units

MSSP 633 Capstone Seminar II: Policy Internship
Capstone II consists of an intensive, multi-week internship that is selected through a consultative process involving the student, MSSP advisors, internship coordinator/advisor, and mentors/supervisors at potential sites. The internship provides an opportunity for the student to expand horizons beyond the academic. It serves as a medium to integrate classroom learning with experiences in policy making activity.
Course usually offered summer term only
Prerequisite: Enrolled in MSSP program.
Activity: Seminar
0.5 Course Units

MSSP 634 MSSP/DA Capstone I: Telling Stories with Data
The volume and complexity of data continues to increase in the world around us, including science, business, medicine, social media and everyday human activity. This course aims to expose students to visual representation methods and techniques that increase the understanding of complex data. Good visualizations not only present visual interpretation of data, but do so by improving comprehension, communication, and decision making. In this course, students will learn about the fundamentals of perception, the theory of visualization, and good design practices for visualization. The course will also provide hands-on experience on the process of data communication, from initial data analysis, to identifying appropriate visualization techniques, to crafting informative visualizations.
Course usually offered in fall term
Activity: Seminar
0.5 Course Units

MSSP 635 MSSP/DA Capstone II: Internship
Capstone II consists of an intensive, multi-week internship that is selected through a consultative process involving the student, MSSP advisors, internship coordinator/advisor, and mentors/supervisors at potential sites. The internship provides an opportunity for the student to expand horizons beyond the academic. It serves as a medium to integrate classroom learning with experiences in policy making activity.
Prerequisite: Enrolled in Social Policy/Data Analytics program
Activity: Seminar
0.5 Course Units

MSSP 668 Economics for Social Policy
This course provides students with theory and tools from the field of economics that are useful for the field of social policy, such as: 1) critical macroeconomic and microeconomic concepts for social policy formulation and analysis; 2) information about the Congressional budget process and federal budget, U.S. and global monetary policy, economic measurement indices, and tax policy in relation to social policy values of equity, equality and adequacy; 3) how to apply cost-benefit analysis and/or cost-effectiveness analysis to policy proposals; and 4) the role of nonprofit organizations in the provision of social services and programs that are mandated by federal legislation.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MSSP 710 Democratizing Data: Analytics for Social Change
With the advent of digital technologies and the increasing power of computational analytics, the proliferation and ubiquity of data production has increased at exponential rates enabling new possibilities for social analysis. This course will examine the emergence of democratizing data -- the movement to make government and other data more widely or publicly available and its potential enabling for democratic possibilities. The types of data being made available, through various analytic systems, and the ways in which their accessibility and inaccessibility is contributing to reconfigured power relations, will be described. The paradigmatic tensions and shifts that have emerged in the debates on "Big Data," such as deductive versus inductive reasoning and the challenges posed to statistical sampling theory, will be interrogated. The appropriation of machine learning and predictive analytic algorithms for social analysis will be critically explored. Issues related to the ethical and legal use of administrative data, particularly data related to patient, client, student, and taxpayer information will be considered, as well as from internet-based sources including social media. Potential solutions to data security challenges will be additionally considered. Methods for web-scaping of data, analysis of web traffic data, and the use of social networking data in the modeling of social phenomena and public opinion will be examined. Students will learn how to make results accessible to non-technical audiences via data visualization tools, such as web-based data dashboards and web-based maps. These topics will be discussed for the analysis of health, education, and social policy as well as their implications for questions pertaining to race, gender, class, sexuality, dis/abilities, age and youth culture. This course will develop students' knowledge of computational and data analytics and its applications for social policy analysis.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
**MSSP 741 Gender & Social Policy**

Gender and Social Policy develops an advanced understanding of social policies through a focus on social issues and conditions through the lens of gender, economic and critical theory. The specialized focus on gender and social policy provides students with the opportunity to develop more specialized knowledge about how market dynamics and government policies respond to the needs and risks faced by women. Specific emphasis is placed on utilizing theoretical frameworks to evaluate the intersection between social policy, history and social science in relationship to gender issues. Students are also expected to conduct a policy analysis that includes an evaluation of how current and former social movements surrounding gender issues shaped their policy of interest.

Taught by: Baker

Course usually offered in spring term

Activity: Lecture

1 Course Unit

**MSSP 780 Policy and “Difference” in Postmodernity**

Social constructions of “difference” permeate the institutions, spaces, and assumptions of our society. These social constructions include but are not limited to the racialized, gendered, sexed, classed, and dis/abled constructions of the body. By leaning on postmodern thinkers such as Iris Marion Young, Pierre Bourdieu, Judith Butler, Jacques Derrida, Ernesto Laclau, and Michel Foucault, this seminar course will begin by engaging the questions of what is “difference” and how is “difference” discursively constructed and reproduced in society. Using a postmodern lens, the remainder of the course will engage various social science texts that deal with the varieties of “difference” (i.e. race, gender, class, sexuality) and the explicit and/or implicit policy implications of these works. Thus, we will critically engage policies such as welfare, affirmative action, economic policies of taxation, and same-gender marriage, among others. The underlying questions throughout the course will be to what extent does social policy enable the possibilities of freedom, justice, and democracy for the “Other”, the deviant, the abject, the marginalized, those of assumed “difference”? And, to what extent does policy constrain those possibilities at the same time? This course does assume familiarity with social theory and is an introduction to postmodern thought on the law, the political, and policy.

Taught by: Dixon-Roman

Course usually offered in spring term

Activity: Seminar

1 Course Unit

**MSSP 797 Social Policy in Revolutionary Cuba (1959-2017)**

Cuba represents one of the world’s long-standing institutionalized revolutions whose narrative and policies have changed from a strong nationalism yearning for independence, to an alignment with communism’s ideology and modus operandi, to a nostalgic, post-Soviet Union “socialism” ruled by a binary, state-controlled capitalism. In addition to the myriad of social and political changes affecting the island, the transition of leadership from Fidel Castro to his brother, Raul, and the death of the former in 2016, has put into question the theoretical pillars of the Revolution, thus undermining its initial legitimacy. This course is designed to provide students with the critical and analytical tools to dissect Cuban revolutionary politics, policies, and identity mutations within the island’s historical trajectory. We will begin by critically reviewing key points of diplomatic and historical relationships between the U.S and Cuba, followed by an analysis of the notion of independence - upon which Castro relied to gather massive support - in the context of the 60’s debates on decolonization and underdevelopment. In addition, we will delve into the theoretical foundations of the Revolution focusing, among other texts, on the literature by Cuba's “founding father” Jose Marti, who deeply influenced the Spanish-American war (1898)’s outcomes as well as Fidel Castro's vision for Cuba. Throughout the course, students will also have the opportunity to critically read and discuss main Cuban social policies such as its famous Literacy Campaign, and other Education, Housing, Cultural, Health, and Immigration policies, as well as the island’s complex relationship with technological development and communications. Finally, we will study identity and race dynamics, which are inextricably embedded in Cuba’s political landscape.

Course usually offered in spring term

Activity: Lecture

1 Course Unit

Notes: Application deadline: 11/20/17 at 5pm; Class dates in Havana: May 17-May 31; Pre-departure sessions at Penn: April (TBA); Application available at: www.sp2.upenn.edu/global/courses

**MSSP 799 Independent Study**

Independent studies provide a flexible opportunity for standing faculty and students to work together in pursuing a topic of special interest that is not sufficiently covered by other courses in the curriculum. The content of independent studies is highly specialized and, as such, requires a plan of study developed jointly by the student(s) and the supervising standing faculty member. Part-time faculty members are not eligible to offer independent studies. Independent studies require the academic advisor’s approval.

Activity: Independent Study

1 Course Unit
MSSP 897 Applied Linear Modeling
This course deals with the underlying assumptions and applications of the general linear model with social science, education, and social policy related questions/data. The first half of the course begins by covering simple linear regression and the assumptions of the general linear model, assumption diagnostics, consequences of violation, and how to correct for violated assumptions. This will also include methods of incomplete case analysis (i.e. missing data analysis). Then various aspects of regression analysis with multiple independent variables will be covered including categorical explanatory variables (e.g. to estimate group differences), interaction effects, mediating effects (e.g. to estimate the indirect effect of social processes), and non-linear effects. The course will then cover some of the applications of the general(ized) linear model including logistic regression, some elements of path modeling (structural equation modeling), multilevel analysis (hierarchical linear modeling), and longitudinal modeling (growth modeling). The course will be taught using SAS, but students are welcome to use any statistical package of comfort.
Pre-requisite: Introductory Graduate Statistics.
Taught by: Dixon-Roman
Course usually offered in spring term
Prerequisite: Introductory Graduate Statistics
Activity: Lecture
1 Course Unit
MASTER OF SCIENCE IN TRANSLATIONAL RESEARCH (MTR)

MTR 510 Introduction to Clinical and Translational Research
This introductory course lays the foundation for understanding practical aspects of conducting clinical research in an academic environment. The course is divided into two modules: Module 1: Research Methods & Protocol Development and Module 2: Regulatory Environment for Clinical Trials. The first module introduces clinical research, clinical protocols, study designs and biostatistics that underlie such studies. The second module covers ethical considerations in clinical research, study execution and oversight, and the regulatory environment for clinical research. Upon completion, students should have a strong foundation in the fundamentals of clinical research and should be able to apply contemporary research tools to clinically relevant areas of investigation.
Taught by: Emma Meagher, MD
Course usually offered in fall term
Also Offered As: REG 510
Activity: Lecture
1 Course Unit

MTR 620 Translational Therapeutics
To provide an in-depth view of the process by which scientific discoveries are commercialized. This course covers discovery in the laboratory, technology transfer, regulatory, financial, and managerial issues involved in moving a technology from the lab into the market place. The course contents fall into three broad categories: (1) examples of scientific discoveries that are candidates for commercialization, (2) fundamental elements of technology transfer, such as intellectual property protection and licensing, and (3) aspects of commercialization, such as regulatory approval, financing, and startup formation. In using this structure, the course provides parallel coverage of both the science and the commercialization process, in such a way that the elements of one contribute to the student's experience in learning the other.
Taught by: Nalaka Gooneratne, MD
Also Offered As: BE 608
Prerequisites: Undergraduates and graduate students in other departments are welcome. Please contact mmaxwell@upenn.edu to request permission to register.
Activity: Lecture
1 Course Unit

MTR 623 Writing An NIH Grant
This course will provide a comprehensive overview of the grant writing process. Audience: Faculty who have not written an NIH grant before or need guidance
Activity: Lecture
1 Course Unit
MASTER OF URBAN SPATIAL ANALYTICS (MUSA)

MUSA 500 Spatial Statistics and Data Analysis
This hands-on course will provide an introduction to statistical methods and will serve as a prequel to ESE502. Topics covered will include exploratory univariate analysis, correlation and Chi-square analysis, t-tests and ANOVA. Non-parametric alternatives to the standard tests will be discussed. OLS regression, including assumptions and diagnostics, will be covered in detail. Heavy emphasis will be placed on the application of each method covered. The course will conclude with an introduction to spatial statistical methods and a brief overview of linear algebra and matrix notation for OLS and spatial regression. Students will learn to use JMP-IN, ArcGIS and GeoDa for data analysis.
Taught by: Eugene Brusilovskyi
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MUSA 501 Introduction to Applied Statistics
This hands-on course will provide an introduction to statistical methods and will serve as a prequel to ESE502. Topics covered will include exploratory univariate analysis, correlation and Chi-square analysis, t-tests and ANOVA. Non-parametric alternatives to the standard tests will be discussed. OLS regression, including assumptions and diagnostics, will be covered in detail. Heavy emphasis will be placed on the application of each method covered. The course will conclude with an introduction to spatial statistical methods and a brief overview of linear algebra and matrix notation for OLS and spatial regression. Students will learn to use JMP-IN, ArcGIS and GeoDa for data analysis.
Taught by: Eugene Brusilovskyi
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MUSA 503 Modeling Geographical Objects
This course offers a broad and practical introduction to the acquisition, storage, retrieval, maintenance, use, and presentation of digital cartographic data with vector-oriented (i.e. drawing based) geographic information systems (GIS) for a variety of environmental science, planning, and management applications. Previous experience in GIS is not required.
Taught by: Tomlin or Hillier
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MUSA 504 Business and Crime Geographics
In this hands-on course, students will learn how to use ESRI Business Analyst software and data to undertake real estate and social service market studies, business location studies, and consumer expenditure profiles. New this year, the course will also explore techniques and software for tracking and forecasting crime; and deploying police resources.
Taught by: Amos
Course usually offered in spring term
Prerequisites: Prior experience with ArcGIS.
Activity: Seminar
1 Course Unit

MUSA 505 Web-based Mapping
This hands-on course will teach students how to develop and implement web-and internet-based mapping tools and applications using ESRI's ArcGIS Server and ArcGIS Online products as well as the GoogleMaps Applications Programming Interface (API). Students will learn how to use web-based tools to build spatial databases, analyze and display spatial data at multiple scales, mix web-based vector and raster data with image data, conduct spatial analysis and develop urban and environmental planning applications.
Taught by: Landis and Dailey
Course usually offered in spring term
Prerequisite: CPLN 670 / LARP 743
Activity: Laboratory
1 Course Unit

MUSA 507 Spatial Analysis for Urban and Environmental Planning
This course builds on prior knowledge of GIS and basic statistics to help students to develop GIS and spatial analysis applications for use in urban and environmental planning and management. Each weekly session will focus on a particular analytical approach (e.g., buffering, geo-processing, map algebra, network analysis) as applied to a particular urban or environmental planning tasks (e.g., identification of development opportunities, prioritizing conservation lands, urban growth modeling, housing price modeling). The format of the class includes weekly lectures/in-class demos; and weekly homework assignments. The course will make extensive use of ArcGIS and associate Extensions, especially Spatial Analyst, Network Analyst, and Business Analyst. One-year student versions of ArcGIS and ArcGIS extensions will be available free of charge at the City Planning Office. ArcGIS runs best on Windows machines; those with Macs will need to install a Windows emulator.
Taught by: Steif
Course usually offered in fall term
Prerequisite: MUSA 501 or CPLN 503 or equivalent
Activity: Lecture
1 Course Unit

MUSA 610 Javascript Programming for Planning Applications
This hands-on course will teach students how to develop and implement city planning, MUSA and design graduate students to Java and Javascript. Students will learn the logic and syntax of the Java programming language for use in simple web applications (Weeks 1 to 7), as well as how to program database and map-oriented web and desktop applications using Javascript (Weeks 8 to 14). The "hands-on" uses of Java and Javascript in urban planning applications will be emphasized. Students will hone their programming and applications development skills through a series of bi-weekly assignments.
Taught by: Faculty
Course usually offered in spring term
Activity: Laboratory
1 Course Unit
MUSA 611 Java Script Programming for Planners and Designers
This course will introduce City Planning, MUSA and design graduate students to Javascript. Students will learn the logic and syntax of the Java programming language for use in a simple web application (weeks 1 to 7); as well as how to program database and map-oriented web and desktop applications using Javascript (weeks 8 to 14). The "hands-on" uses of Javascript in urban planning applications will be emphasized. Students will hone their programming and applications development skills through a series of bi-weekly assignments.
Taught by: Faculty
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MUSA 620 Data Wrangling and Visualization
The purpose of this course is to familiarize students with the "pipeline" approach to data science. This involves the process of gathering data; sorting the data; analyzing the data and visualizing the data such that non-technical manages can make use of it for decision making. The first part of the course teaches students how to gather data by way of scraping, APIs, Google Big Query, Twitter and other unstructured sources. The second part of this course, teaches students how to store and retrieve these data in a database. The third part of the class teaches some more esoteric machine driven analytics. The fourth and final component of the class is data visualization both in state and dynamic (web-based) form. The students will be expected to replicate this pipelines on a data set of their own choosing for their final project.
Course usually offered in spring term
Prerequisites: Prerequisites include a working knowledge of R and ArcGIS.
Activity: Seminar
1 Course Unit

MUSA 800 MUSA Capstone Project
One-term course offered either term
Activity: Seminar
1 Course Unit

MUSA 801 MUSA Seminar
Course Description: the purpose of this course is to have students to work with city and non-profit clients on analytical projects that convert client data into actionable intelligence. Groups of 3-4 students will work with the client to understand the business process, wrangle data, develop spatial and spatial analytics and serve these outputs to non-technical decision makers through the medium of data visualization. Students will be mentored by MUSA Faculty and advised by someone from the partnering agency. Prerequisites: students must have a working knowledge of R and experience building both spatial and statistical models including machine-learning models. In order to be eligible for this course, students must have taken the following courses - 1) MUSA-507/ CPLN-590 and either CPLN-505 or MUSA-500. Students must have taken or be enrolled concurrently in MUSA-601 or MUSA-800. Students without these specific prerequisites are asked to contact the instructor. Admission into the course: for spring 2018, there are initially 16 open seats with the possibility of another 4 opening up. To be admitted into the course, students are asked to pick one of the practicum projects and write no more than 300 words about why the use case is of interest, how they might go about solving the problem, and its usefulness to city. Please also discuss which data-drive skills are your sharpest. The essay should be turned into the City Planning Office in Meyerson Hall. Projects (subject to change): Louisville, Kentucky-Traffic Flows and Smart Signal Modeling: students will have access to high- resolution traffic data from Waze and historical traffic signal information from the City. The goal is to understand the traffic pattern that might result from a given traffic signal configuration. Can discover a configuration that is amenable to mode choice like walking or biking? Minneapolis, Minnesota-Code Enforcement: Minneapolis has a problem where too many construction projects are happening illegally. Unpermitted construction work may result in unsafe living conditions and worse. This project is to help the city predict where illegal work may be happening and how inspectors can better enforce existing permit regulations. Philadelphia, PA-Equitable Bike Share Planning: one of the policy goals of Philadelphia’s bike share system is to expand into neighborhoods where bike share demand may not be profitable but where the subsidies might induce more sustainable mode choice in the future. Working with the Bicycle Coalition of Greater Philadelphia, the goal of this project is for students to build and algorithm, which can predict bike share demand for any location Citywide,
Taught by: Ken Steif
Course usually offered in spring term
Prerequisites: MUSA-507/CPLN-590 and either CPLN-505 or MUSA-500
Activity: Seminar
1 Course Unit
MATERIALS SCIENCE AND ENGINEERING (MSE)

MSE 099 Undergraduate Research and/or Independent Study
An opportunity for the student to become closely associated with a professor (1) in a research effort to develop research skills and technique and/or (2) to develop a program of independent in-depth study in a subject area in which the professor and student have a common interest. The challenge of the task undertaken must be consistent with the student's academic level. To register for this course, the student and professor jointly submit a detailed proposal to the undergraduate curriculum chairman no later than the end of the first week of the term. Note: a maximum of 2 c.u. of MSE 099 may be applied toward the B.A.S. or B.S.E. degree requirements.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Open to all students

MSE 215 Introduction to Functional Materials: From Macro to Nanoscale
The purpose of this course is: 1) to introduce key concepts underlying the design, properties and processing of functional materials and their applications, and 2) to apply these concepts in the rapidly growing field of nanomaterials and nanotechnology. Fundamental chemical and physical principles underlying electronic, dielectric, optical and magnetic properties will be developed in the context of metals, semiconductors, insulators, crystals, glasses, polymers and ceramics. Miniaturization and the nanotechnology revolution confronts materials science with challenges and opportunities. Examples in which nanoscale materials exhibit qualitatively different properties compared to bulk will be emphasized.
Course usually offered in spring term
Prerequisite: MSE 221
Activity: Lecture
1 Course Unit

MSE 220 Introduction to Materials Science and Engineering
The course is an introduction to the most important concepts in materials science and engineering with a goal of building the foundations for all other courses related to materials and how to think about materials in other areas of engineering and the physical sciences. It covers atomic bonding, crystal structure and symmetry, glasses, defects, diffusion, elasticity, plasticity, fracture, phase diagrams, phase transformations, and an introduction into thermal, electrical, magnetic and optical properties and materials processing. Material classes will include metals, ceramics, polymers, semiconductors, and composites.
Course usually offered in fall term
Prerequisite: PHYS 140 or MEAM 110
Corequisites: PHYS 141 and MATH 240
Activity: Lecture
1 Course Unit

MSE 221 Quantum Physics of Materials
This course develops the background in basic physics required to understand the behavior of electrons in atoms, molecules and solids. Beginning with experiments and ideas that led to the foundation and postulates of Quantum Mechanics, the behavior of an electron in simple potential wells is treated. The electron in a harmonic oscillator well and the Coulomb potential of a hydrogen atom are treated next. Pauli's exclusion principle and generalization to multi-particle systems are introduced. The Fermi energy, density of states and free electron band structure will be introduced. Many state-of-the-art materials analysis techniques will also be demonstrated throughout the course.
One-term course offered either term
Prerequisites: PHYS 140, 141 concurrent and MATH 240
Activity: Lecture
1 Course Unit
Notes: Meets Natural Science Requirement

MSE 250 Nano-scale Materials Lab
In this class you will learn laboratory methods used to synthesize materials, to examine the structure of materials, to measure electrical, mechanical and thermal properties, and to investigate the relationships between processing, structure and properties. Emphasis is placed on laboratory skills, technical understanding, and technical communications (figures, writing). The laboratory exercises involve: 1) learning how to use state of the art equipment for studying the properties and internal structure of materials, 2) qualitative and quantitative interpretation of data and observations, and 3) the development of analytical skills necessary to form general and fundamental conclusions from observations and data. This course focuses on how materials’ structure and chemistry can be controlled to tailor properties and how properties of nanoscale materials can differ significantly from their bulk counterparts.
Course usually offered in spring term
Prerequisite: MSE 220
Activity: Lecture
1 Course Unit

MSE 260 Energetics of Macro and Nano-scale Materials
Basic principles of chemical thermodynamics as applied to macro and nano-sized materials. This course will cover the fundamentals of classical thermodynamics as applied to the calculation and prediction of phase stability, chemical reactivity and synthesis of materials systems. The size-dependent properties of nano-sized systems will be explored through the incorporation of the thermodynamic properties of surfaces. The prediction of the phase stability of two and three component systems will be illustrated through the calculation and interpretation of phase diagrams for metallic, semiconductor, inorganic systems.
Course usually offered in spring term
Prerequisite: CHEM 102
Activity: Lecture
1 Course Unit

MSE 296 Introduction To Negotiation
Activity: Lecture
1 Course Unit
MSE 330 Self-Assembly of Soft Materials
Soft matter is found in diverse applications including sports (helmets & cloths); food (chocolate, egg); consumer products (e.g., lotions and shampoo); and devices (displays, electronics). Whereas solids and liquids are typically hard and crystalline or soft and fluid, respectively, soft matter can exhibit both solid and liquid like behavior. In this class, we investigate the thermodynamic and dynamic principles common to soft matter as well as soft (weak) forces, self-assembly and phase behavior. Classes of matter include colloidal particles, polymers, liquid crystalline molecules, amphiphilic molecules, biomacromolecules/membranes, and food. Active learning activities will be included.
Course usually offered in fall term
Also Offered As: BE 330
Prerequisites: CHEM 102 or equivalent; MSE 220 or BE 220 or introductory physical chemistry course.
Activity: Lecture
1 Course Unit

MSE 360 Structure at the Nanoscale
To understand the atomic arrangements of crystalline matter, this class focuses on crystallography, symmetry, and diffraction techniques. The first half focuses on learning how to describe the structure of crystalline matter through the basics of crystallography and symmetry by introducing two-dimensional symmetry operations, point, and plane groups; this knowledge is then extended into three-dimensions to arrive at an understanding of space lattices and space groups. The second half is concerned with applying this information to understand structures through various diffraction and microscopy techniques.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MSE 393 Materials Selection
Throughout mankind's history, materials have played a critical role in civilization and technology. The selection of materials has been based on availability and functionality. The rapid advances of materials technologies in the last 150 years, however, have made nearly all classes and forms of materials available, at a cost. These costs include the dollars and cents costs that typically accompany the use of stronger, lighter materials, but environmental costs are also important and significant. Therefore, in theory at least, materials selection can now proceed on a rational basis as an optimization process involving performance and costs - both financial and environmental. In this course, we will focus on structural applications where mechanical design is central. By the end of the course, the students can expect to acquire a level of engineering familiarity with a broad range of materials, and be prepared to undertake responsible material design projects in the future.
Course usually offered in spring term
Prerequisites: MSE 220, Junior standing or approval of the instructor
Activity: Lecture
1 Course Unit

MSE 405 Mechanical Behavior of Macro/Nanoscale Materials
The application of continuum and microstructural concepts to elasticity and plasticity and the mechanisms of plastic flow and fracture in metals, polymers and ceramics. Topics covered include elasticity, viscoelasticity, plasticity, crystal defects, strengthening, crystallographic effects, twinning, creep and fatigue. Emphasis will be on mathematical and physical understanding rather than problem solving.
Course usually offered in spring term
Also Offered As: MSE 505
Prerequisites: MSE 220 and/or MEAM 210 or the equivalent background, MATH 240 or equivalent
Activity: Lecture
1 Course Unit

MSE 430 Polymers and Biomaterials
Polymer is one of the most widely used materials in our daily life, from the rubber tires to clothes, from photoresists in chip manufacturing to flexible electronics and smart sensors, from Scotch tapes to artificial tissues. This course teaches entry-level knowledge in polymer synthesis, characterization, thermodynamics, and structure-property relationship. Emphasis will be on understanding both chemical and physical aspects of polymers, polymer chain size and molecular interactions that drive the microscopic and macroscopic structures and the resulting physical properties. We will discuss how to apply polymer designs to advance nanotechnology, electronics, energy and biotechnology. Case studies include thermodynamics of block copolymer thin films and their applications in nanolithography, shape memory polymers, hydrogels, and elastomeric deformation and applications.
Course usually offered in fall term
Also Offered As: CBE 430, CBE 510, MSE 580
Prerequisites: MSE 260 or equivalent course in Thermodynamics or Physical Chemistry (such as CBE 231, CHEM 221, MEAM 203)
Activity: Lecture
1 Course Unit

MSE 440 Phase Transformations
The state of matter is dependent upon temperature, thermal history, and other variables. In this course the science of structural transitions is treated, with the purpose in mind of utilizing them for producing materials with superior properties. The subjects covered include the methods of structural analysis, solidification, solid state transformation, and order-disorder transition.
Course usually offered in spring term
Prerequisites: MSE 220, MSE 260, or equivalent or permission of the instructor
Activity: Lecture
1 Course Unit
MSE 455 Electrochemical Engineering of Materials
After introducing electrochemical concepts (redox reactions, electrolytic versus galvanic cells, standard oxidation potentials), this course will cover the broad impact of electrochemical phenomena on materials. Topics that will be discussed include: (1) Materials extraction from their ores to finished products by electrowinning, (2) Chemical refining (Mond process) and electrorefining of materials, (3) Materials degradation by destructive electrochemical corrosion, (4) Three-dimensional nanostructured materials by selective electrochemical corrosion, (5) Enhancing the electrochemical performance of materials via nanostructuring - e.g. lithium-ion battery electrodes; (6) Enhancing the electrochemical performance of materials via surface chemistry - e.g. oxygen evolution electrocatalysts; (7) Light-enhanced electrochemical performance of materials - e.g. solar water splitting photoelectocatalysts. Students will be engaged in interactive classroom activities.
Course usually offered in fall term
Also Offered As: MSE 555
Activity: Lecture
1 Course Unit

MSE 460 Computational Materials Science
This course provides an introduction to modeling and simulation in materials science, covering continuum methods (e.g. finite element methods) and atomistic and molecular simulation (e.g. molecular dynamics). These tools play an increasingly important role in modern engineering. You will get hands-on training in both the fundamentals and applications of these methods to key engineering problems. The lectures will provide an exposure to areas of application, based on the scientific exploitation of the power of computation. We will use software packages (Comsol and LAMMPS) and thus extensive programming skills are not required. Matlab background needed for the course will be covered in a self-contained module.
One-term course offered either term
Prerequisites: Junior or Senior Standing. Ability to write simple computer codes would be an advantage.
Activity: Lecture
1 Course Unit

MSE 465 Fabrication and Characterization of Micro and Nanostructured Devices
This course surveys various processes that are used to produce materials structured at the micron and nanometer scales for electronic, optical and biological applications. Basic principles of materials chemistry, physics, thermodynamics and surface/interfacial science are applied to solid state, liquid, and colloidal approaches to making materials. A wide range of nano- and microfabrication techniques, including photolithography, soft lithography, nanoimprint lithography, 3D printing and self-assembly, are covered. The course is heavily lab based, with 30% of class time and 50% of the homework devoted to hands on experiences and lab report writing. Lab assignments are a series of structured individual/group projects. Evaluation is based on 3 lab reports, 4 problem sets with journal paper reading assignment, and a final project design.
Course usually offered in spring term
Also Offered As: MSE 565
Activity: Lecture
1 Course Unit

MSE 495 Senior Design
The senior design course is a two-semester capstone program that gives students the opportunity to design and execute an original experimental or theoretical project in materials science, engineering, or product/device development that is solving a real world problem. Students will work closely with a scientific advisor in their lab and meet once a week in the classroom to learn from an innovative curriculum that will build real-world skills in the context of their research and design project. These skills include project management, networking, teamwork, impactful written and verbal communications, upward management, self-reflection and feedback. Students will also learn how to design research in the context of having an impact on the world. This will be through weekly vignettes of innovative materials science solutions that solve problems in industries ranging from construction to healthcare to consumer products.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MSE 496 Senior Design
The senior design course is a two-semester capstone program that gives students the opportunity to design and execute an original experimental or theoretical project in materials science, engineering, or product/device development that is solving a real world problem. Students will work closely with a scientific advisor in their lab and meet once a week in the classroom to learn from an innovative curriculum that will build real-world skills in the context of their research and design project. These skills include project management, networking, teamwork, impactful written and verbal communications, upward management, self-reflection and feedback. Students will also learn how to design research in the context of having an impact on the world. This will be through weekly vignettes of innovative materials science solutions that solve problems in industries ranging from construction to healthcare to consumer products.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MSE 500 Experimental Methods in Materials Science
This laboratory course introduces students to a variety of experimental methods used in materials science and engineering. Hands-on training will be provided for atomic force microscopy, X-ray diffraction and scattering, mechanical testing with image capture, and dynamic light scattering. Students will use numerous software packages for data collection and analysis, as well as being introduced to LabVIEW as a method for customizing experiments. In addition, students will see demonstrations of scanning electron microscopy, transmission electron microscopy, and electron diffraction and analyze data from these methods. The format for the course will include a weekly lecture (1.5 hours), a weekly lab session (4 hours) and six assignments.
Course usually offered in fall term
Prerequisites: Permission of the Undergraduate Curriculum Chair and Instructor
Activity: Lecture
1 Course Unit
MSE 505 Mechanical Properties of Macro/Nanoscale Materials
The application of continuum and microstructural concepts to elasticity and plasticity and the mechanisms of plastic flow and fracture in metals, polymers and ceramics. Topics covered include elasticity, viscoelasticity, plasticity, crystal defects, strengthening, crystallographic effects, twinning, creep and fatigue. Emphasis will be on mathematical and physical understanding rather than problem solving.
Course usually offered in spring term
Also Offered As: MSE 405
Activity: Lecture
1 Course Unit

MSE 507 Fundamentals of Materials
This course will provide a graduate level introduction to the science and engineering of materials. It is designed specifically to meet the needs of students who will be doing research that involves materials but who do not have an extensive background in the field. The focus is on fundamental aspects of materials science and will emphasize phenomena and how to describe them.
One-term course offered either term
Activity: Lecture
1 Course Unit

MSE 515 Mathematics for Materials Science
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MSE 520 Structure of Materials
Course usually offered in spring term
Prerequisites: Permission of the Undergraduate Curriculum Chair and Instructor
Activity: Lecture
1 Course Unit

MSE 525 Nanoscale Science and Engineering
Overview of existing device and manufacturing technologies in microelectronics, optoelectronics, magnetic storage, Microsystems, and biotechnology. Overview of near- and long-term challenges facing those fields. Near- and long-term prospects of nanoscience and related technologies for the evolutionary sustension of current approaches, and for the development of revolutionary designs and applications.
Course usually offered in fall term
Also Offered As: ESE 525
Prerequisites: ESE 218 or PHYS 240 or MSE 220 or equivalent, or by permission
Activity: Lecture
1 Course Unit

MSE 530 Thermodynamics and Phase Equilibria
Fundamental elements of engineering thermodynamics, statistical thermodynamics, chemical thermodynamics and defect thermodynamics. Thermodynamic functions, stability, phase transitions, mixtures (gases, condensed matter, polymer solution), defects and interfaces. Phase diagrams and predominance diagrams. Applications to energy problems (engines, efficiency, power, electrochemical cells) and properties (Curie’s law, rubber elasticity, specific heat, phonon/photon spectra, constitutive equations, equation of states).
Course usually offered in fall term
Prerequisites: Permission of the Undergraduate Curriculum Chair and Instructor
Activity: Lecture
1 Course Unit

MSE 536 Electronic Properties of Materials
This course will introduce the physical principles underlying broad spectrum of electronic properties in the solid state. Starting with the band structure of solids, the course will give an overview of electronic, dielectric, magnetic, thermal and optical properties of materials. The treatment will use quantum mechanical and statistical mechanical concepts familiar to students at the undergraduate level. Commonly used theories and models will be introduced and their predictions will be compared with observations. Students who have taken MSE 221/ MSE 260 and/or MSE 570/MSE 575 will benefit from this advanced introduction to material properties.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MSE 537 Nanotribology
Engineering is progressing to ever smaller scales, enabling new technologies, materials, devices, and applications. This course will provide an introduction to nano-scale tribology and the critical role it plays in the developing areas of nanoscience and nanotechnology. We will discuss how contact, adhesion, friction, lubrication, and wear at interfaces originate, using an integrated approach that combines concepts of mechanics, materials science, chemistry, and physics. We will cover a range of concepts and applications, drawing connections to both established and new approaches. We will discuss the limits of continuum mechanics and present newly developed theories and experiments tailored to describe micro- and nano-scale phenomena. We will emphasize specific applications throughout the course. Reading of scientific literature, critical peer discussion, individual and team problem assignments, and a peer-reviewed literature research project will be assigned as part of the course.
Taught by: Faculty
One-term course offered either term
Prerequisites: Freshman physics, MEAM 354 or equivalent, or consent of instructor.
Activity: Lecture
1 Course Unit
MSE 540 Phase Transformations
The phase of a material determines macroscopic properties such as strength, diffusion, and permeability. Whereas thermodynamics provides an idealistic understanding of phase behavior, the real phase (composition) and morphology of a solid material depends on the rate of transformation from one state to another. Namely, kinetics is the study of the rates at which systems approach the ideal state predicted by thermodynamics. Thus, transport/diffusion underlies our understanding of phase transformations. Technology applications will include, polymer nanocomposites as kinetically arrested materials, rapid solidification to create new materials, purification methods for integrated circuits, and drug delivery.
Course usually offered in spring term
Prerequisites: Permission of the Undergraduate Curriculum Chair and Instructor
Activity: Lecture
1 Course Unit

MSE 545 Materials for Energy and Environmental Sustainability
This course will cover the fundamental materials science issues central to the design of sustainable energy technology. The goal of this course is to expose students to the emerging advances in materials science and materials chemistry that underpin technologies for energy conversion (fuel cells, thermoelectrics, photovoltaics, wind energy etc.), storage (biofuels, artificial photosynthesis, batteries etc) and distribution (smart grids and hydrogen and methane economy concepts etc.) and to place these in a real world context. This class will emphasize concepts in "green materials and green engineering practices" that are emerging with a global focus on "Sustainable Technology." "Sustainability is defined as meeting the needs of the present without compromising the ability of future generations to meet their needs." Engineering materials and processes at all scales; molecular/nanometer, micro, and the macro-scale are critical to developing the tools society required to meet the growing needs for energy and sustainable materials for the built environment. This course is appropriate for graduate students and advanced undergraduates in Penn's Material Science Programs. Core MSE curriculum components in thermodynamics, structure, electronic & ionic transport, mechanics, polymers and optical materials will be expected, and exposure to the preparation in basic Chemistry and Physics will be advantageous in this highly interdisciplinary course.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MSE 550 Elasticity and Micromechanics of Materials
This course is targeted to engineering students working in the areas on micro/nanomechanics of materials. The course will start with a quick review of the equations of linear elasticity and proceed to solutions of specific problems such as the Hertz contact problem, Eshelby's problem, etc. Failure mechanisms such as fracture and the fundamentals of dislocations/plasticity will also be discussed.
Taught by: Vitek
Course usually offered in fall term
Prerequisites: Permission of the Undergraduate Curriculum Chair and Instructor
Activity: Lecture
1 Course Unit

MSE 555 Electrochemical Engineering of Materials
After introducing electrochemical concepts (redox reactions, electrolytic versus galvanic cells, standard oxidation potentials), this course will cover the broad impact of electrochemical phenomena on materials. Topics that will be discussed include: (1) Materials extraction from their ores to finished products by electrowinning, (2) Chemical refining (Mond process) and electrorefining of materials, (3) Materials degradation by destructive electrochemical corrosion, (4) Three-dimensional nanostructured materials by selective electrochemical corrosion, (5) Enhancing the electrochemical performance of materials via nanostructuring - e.g. lithium-ion battery electrodes; (6) Enhancing the electrochemical performance of materials via surface chemistry - e.g. oxygen evolution electrocatalysts; (7) Light-enhanced electrochemical performance of materials - e.g. solar water splitting photoelectrocatalysts. Students will be engaged in interactive classroom activities.
Course usually offered in fall term
Also Offered As: MSE 455
Activity: Lecture
1 Course Unit

MSE 561 Atomic Modeling in Materials Science
This course covers two major aspects of atomic level computer modeling in materials. 1. Methods: Molecular statics, Molecular dynamics, Monte Carlo, Kinetic Monte Carlo as well as methods of analysis of the results such as radial distribution function, thermodynamics deduced from the molecular dynamics, fluctuations, correlations and autocorrelations. 2. Semi-empirical descriptions of atomic interactions: pair potentials, embedded atom method, covalent bonding, ionic bonding. Basics of the density functional theory. Mechanics, condensed matter physics, thermodynamics and statistical mechanics needed in interpretations are briefly explained.
Course usually offered in spring term
Prerequisites: Ability to write a basic code in a computer language such as fortran, C, C++
Activity: Lecture
1 Course Unit

MSE 565 Fabrication and Characterization of Nanostructured Devices
This course surveys various processes that are used to produce materials structured at the micron and nanometer scales for electronic, optical and biological applications. Basic principles of materials chemistry, physics, thermodynamics and surface/interfacial science are applied to solid state, liquid, and colloidal approaches to making materials. A wide range of nano- and microfabrication techniques, including photolithography, soft lithography, nanoimprint lithography, 3D printing and self-assembly, are covered. The course is heavily lab based, with 30% of class time and 50% of the homework devoted to hands on experiences and lab report writing. Lab assignments are a series of structured individual/group projects. Evaluation is based on 3 lab reports, 4 problem sets with journal paper reading assignment, and a final project design.
Course usually offered in spring term
Also Offered As: MSE 465
Prerequisite: MSE 360 or permission of the instructor
Activity: Lecture
1 Course Unit
MSE 570 Physics of Materials I
Failures of classical physics and the historical basis for quantum theory. Postulates of wave mechanics; uncertainty principle, wave packets and wave-particle duality. Schrodinger equation and operators; eigenvalue problems in 1 and 3 dimensions (barriers, wells, hydrogen, atom). Perturbation theory; scattering of particles and light. Use of computer-aided self-study will be made.
Course usually offered in fall term
Prerequisites: Undergraduate physics and math through modern physics and differential equations
Activity: Lecture
1 Course Unit

MSE 575 Statistical Mechanics
Statistical Mechanics is a unique branch of physics that permeates our understanding of matter at all length scales, from nanometers to stellar dimensions, and ranging in temperatures from pico-Kelvin (or lower) to billions of degrees Kelvin. This course will provide an overview of select topics in equilibrium and non-equilibrium statistical mechanics. The course will introduce the basic postulates of classical and quantum equilibrium statistical mechanics, explain the methodology of calculating observable properties, and discuss several applications in diverse fields. The second part of the course will introduce the methodology of non-equilibrium processes and discussing important theorems and results in the linear response regime. Finally, a brief discussion of systems far from equilibrium will be presented. Select applications from condensed matter physics, chemistry, materials science, biology, astrophysics, economics and meteorology will be used to illustrate the fundamental principles.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MSE 580 Polymers and Biomaterials
Polymer is one of the most widely used materials in our daily life, from the rubber tires to clothes, from photoresists in chip manufacturing to flexible electronics and smart sensors, from Scotch tapes to artificial tissues. This course teaches entry-level knowledge in polymer synthesis, characterization, thermodynamics, and structure-property relationship. Emphasis will be on understanding both chemical and physical aspects of polymers, polymer chain size and molecular interactions that drive the microscopic and macroscopic structures and the resulting physical properties. We will discuss how to apply polymer designs to advance nanotechnology, electronics, energy and biotechnology. Case studies include thermodynamics of block copolymer thin films and their applications in nanolithography, shape memory polymers, hydrogels, and elastomeric deformation and applications.
Course usually offered in fall term
Also Offered As: MSE 430
Prerequisites: MSE 260 or equivalent course in thermodynamics or physical chemistry (such as CBE 231, MEAM 203)
Activity: Lecture
1 Course Unit

MSE 597 Master's Thesis Research
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

MSE 599 Master's Indep Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

MSE 610 Transmission Electron Microscopy and Crystalline Imperfections
Theory and application of transmission electron microscopy methods to problems in materials science and engineering, condensed matter physics, soft matter, polymeric materials, inorganic chemistry and chemical engineering. The principles of microscope operation, electron scattering, image formation and spectroscopy will be described, with an emphasis on both theory and experiment. With laboratory.
Course not offered every year
Activity: Lecture
1 Course Unit

MSE 640 Optical Materials
This course discusses the optical properties of modern materials engineered for specific functionality and cover exciting new developments being made in this rapidly evolving field. Emphasis is placed on how modern nanotechnology reshapes the light-matter interaction and delivers novel optical properties that are not available in nature.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MSE 650 Mechanics of Soft and Biomaterials
This course is aimed to expose the students to a variety of topics in mechanic materials via discussion of “classic” problems that have had the widest impact long period of time and have been applied to analyze the mechanical behavior a variety of biological and engineering materials.
Course not offered every year
Activity: Lecture
1 Course Unit

MSE 790 Selected Topics in Materials Science and Engineering
Students should check department office for special topics.
One-term course offered either term
Notes: Both terms

MSE 895 Teaching Practicum.
One-term course offered either term
Activity: Lecture
1 Course Unit
MATH 104 Calculus, Part I
Brief review of High School calculus, applications of integrals, transcendental functions, methods of integration, infinite series, Taylor’s theorem, and first order ordinary differential equations. Use of symbolic manipulation and graphics software in calculus.
One-term course offered either term
Prerequisites: None. Engineering students are encouraged to register for the 006 lecture and group 6 recitations.
Activity: Recitation
1 Course Unit
Notes: This is a Formal Reasoning course.

MATH 110 Calculus for Wharton Students
Differential calculus, integral calculus, series, differential equations and elements of multivariable calculus, with an emphasis on applications.
One-term course offered either term
Activity: Lecture
1 Course Unit

MATH 114 Calculus, Part II
Functions of several variables, vector-valued functions, partial derivatives and applications, double and triple integrals, conic sections, polar coordinates, vectors and vector calculus, first order ordinary differential equations. Applications to physical sciences. Use of symbolic manipulation and graphics software in calculus.
One-term course offered either term
Prerequisite: Math 104
Activity: Recitation
1 Course Unit
Notes: This is a Formal Reasoning course.

MATH 115 Calculus, Part II with Probability and Matrices
Functions of several variables, partial derivatives, multiple integrals, differential equations; introduction to linear algebra and matrices with applications to linear programming and Markov processes. Elements of probability and statistics. Applications to social and biological sciences. Use of symbolic manipulation and graphics software in calculus.
One-term course offered either term
Prerequisite: Math 104
Activity: Recitation
1 Course Unit
Notes: This is a Formal Reasoning course.

MATH 116 Honors Calculus
Students who are interested in math or science might also want to consider a more challenging Honors version of Calculus II and III, Math 116 and Math 260 (the analogues of Math 114 and Math 240, respectively). These courses will cover essentially the same material as 114 and 240, but more in depth and involve discussion of the underlying theory as well as computations.
One-term course offered either term
Activity: Recitation
1 Course Unit
Notes: This is a Formal Reasoning course.

MATH 122 Community Algebra Initia
Community Algebra Initiative
One-term course offered either term
Activity: Lecture
1 Course Unit

MATH 123 Community Math Teaching Project
This course allows Penn students to teach a series of hands-on activities to students in math classes at University City High School. The semester starts with an introduction to successful approaches for teaching math in urban high schools. The rest of the semester will be devoted to a series of weekly hands-on activities designed to teach fundamental aspects of geometry. The first class meeting of each week, Penn faculty teach Penn students the relevant mathematical background and techniques for a hands-on activity. During the second session of each week, Penn students will teach the hands-on activity to a small group of UCHS students. The Penn students will also have an opportunity to develop their own activity and to implement it with the UCHS students.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 170 Ideas in Mathematics
Topics from among the following: logic, sets, calculus, probability, history and philosophy of mathematics, game theory, geometry, and their relevance to contemporary science and society.
For BA Students: Natural Science and Math Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: May also be counted toward the General Requirement in Natural Science Mathematics

MATH 180 Analytical Methods in Economics, Law, and Medicine
Elementary applications of decision analysis, game theory, probability and statistics to issues in accounting, contracting, finance, law, and medicine, amongst others.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 202 Proving Things: Analysis
This course focuses on the creative side of mathematics, with an emphasis on discovery, reasoning, proofs and effective communication, while at the same time studying real and complex numbers, sequences, series, continuity, differentiability and integrability. Small class sizes permit an informal, discussion-type atmosphere, and often the entire class works together on a given problem. Homework is intended to be thought-provoking, rather than skill-sharpening.
One-term course offered either term
Corequisites: Math 104, 114 or 240
Activity: Seminar
1 Course Unit

MATH 203 Proving things: Algebra
This course focuses on the creative side of mathematics, with an emphasis on discovery, reasoning, proofs and effective communication, while at the same time studying arithmetic, algebra, linear algebra, groups, rings and fields. Small class sizes permit an informal, discussion-type atmosphere, and often the entire class works together on a given problem. Homework is intended to be thought-provoking, rather than skill-sharpening.
One-term course offered either term
Corequisites: Math 104, 114 or 240
Activity: Lecture
1 Course Unit
MATH 210 Mathematics in the Age of Information
This course counts as a regular elective for both the Mathematics Major and Minor. This is a course about mathematical reasoning and the media. Embedded in many stories one finds in the media are mathematical questions as well as implicit mathematical models for how the world behaves. We will discuss ways to recognize such questions and models, and how to think about them from a mathematical perspective. A key part of the course will be about what constitutes a mathematical proof, and what passes for proof in various media contexts. The course will cover a variety of topics in logic, probability and statistics as well as how these subjects can be used and abused.
One-term course offered either term
Prerequisites: Math 114, Math 115 or equivalent
Activity: Lecture
1 Course Unit

MATH 240 Calculus, Part III
Linear algebra: vectors, matrices, systems of linear equations, vector spaces, subspaces, spans, bases, and dimension, eigenvalues, and eigenvectors, matrix exponentials. Ordinary differential equations: higher-order homogeneous and inhomogeneous ODEs and linear systems of ODEs, phase plane analysis, non-linear systems.
One-term course offered either term
Prerequisite: Math 114
Activity: Recitation
1 Course Unit

MATH 241 Calculus, Part IV
Partial differential equations and their solutions, including solutions of the wave, heat and Laplace equations, and Sturm-Liouville problems. Introduction to Fourier series and Fourier transforms. Computation of solutions, modeling using PDE's, geometric intuition, and qualitative understanding of the evolution of systems according to the type of partial differential operator.
One-term course offered either term
Prerequisite: MATH 240
Activity: Recitation
1 Course Unit

MATH 260 Honors Calculus, Part II
This is an honors version of Math 240 which explores the same topics but with greater mathematical rigor.
Course not offered every year
Prerequisite: Math 114
Activity: Recitation
1 Course Unit

MATH 290 Undergraduate Mathematics Research Course
This is a project oriented mathematics research class that teaches students to solve real world problems by constructing and analyzing a mathematical model. Typically the problems that the projects solve can come from mathematics, chemistry, biology, and material science but sometimes we also have problems from economics, finance, and social sciences. The research problems in the course can vary from year to year.
Activity: Lecture
1 Course Unit

MATH 299 Undergraduate Research in Mathematics
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MATH 312 Linear Algebra
Linear transformations, Gauss Jordan elimination, eigenvalues and eigenvectors, theory and applications. Mathematics majors are advised that MATH 312 cannot be taken to satisfy the major requirements.
Course not offered every year
Prerequisite: MATH 240
Activity: Lecture
1 Course Unit
Notes: Students who have already received credit for either Math 370, 371, 502 or 503 cannot receive further credit for Math 312 or Math 313/513. Students can receive credit for at most one of Math 312 and Math 313/513.

MATH 313 Computational Linear Algebra
Many important problems in a wide range of disciplines within computer science and throughout science are solved using techniques from linear algebra. This course will introduce students to some of the most widely used algorithms and illustrate how they are actually used. Some specific topics: the solution of systems of linear equations by Gaussian elimination, dimension of a linear space, inner product, cross product, change of basis, affine and rigid motions, eigenvalues and eigenvectors, diagonalization of both symmetric and non-symmetric matrices, quadratic polynomials, and least squares optimization.
Prerequisites: Math 240, and some programming experience.
Activity: Lecture
1 Course Unit
Notes: Students who have already received credit for either Math 370, 371, 502 or 503 cannot receive further credit for Math 312 or Math 313.
Students can receive credit for at most one of Math 312 and Math 313.

MATH 314 Advanced Linear Algebra
Topics will include: Vector spaces, Basis and dimension, quotients; Linear maps and matrices; Determinants, Dual spaces and maps; Invariant subspaces, Cononical forms; Scalar products: Euclidean, unitary and symplectic spaces; Orthogonal and Unitary operators; Tensor products and polylinear maps; Symmetric and skew-symmetric tensors and exterior algebra.
Taught by: Staff.
Prerequisites: Math 114 or 115.
Activity: Lecture
1 Course Unit
Notes: Students who have already received credit for either Math 312, 370, 502 or 503 cannot receive further credit for Math 312 or Math 313.
Students can receive credit for at most one of Math 312 and Math 313.

MATH 315 Computer Methods in Mathematical Science I
Students will use symbolic manipulation software and write programs to solve problems in numerical quadrature, equation-solving, linear algebra and differential equations. Theoretical and computational aspects of the methods will be discussed along with error analysis and a critical comparison of methods.
Course usually offered in fall term
Prerequisites: MATH 240 or concurrent and ability to program a computer, or permission of instructor
Activity: Lecture
1 Course Unit
MATH 340 Discrete Mathematics I
Topics will be drawn from some subjects in combinatorial analysis with applications to many other branches of math and science: graphs and networks, generating functions, permutations, posets, asymptotics. Course not offered every year
Prerequisites: MATH 114 or Math 115 or permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 341 Discrete Mathematics II
Topics will be drawn from some subjects useful in the analysis of information and computation: logic, set theory, theory of computation, number theory, probability, and basic cryptography.
Prerequisites: MATH 340/Logic 210 or permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 350 Number Theory
Congruences, Diophantine equations, continued fractions, nonlinear congruences, and quadratic residues.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 360 Advanced Calculus
Syllabus for MATH 360-361: a study of the foundations of the differential and integral calculus, including the real numbers and elementary topology, continuous and differentiable functions, uniform convergence of series of functions, and inverse and implicit function theorems. MATH 508-509 is a masters level version of this course.
One-term course offered either term
Prerequisite: MATH 240
Activity: Lecture
1 Course Unit

MATH 361 Advanced Calculus
Continuation of MATH 360.
One-term course offered either term
Prerequisite: MATH 360
Activity: Lecture
1 Course Unit

MATH 370 Algebra
Syllabus for MATH 370-371: an introduction to the basic concepts of modern algebra. Linear algebra, eigenvalues and eigenvectors of matrices, groups, rings and fields. MATH 502-503 is a masters level version of this course.
One-term course offered either term
Prerequisites: MATH 240 and Math 314, or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Students who have already received credit for either Math 370, 371, 502 or 503 cannot receive further credit for Math 312 or Math 313/513. Students can receive credit for at most one of Math 312 and Math 313/513.

MATH 371 Algebra
Continuation of MATH 370.
One-term course offered every term
Prerequisites: MATH 240, Math 314 and MATH 370, or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Students who have already received credit for either Math 370, 371, 502 or 503 cannot receive further credit for Math 312 or Math 313/513. Students can receive credit for at most one of Math 312 and Math 313/513.

MATH 410 Complex Analysis
Complex numbers, DeMoivre's theorem, complex valued functions of a complex variable, the derivative, analytic functions, the Cauchy-Riemann equations, complex integration, Cauchy's integral theorem, residues, computation of definite integrals by residues, and elementary conformal mapping.
One-term course offered either term
Prerequisite: MATH 240 or permission of instructor
Activity: Lecture
1 Course Unit

MATH 420 Ordinary Differential Equations
After a rapid review of the basic techniques for solving equations, the course will discuss one or more of the following topics: stability of linear and nonlinear systems, boundary value problems and orthogonal functions, numerical techniques, Laplace transform methods.
One-term course offered either term
Prerequisite: MATH 240 or permission of instructor
Activity: Lecture
1 Course Unit

MATH 425 Partial Differential Equations
Method of separation of variables will be applied to solve the wave, heat, and Laplace equations. In addition, one or more of the following topics will be covered: qualitative properties of solutions of various equations (characteristics, maximum principles, uniqueness theorems), Laplace and Fourier transform methods, and approximation techniques.
Course usually offered in fall term
Prerequisites: MATH 240 or permission of instructor. Knowledge of PHYS 150-151 will be helpful.
Activity: Lecture
1 Course Unit

MATH 432 Game Theory
A mathematical approach to game theory, with an emphasis on examples of actual games. Topics will include mathematical models of games, combinatorial games, two person (zero sum and general sum) games, non-cooperating games and equilibria.
One-term course offered either term
Prerequisites: Math 240.
Activity: Lecture
1 Course Unit

MATH 460 Topology
Point set topology: metric spaces and topological spaces, compactness, connectedness, continuity, extension theorems, separation axioms, quotient spaces, topologies on function spaces, Tychonoff theorem. Fundamental groups and covering spaces, and related topics.
Course not offered every year
Prerequisites: MATH 240 and 241
Activity: Lecture
1 Course Unit
MATH 465 Differential Geometry
Differential geometry of curves in the plane and in 3-space; n gauge theories. Surfaces in 3-space; The geometry of the Gauss map; ons. The language of Intrinsic geometry of surfaces; Geodesics; Moving frames; of vector bundles, The Gauss-Bonnet Theorem; Assorted additional topics. Course not offered every year
Prerequisites: MATH 361 or Permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 480 Topics in Modern Math
Mathematics 480 will open with a review of the basics of real analysis (brief or extended background requires). The review will include: introduction of the real numbers through Dedekind cuts, continuity of real-valued functions on the real line; Cantor nested-interval principle, basic results for continuous functions, Maximum and Intermediate Value theorems, Heine-Borel Theorem, Uniform Continuity on closed intervals; metric spaces, convergence of sequences, Cauchy sequences, completeness, more general uniform continuity and intermediate value theorems; general topology, separation, compactness, product spaces, Tychonoff's Theorem. Special topics in analysis: Weierstrass Polynomial Approximation Theorem, Bernstein polynomials and simultaneous approximations and derivatives, topics from divergent series, summation methods; r measure theory, the Lebesgue integral, Lp spaces, Holder, Minkowski, and and Cauchy-Schwarz inequalities; basics of Functional Analysis, normed spaces, Banach spaces and Hilbert space, with examples (Lp spaces, continuous-functions spaces), Banach spaces and spectral theory, groups and Fourier transforms, Tauberian theorems; approximation theory, again, through the prism of functional analysis; extension of the polynomial approximation theorem (Stone-Weierstrass theorem), Muntz approximation theorem (by polynomials with preassigned powers), compact operators, the Spectral theorem, Stone's theorem (representations of the additive group of real numbers); Peter-Weyl theory (representations of compact groups). A selection from these topics as time and class preparation allow. Course not offered every year
Prerequisites: A year of analysis at the 300 level or above (for example, Mathematics 360-361,508-509); a semester of linear algebra at the 300 level or above (for example, Mathematics 370).
Activity: Lecture
1 Course Unit

MATH 499 Supervised Study
Study under the direction of a faculty member. Intended for a limited number of mathematics majors.
One-term course offered either term
Prerequisite: Permission of major adviser
Activity: Independent Study
1 Course Unit
Notes: Hours and credit to be arranged

MATH 500 Geometry-Topology, Differential Geometry
Point set topology, metric spaces and topological spaces, compactness, connectedness, continuity, extension theorems, separation axioms, quotient spaces, topologies on function spaces, Tychonoff theorem. Fundamental groups and covering spaces, and related topics. Course not offered every year
Prerequisites: Math 240 and 241.
Activity: Lecture
1 Course Unit

MATH 501 Geometry-Topology, Differential Geometry
The course moves from a study of extrinsic geometry (curves and surfaces in n-space) to the intrinsic geometry of manifolds. After a review of vector calculus and a section on tensor algebra, we study manifolds and their intrinsic geometry, including metrics, connections, geodesics, and the Riemann curvature tensor. Topics include Eulerian curvature and Euler's theorems, the Gauss map and first/second fundamental forms, the Theorema Egregium, minimal surfaces in n-space; other topics as time permits.
Course not offered every year
Prerequisites: Math 240, Math 312 (or 370), and Math 361 (or 508); or Math 500; or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 502 Abstract Algebra
An introduction to groups, rings, fields and other abstract algebraic systems, elementary Galois Theory, and linear algebra – a more theoretical course than Math 370.
Course usually offered in fall term
Prerequisites: Math 240 or Math 260; and Math 314/514 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Students who have already received credit for either Math 370, 371, 502 or 503 cannot receive further credit for Math 312 or Math 313/513. Students can receive credit for at most one of Math 312 and Math 313/513.

MATH 503 Abstract Algebra
Continuation of Math 502.
Course usually offered in spring term
Prerequisites: Math 502 or with the permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Students who have already received credit for either Math 370, 371, 502 or 503 cannot receive further credit for Math 312 or Math 313/513. Students can receive credit for at most one of Math 312 and Math 313/513.

MATH 504 Graduate Proseminar in Mathematics
This course focuses on problems from Algebra (especially linear algebra and multilinear algebra) and Analysis (especially multivariable calculus through vector fields, multiple integrals and Stokes theorem). The material is presented through student solving of problems. In addition there will be a selection of advanced topics which will be accessible via this material.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MATH 505 Graduate Proseminar in Mathematics
This course focuses on problems from Algebra (especially linear algebra and multilinear algebra) and Analysis (especially multivariable calculus through vector fields, multiple integrals and Stokes theorem). The material is presented through student solving of problems. In addition there will be a selection of advanced topics which will be accessible via this material.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
MATH 508 Advanced Analysis
Construction of real numbers, the topology of the real line and the foundations of single variable calculus. Notions of convergence for sequences of functions. Basic approximation theorems for continuous functions and rigorous treatment of elementary transcendental functions. The course is intended to teach students how to read and construct rigorous formal proofs. More theoretical course than Math 360.
Course usually offered in fall term
Prerequisites: Math 240 and 241. Math 200 and 201 also recommended.
Activity: Lecture
1 Course Unit

MATH 509 Advanced Analysis
Course usually offered in spring term
Prerequisites: Math 508 or the permission of the instructor. Linear algebra is also helpful.
Activity: Lecture
1 Course Unit

MATH 512 Advanced Linear Algebra
Topics will include: Vector spaces, Basis and dimension, quotients; Linear maps and matrices; Determinants, Dual spaces and maps; Invariant subspaces, Canonical forms; Scalar products; Euclidean, unitary and symplectic spaces; Orthogonal and Unitary operators; Tensor products and polylinear maps; Symmetric and skew-symmetric tensors and exterior algebra.
Prerequisites: Math 114 or 115.
Activity: Lecture
1 Course Unit
Notes: Math 512 covers Linear Algebra at the advanced level with a theoretical approach. Students can receive credit for at most one of Math 312 and Math 512.

MATH 513 Computational Linear Algebra
A number of important and interesting problems in a wide range of disciplines within computer science are solved by recourse to techniques from linear algebra. The goal of this course will be to introduce students to some of the most important and widely used algorithms in matrix computation and to illustrate how they are actually used in various settings. Motivating applications will include: the solution of systems of linear equations, applications matrix computations to modeling geometric transformations in graphics, applications of the Discrete Fourier Transform and related techniques in digital signal processing, the solution of linear least squares optimization problems and the analysis of systems of linear differential equations. The course will cover the theoretical underpinnings of these problems and the numerical algorithms that are used to perform important matrix computations such as Gaussian Elimination, LU Decomposition and Singular Value Decomposition.
Activity: Lecture
1 Course Unit

MATH 514 Advanced Linear Algebra
Topics will include: Vector spaces, Basis and dimension, quotients; Linear maps and matrices; Determinants, Dual spaces and maps; Invariant subspaces, Canonical forms; Scalar products; Euclidean, unitary and symplectic spaces; Orthogonal and Unitary operators; Tensor products and polylinear maps; Symmetric and skew-symmetric tensors and exterior algebra.
Prerequisites: Math 114 or Math 115
Activity: Lecture
1 Course Unit

MATH 520 Selections from Algebra
Informal introduction to such subjects as homological algebra, number theory, and algebraic geometry.
Course not offered every year
Corequisite: Math 502 or permission of the instructor
Activity: Lecture
1 Course Unit

MATH 530 Mathematics of Finance
This course presents the basic mathematical tools to model financial markets and to make calculations about financial products, especially financial derivatives. Mathematical topics covered: stochastic processes, partial differential equations and their relationship. No background in finance is assumed.
Course not offered every year
Prerequisites: Math 240, Stat 430
Activity: Lecture
1 Course Unit

MATH 546 Advanced Probability
The required background is (1) enough math background to understand proof techniques in real analysis (closed sets, uniform convergence, fourier series, etc.) and (2) some exposure to probability theory at an intuitive level (a course at the level of Ross's probability text or some exposure to probability in a statistics class). After a summary of the necessary results from measure theory, we will learn the probabilist's lexicon (random variables, independence, etc.). We will then develop the necessary techniques (Borel Cantelli lemmas, estimates on sums of independent random variables and truncation techniques) to prove the classical laws of large numbers. Next come Fourier techniques and the Central Limit Theorem, followed by combinatorial techniques and the study of random walks.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MATH 547 Stochastic Processes
Course not offered every year
Prerequisites: Math 546/Stat 930 the equivalent.
Activity: Lecture
1 Course Unit

MATH 560 Selections from Geometry and Topology
Informal introduction to such subjects as homology and homotopy theory, classical differential geometry, dynamical systems, and knot theory.
Course not offered every year
Corequisite: Math 500 or permission of the instructor
Activity: Lecture
1 Course Unit
MATH 561 Selections from Geometry and Topology
Informal introduction to such subjects as homology and homotopy theory, classical differential geometry, dynamical systems, and knot theory.
Course not offered every year
Corequisite: Math 500 or permission of the instructor
Activity: Lecture
1 Course Unit

MATH 570 Introduction to Logic and Computability
Course not offered every year
Prerequisite: Math 371 or Math 503
Activity: Lecture
1 Course Unit

MATH 571 Introduction to Logic and Computability
Continuation of Math 570.
Course not offered every year
Also Offered As: CIS 518
Prerequisites: Math 570 or with the permission of the instructor.
Activity: Seminar
1 Course Unit

MATH 580 Combinatorial Analysis and Graph Theory
Generating functions, enumeration methods, Polya's theorem, combinatorial designs, discrete probability, extremal graphs, graph algorithms and spectral graph theory, combinatorial and computational geometry.
Course not offered every year
Prerequisite: Permission of the instructor
Activity: Lecture
1 Course Unit

MATH 581 Combinatorial Analysis and Graph Theory
Continuation of Math 580.
Course not offered every year
Prerequisites: Math 580 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 584 The Mathematics of Medical Imaging and Measurement
The last several decades have seen major revolutions in both medical and non-medical and imaging technologies. Underlying all of these advances are sophisticated mathematical tools to model the measurement process and reconstruct images. This course begins with an introduction of the mathematical models and then proceeds to discuss the integral transforms that underlie these models: the Fourier transform, the Radon transform and the Laplace transform. We discuss how each of these transforms is inverted, both in theory and in practice. Along the way we study interpolation, sampling, approximation theory, filtering and noise analysis. This course assumes a thorough knowledge of linear algebra and a knowledge of analysis at the undergraduate level (Math 314 and Math 360 and Math 361, or Math 508 and Math 509).
Taught by: Staff.
Course not offered every year
Also Offered As: BE 584
Prerequisites: Math 314 and Math 360 and 361, or Math 508 and 509 or with permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 586 Topics in Mathematical Biology
This course will cover various mathematical models and tools that are used to study modern biological problems. The specific emphasis will vary from year to year, but typically will include an introduction to stochastic processes and computational methods that arise in evolutionary biology and population genetics. No prior knowledge of biology is needed to take this course, but a strong background in probability and familiarity with algorithms and combinatorics will be assumed.
Prerequisites: Math 430 or equivalent is required. Math 241 and 340 are recommended.
Activity: Lecture
1 Course Unit

MATH 594 Mathematical Methods of Physics
Introduction to mathematics used in physics and engineering, with the goal of developing facility in classical techniques. Vector spaces, linear algebra, computation of eigenvalues and eigenvectors, boundary value problems, spectral theory of second order equations, asymptotic expansions, partial differential equations, differential operators and Green's functions, orthogonal functions, generating functions, contour integration, Fourier and Laplace transforms and an introduction to representation theory of SU(2) and SO(3). The course will draw on examples in continuum mechanics, electrostatics and transport problems.
Course not offered every year
Prerequisites: Math 241 or Permission of Instructor. Physics 151 would be helpful for undergraduates.
Activity: Lecture
1 Course Unit

MATH 599 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
MATH 600 Topology and Geometric Analysis
Differentiable functions, inverse and implicit function theorems. Theory of manifolds: differentiable manifolds, charts, tangent bundles, transversality, Sard’s theorem, vector and tensor fields and differential forms: Frobenius’ theorem, integration on manifolds, Stokes’ theorem in dimensions, de Rham cohomology. Introduction to Lie groups and Lie group actions. Course usually offered in fall term.
Prerequisites: Math 500 and 501 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 601 Topology and Geometric Analysis
Covering spaces and fundamental groups, van Kampen’s theorem and classification of surfaces. Basics of homology and cohomology, singular and cellular; isomorphism with de Rham cohomology. Brouwer fixed point theorem, CW complexes, cup and cap products, Poincare duality, Kunneth and universal coefficient theorems, Alexander duality, Lefschetz fixed point theorem. Course usually offered in spring term.
Prerequisites: Math 600 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 602 Algebra
Prerequisites: Math 370 and 371 or Math 502 and 503
Activity: Lecture
1 Course Unit

MATH 603 Algebra
Continuation of Math 602.
Course usually offered in spring term.
Prerequisites: Math 602 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 604 First Year Seminar in Mathematics
This is a seminar for first year Mathematics graduate student, supervised by faculty. Students give talks on topics from all areas of mathematics at a level appropriate for first year graduate students. Attendance and preparation will be expected by all participants, and learning how to present mathematics effectively is an important part of the seminar. Course usually offered in fall term.
Prerequisites: Open to first year Mathematics graduate students. Others need permission of the instructor.
Activity: Seminar
1 Course Unit

MATH 605 Topology and Geometric Analysis
Continuation of Math 601. Theory of manifolds, de Rham cohomology, intersection theory, homological algebra, topology of manifolds. Characteristic classes, cohomology of Lie groups, fiber bundles. Course usually offered in fall term.
Prerequisites: Math 600 and 601
Activity: Lecture
1 Course Unit

MATH 608 Analysis
Prerequisites: Math 508 and 509
Activity: Lecture
1 Course Unit

MATH 609 Analysis
Prerequisites: Math 608 or permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 610 Functional Analysis
Prerequisites: Math 608 or 609, some elementary complex analysis is essential.
Activity: Lecture
1 Course Unit

MATH 612 Selections from Algebra
Informal introduction to such subjects as homological algebra, number theory, and algebraic geometry. Course not offered every year.
Corequisites: MATH 600 and 602
Activity: Lecture
1 Course Unit

MATH 614 Algebraic Topology, Part I
Prerequisite: Math 600/601 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 619 Algebraic Topology, Part I
Rational homotopy theory, cobordism, K-theory, Morse theory and the h-cobordism theorem. Surgery theory. Course usually offered in spring term.
Prerequisites: Math 618 or with the permission of the instructor.
Activity: Lecture
1 Course Unit
MATH 620 Algebraic Number Theory
Dedekind domains, local fields, basic ramification theory, product formula, Dirichlet unit theory, finiteness of class numbers, Hensel's Lemma, quadratic and cyclotomic fields, quadratic reciprocity, abelian extensions, zeta and L-functions, functional equations, introduction to local and global class field theory. Other topics may include: Diophantine equations, continued fractions, approximation of irrational numbers by rationals, Poisson summation, Hasse principle for binary quadratic forms, modular functions and forms, theta functions.
Course not offered every year
Prerequisites: Math 602 and 603
Activity: Lecture
1 Course Unit

MATH 621 Algebraic Number Theory
Continuation of Math 620.
Course not offered every year
Prerequisites: Math 620 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 622 Complex Algebraic Geometry
Algebraic geometry over the complex numbers, using ideas from topology, complex variable theory, and differential geometry. Topics include: Complex algebraic varieties, cohomology theories, line bundles, vanishing theorems, Riemann surfaces, Abel's theorem, linear systems, complex tori and abelian varieties, Jacobian varieties, currents, algebraic surfaces, adjunction formula, rational surfaces, residues.
Course not offered every year
Prerequisites: Math 602 and 603 and Math 609
Activity: Lecture
1 Course Unit

MATH 623 Complex Algebraic Geometry
Continuation of Math 622.
Course not offered every year
Prerequisites: Math 622 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 624 Algebraic Geometry
Algebraic geometry over algebraically closed fields, using ideas from commutative algebra. Topics include: Affine and projective algebraic varieties, morphisms and rational maps, singularities and blowing up, rings of functions, algebraic curves, Riemann Roch theorem, elliptic curves, Jacobian varieties, sheaves, schemes, divisors, line bundles, cohomology of varieties, classification of surfaces.
Course not offered every year
Prerequisites: Math 602 and 603
Activity: Lecture
1 Course Unit

MATH 625 Algebraic Geometry
Continuation of Math 624.
Course not offered every year
Prerequisites: Math 624 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 626 Commutative Algebra
Topics in commutative algebra taken from the literature. Material will vary from year to year depending upon the instructor's interests.
Course not offered every year
Prerequisites: Math 602 and 603
Activity: Lecture
1 Course Unit

MATH 628 Homological Algebra
Complexes and exact sequences, homology, categories, derived functors (especially Ext and Tor). Homology and cohomology arising from complexes in algebra and geometry, e.g. simplicial and singular theories, Cech cohomology, de Rham cohomology, group cohomology, Hochschild cohomology. Projective resolutions, homological dimension, derived categories, spectral sequences. Other topics may include: Lie algebra cohomology, Galois and etale cohomology, cyclic cohomology, l-adic cohomology. Algebraic deformation theory, quantum groups, Brauer groups, descent theory.
Course not offered every year
Prerequisites: Math 602 and 603
Activity: Lecture
1 Course Unit

MATH 629 Homological Algebra
Continuation of Math 628.
Course not offered every year
Prerequisites: Math 628 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 642 Topics in Partial Differential Equations
Problems in differential geometry, as well as those in physics and engineering, inevitable involve partial derivatives. This course will be an introduction to these problems and techniques. We will use P.D.E. as a tool. Some of the applications will be small, some large. The proof of the Hodge Theorem will be a small application. Discussion of the Yamabe problem and ricci flow (used to prove the Poincare Conjecture) will be larger.
Prerequisites: Math 608, 609. This course will not presume courses in Partial Differential Equations or Differential Geometry. Background will be covered in the course.
Activity: Lecture
1 Course Unit

MATH 644 Partial Differential Equations
Subject matter varies from year to year. Some topics are: the classical theory of the wave and Laplace equations, general hyperbolic and elliptic equations, theory of equations with constant coefficients, pseudodifferential operators, and non-linear problems. Sobolev spaces and the theory of distributions will be developed as needed.
Course not offered every year
Prerequisites: Math 600 and 601, Math 608 and 609
Activity: Lecture
1 Course Unit
MATH 645 Partial Differential Equations
Subject matter varies from year to year. Some topics are: the classical
theory of the wave and Laplace equations, general hyperbolic and elliptic
equations, theory of equations with constant coefficients, pseudo-
differential operators, and nonlinear problems. Sobolev spaces and the
theory of distributions will be developed as needed.
Course not offered every year
Prerequisites: Math 600 and 601, Math 608 and 609
Activity: Lecture
1 Course Unit

MATH 649 Stochastic Processes
Conditional expectations, martingales, Markov chains, Brownian motion,
diffusions.
Prerequisite: Math 648
Activity: Lecture
1 Course Unit

MATH 652 Operator Theory
Subject matter may include spectral theory of operators in Hilbert space,
C*-algebras, von Neumann algebras.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 654 Lie Groups
Connection of Lie groups with Lie algebras, Lie subgroups, exponential
map. Algebraic Lie groups, compact and complex Lie groups, solvable
and nilpotent groups. Other topics may include relations with symplectic
geometry, the orbit method, moment map, symplectic reduction,
geometric quantization, Poisson-Lie and quantum groups.
Course not offered every year
Prerequisites: Math 600 and 601, Math 602 and 603
Activity: Lecture
1 Course Unit

MATH 655 Lie Groups
Continuation of Math 654.
Course not offered every year
Prerequisites: Math 654 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 656 Representation of Continuous Groups
Possible topics: harmonic analysis on locally compact abelian groups;
almost periodic functions; direct integral decomposition theory, Types I,
II and III: induced representations, representation theory of semisimple
groups.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 657 Representation of Continuous Groups
Possible topics: harmonic analysis on locally compact abelian groups;
almost periodic functions; direct integral decomposition theory, Types I,
II and III: induced representations, representation theory of semisimple
groups.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 660 Differential Geometry
Riemannian metrics and connections, geodesics, completeness, Hopf-
Rinow theorem, sectional curvature, Ricci curvature, scalar curvature,
Jacobi fields, second fundamental form and Gauss equations, manifolds
of constant curvature, first and second variation formulas, Bonnet-
Myers theorem, comparison theorems, Morse index theorem, Hadamard
theorem, Preissmann theorem, and further topics such as sphere
theorems, critical points of distance functions, the soul theorem, Gromov-
Hausdorff convergence.
Course not offered every year
Prerequisites: Math 600 and 601, Math 602 and 603
Activity: Lecture
1 Course Unit

MATH 661 Differential Geometry
Continuation of Math 660.
Course not offered every year
Prerequisites: Math 660 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 671 Topics in Logic
Discusses advanced topics in logic.
Course not offered every year
Also Offered As: CIS 518
Prerequisites: Math 570 and 571
Activity: Seminar
1 Course Unit

MATH 694 Mathematical Foundations of Theoretical Physics
Selected topics in mathematical physics, such as mathematical methods
of classical mechanics, electrodynamics, relativity, quantum mechanics
and quantum field theory.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 695 Mathematical Foundations of Theoretical Physics
Selected topics in mathematical physics, such as mathematical methods
of classical mechanics, electrodynamics, relativity, quantum mechanics
and quantum field theory.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 702 Topics in Algebra
Topics from the literature. The specific subjects will vary from year to
year.
Course not offered every year
Activity: Lecture
1 Course Unit
MATH 720 Advanced Number Theory
Ramification theory, adeles and ideles, Tate's thesis, group cohomology and Galois cohomology, class field theory in terms of ideles and cohomology, Lubin-Tate formal groups, Artin and Swan conductors, central simple algebras over local and global fields, general Hasse principles. Other topics may include the following: zero-dimensional Arakelov theory, Tate duality, introduction to arithmetic of elliptic curves, local and global epsilon factors in functional equations, p-adic L-functions and Iwasawa theory, modular forms and functions and modular curves.
Course not offered every year
Prerequisites: Math 620 and 621
Activity: Lecture
1 Course Unit

MATH 721 Advanced Number Theory
Continuation of Math 720.
Course not offered every year
Prerequisites: Math 720 or with the permission of the instructor.
Activity: Lecture
1 Course Unit

MATH 724 Topics in Algebraic Geometry
Topics from the literature. The specific subjects will vary from year to year.
Course not offered every year
Prerequisites: Either Math 622 and 623 or Math 624 and 625
Activity: Lecture
1 Course Unit

MATH 730 Topics in Algebraic and Differential Topology
Topics from the literature. The specific subjects will vary from year to year.
Course not offered every year
Prerequisites: Math 618 and 619
Activity: Lecture
1 Course Unit

MATH 731 Topics in Algebraic and Differential Topology
Topics from the literature. The specific subjects will vary from year to year.
Course not offered every year
Prerequisites: Math 618 and 619
Activity: Lecture
1 Course Unit

MATH 748 Topics in Classical Analysis
Harmonic analysis in Euclidean space, Riemann surfaces, Discontinuous groups and harmonic analysis in hyperbolic space, Pseudodifferential operators and index theorems, Variational methods in non-linear PDE, Hyperbolic equations and conservation laws, Probability and stochastic processes, Geometric measure theory, Applications of analysis to problems in differential geometry. The specific subjects will vary from year to year.
Course not offered every year
Prerequisites: Math 608 and Math 609 and permission from the instructor
Activity: Lecture
1 Course Unit

MATH 752 Topics in Operator theory
Topics from the literature. The specific subjects will vary from year to year.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 753 Topics in Operator Theory
Topics from the literature. The specific subjects will vary from year to year.
Course not offered every year
Activity: Lecture
1 Course Unit

MATH 760 Topics in Differential Geometry
Topics from the literature. The specific subjects will vary from year to year.
Course not offered every year
Prerequisites: Math 660 and 661
Activity: Lecture
1 Course Unit

MATH 761 Topics in Differential Geometry
Topics from the literature. The specific subjects will vary from year to year.
Course not offered every year
Prerequisites: Math 660 and 661
Activity: Lecture
1 Course Unit

MATH 820 Algebra Seminar
Seminar on current and recent literature in algebra.
Course not offered every year
Activity: Seminar
1 Course Unit

MATH 830 Geometry-Topology Seminar
Seminar on current and recent literature in geometry-topology.
Course not offered every year
Activity: Seminar
1 Course Unit

MATH 831 Geometry-Topology Seminar
Seminar on current and recent literature in geometry-topology.
Course not offered every year
Activity: Seminar
1 Course Unit

MATH 871 Logic Seminar
Seminar on current and recent literature in logic.
Course not offered every year
Activity: Seminar
1 Course Unit

MATH 878 Probability and Algorithm Seminar
Seminar on current and recent literature in probability and algorithm.
Taught by: Staff.
Activity: Seminar
1 Course Unit

MATH 881 Combinatorics Seminar
Seminar on current and recent literature in combinatorics.
Course not offered every year
Activity: Seminar
1 Course Unit
MECHANICAL ENGINEERING AND APPLIED MECHANICS (MEAM)

MEAM 091 Shop Tr: Manual Milling
Fundamental principles of manual milling of metals, including hands-on training in the machine shop.
One-term course offered either term
Activity: Lecture
0.25 Course Units

MEAM 092 Shop Tr: Manual Turning
Fundamental principles of manual turning of metals using a lathe, including hands-on training in the machine shop.
One-term course offered either term
Activity: Lecture
0.25 Course Units

MEAM 093 Shop Tr: Hybrid Milling
Building upon the basics covered in MEAM 091, this intermediate-level course includes detailed operation sequencing, fixture design, and hands-on conversational CNC programming for the ProtoTrak Hybrid Mill.
Activity: Lecture
0.25 Course Units

MEAM 094 Tr: CNC Milling/solidcam
Building upon proficiency in MEAM 091 and 093, this hands-on course covers the details of full computer-controlled machining using SolidCAM and the Haas MiniMill.
One-term course offered either term
Activity: Lecture
0.25 Course Units

MEAM 095 Shop Tr: CNC Turning
Building upon the basics of MEAM 092, this course explores advanced computer-controlled turning using SolidCAM and the Haas TL-1.
One-term course offered either term
Activity: Lecture
0.25 Course Units

MEAM 099 Independent Study
An opportunity for the student to become closely associated with a professor in (1) a research effort to develop research skills and technique and/or (2) to develop a program of independent in-depth study in a subject area in which the professor and student have a common interest. The challenge of the task undertaken must be consistent with the student's academic level. To register for this course, the student and professor jointly submit a detailed proposal. Subject to the approval of the MEAM Undergraduate Curriculum Chair.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Open to all students. A maximum of 2 c.u. of MEAM 099 may be applied toward the B.A.S. or B.S.E. degree requirements

MEAM 101 Introduction to Mechanical Design
This hands-on, project-based course covers the fundamentals of the modern mechanical design process, from needfinding and brainstorming to the basics of computerized manufacturing and rapid prototyping. Topics include: product definition (needfinding, observation, sketching, and brainstorming); computer-aided design (part creation, assemblies, and animation using SolidWorks); fundamental engineering design practices (material selection, dimensioning, tolerances, etc.); basic computer simulation and analysis; and rapid prototyping (laser cutter, 3-D fused-deposition modeling, and an introduction to computer-controlled machining).
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: This course is available to all Engineering majors.

MEAM 110 Introduction to Mechanics
This lecture course and a companion laboratory course (MEAM 147) build upon the concepts of Newtonian (classical) mechanics and their application to engineered systems. This course introduces students to mechanical principles that are the foundation of upper-level engineering courses including MEAM 210 and 211. The three major parts of this course are: I. Vector Mechanics; II. Statics and Structures; and III. Kinematics and Dynamics. Topics include: vector analysis, statics of rigid bodies, introduction to deformable bodies, friction, kinematics of motion, work and energy, and dynamics of particles. Case studies will be introduced, and the role of Newtonian mechanics in emerging applications including bio- and nano-technologies will be discussed.
Course usually offered in fall term
Corequisites: MATH 104 (The Engineering section of this class is strongly recommended) and MEAM 147.
Activity: Lecture
1 Course Unit

MEAM 147 Introduction to Mechanics Lab
This half-credit laboratory class is a companion to the Introduction to Mechanics lecture course (MEAM 110). It investigates the concepts of Newtonian (classical) mechanics through weekly hands-on experiments, emphasizing connections between theoretical principles and practical applications in engineering. In addition to furthering their understanding about the workings of the physical world, students will improve their skills at conducting experiments, obtaining reliable data, presenting numerical results, and extracting meaningful information from such numbers.
Course usually offered in fall term
Corequisite: MEAM 110
Activity: Laboratory
0.5 Course Units

MEAM 201 Machine Design and Manufacturing
Building upon the fundamentals of mechanical design taught in MEAM 101, this hands-on, project-based course provides students with the knowledge and skills necessary to design, analyze, manufacture, and test fully-functional mechanical systems. Topics covered include an introduction to machine elements, analysis of the mechanics of machining, manufacturing technology, precision fabrication (milling, turning, and computer-controlled machining), metrology, tolerances, cutting-tool fundamentals and engineering materials. Enrollment is limited.
Course usually offered in spring term
Prerequisite: MEAM 101; MEAM 210 or equivalent as co/pre-requisite (or permission of the instructor)
Activity: Lecture
1 Course Unit
MEAM 203 Thermodynamics I
Thermodynamics studies the fundamental concepts related to energy conversion in such mechanical systems as internal and external combustion engines (including automobile and aircraft engines), compressors, pumps, refrigerators, and turbines. This course is intended for students in mechanical engineering, chemical engineering, materials science, physics and other fields. The topics include properties of pure substances, first-law analysis of closed systems and control volumes, reversibility and irreversibility, entropy, second-law analysis, exergy, power and refrigeration cycles, and their engineering applications.
Course usually offered in spring term
Prerequisites: MATH 104 and MATH 114
Activity: Lecture
1 Course Unit

MEAM 210 Statics and Strength of Materials
This course is primarily intended for students in mechanical engineering, but may also be of interest to students in materials science and other fields. It continues the treatment of statics of rigid bodies begun in MEAM 110/PHYS 150 and progresses to the treatment of deformable bodies and their response to loads. The concepts of stress, strain, and linearly elastic response are introduced and applied to the behavior of rods, shafts, beams and other mechanical components. The failure and design of mechanical components are discussed.
Course usually offered in fall term
Prerequisite: MEAM 110/MEAM 147 or PHYS 150
Corequisites: MATH 240 and MEAM 247 are strongly recommended
Activity: Lecture
1 Course Unit

MEAM 211 Engineering Mechanics: Dynamics
This course introduces the basic concepts in kinematics and dynamics that are necessary to understand, analyze and design mechanisms and machines. These concepts are also fundamental to the modeling and analysis of human movement, biomechanics, animation of synthetic human models and robotics. The topics covered include: Particle dynamics using energy and momentum methods of analysis; Dynamics of systems of particles; Impact; Systems of variable mass; Kinematics and dynamics of rigid bodies in plane motion; Computer-aided dynamic simulation and animation.
Course usually offered in spring term
Prerequisite: MEAM 210
Corequisites: MATH 240 or ENM 251 and ENGR 105 or equivalent
Activity: Lecture
1 Course Unit

MEAM 220 Introduction to Materials Science and Engineering
The course is an introduction to the most important concepts in materials science and engineering with a goal of building the foundations for all other courses related to materials and how to think about materials in other areas of engineering and the physical sciences. It covers atomic bonding, crystal structure and symmetry, glasses, defects, diffusion, elasticity, plasticity, fracture, phase diagrams, phase transformations, and an introduction into thermal, electrical, magnetic and optical properties and materials processing. Material classes will include metals, ceramics, polymers, semiconductors, and composites.
Course usually offered in fall term
Also Offered As: MSE 220
Prerequisites: Knowledge of basic calculus and chemistry
Activity: Lecture
1 Course Unit

MEAM 247 Mechanical Engineering Laboratory I
This is the first of a two semester sophomore level laboratory sequence that students complete over the fall and spring semesters. The course teaches the principles of experimentation and measurement as well as analysis and application to design. This fall semester course follows closely with MEAM 210, involving experiments to explore the principles of statics and strength of materials.
Course usually offered in fall term
Prerequisite: Sophomore standing in engineering
Corequisite: MEAM 210 strongly recommended
Activity: Laboratory
0.5 Course Units

MEAM 248 Mechanical Engineering Lab I
This is the second of a two-semester sophomore level laboratory sequence that students complete over the fall and spring semesters. The course teaches the principles of experimentation and measurement as well as analysis and application to design. The spring semester course follows closely with MEAM 203 and MEAM 211, expanding upon the principles of experimentation, measurement, analysis, and design of systems through hands-on laboratories and projects in thermodynamics and dynamics.
Course usually offered in spring term
Prerequisite: Sophomore standing in engineering
Corequisites: MEAM 203 and MEAM 211 are strongly recommended
Activity: Lecture
0.5 Course Units

MEAM 302 Fluid Mechanics
Physical properties; fluid statics; Bernoulli equation; fluid kinematics; conservation laws and finite control-volume analysis; conservation laws and differential analysis; inviscid flow; The Navier-Stokes equation and some exact solutions; similitude, dimensional analysis, and modeling; flow in pipes and channels; boundary layer theory; lift and drag.
Course usually offered in fall term
Prerequisites: MATH 241 or ENM 251 and PHYS 150 or MEAM 110/MEAM 147
Activity: Lecture
1 Course Unit

MEAM 321 Vibrations of Mechanical Systems
This course teaches the fundamental concepts underlying the dynamics of vibrations for single-degree of freedom, multi-degree and infinite-degree of freedom mechanical systems. The course will focus on Newton's Force Methods, Virtual-Work Methods, and Lagrange's Variation Methods for analyzing problems in vibrations. Students will learn how to analyze transient, steady state and forced motion of single and multi-degree of freedom linear and non-linear systems. The course teaches analytical solution techniques for linear systems and practical numerical and simulation methods for analysis and design of nonlinear systems.
Course usually offered in spring term
Prerequisites: MATH 241 or ENM 251 and MEAM 211
Activity: Lecture
1 Course Unit
MEAM 333 Heat and Mass Transfer
This course covers fundamentals of heat and mass transfer and applications to practical problems in energy conversion and conservation. Emphasis will be on developing a physical and analytical understanding of conductive, convective, and radiative heat transfer, as well as design of heat exchangers and heat transfer with phase change. Topics covered will include: types of heat transfer processes, their relative importance, and the interactions between them, solutions of steady state and transient state conduction, emission and absorption of radiation by real surfaces and radiative transfer between surfaces, heat transfer by forced and natural convection owing to flow around bodies and through ducts, analytical solutions for some sample cases and applications of correlations for engineering problems. Students will develop an ability to apply governing principles and physical intuition to solve problems.
Course usually offered in spring term
Prerequisites: MEAM 203 and MEAM 302
Activity: Lecture
1 Course Unit

MEAM 347 Mechanical Engineering Design Laboratory
This is the first of a two-semester junior level laboratory sequence that students complete over the fall and spring semesters. The course is project-based, with problems whose solution requires experimental data and quantitative analysis, as well as creative mechanical design. The technical content is connected to MEAM 302 and MEAM 354, including aerodynamics, applied fluid systems and structural analysis. The course also includes electromechnical systems and application of finite element analysis.
Course usually offered in fall term
Prerequisite: Junior standing in engineering
Activity: Laboratory
1 Course Unit

MEAM 348 Mechanical Engineering Design Laboratory
This is the second of a two-semester junior level laboratory sequence that students complete over the fall and spring semesters. The course is project-based, with open-ended design problems that challenge students to develop original experiments and choose appropriate analyses, with an increasing emphasis on teamwork and project planning. The technical content is connected to MEAM 321 and MEAM 333, including multimodal transient heat transfer and dynamic systems modeling.
Course usually offered in spring term
Prerequisite: Junior standing in engineering
Activity: Laboratory
1 Course Unit

MEAM 354 Mechanics of Solids
This course builds on the fundamentals of solid mechanics taught in MEAM 210 and addresses more advanced problems in strength of materials. The students will be exposed to a wide array of applications from traditional engineering disciplines as well as emerging areas such as biotechnology and nanotechnology. The methods of analysis developed in this course will form the cornerstone of machine design and also more advanced topics in the mechanics of materials.
Course usually offered in fall term
Prerequisites: MEAM 210 or equivalent, BE 200 or permission of instructor.
Activity: Lecture
1 Course Unit

MEAM 405 Mechanical Properties of Macro/Nanoscale Materials
The application of continuum and microstructural concepts to consideration of the mechanics and mechanisms of flow and fracture in metals, polymers and ceramics. The course includes a review of tensors and elasticity with special emphasis on the effects of symmetry on tensor properties. Then deformation, fracture and degradation (fatigue and wear) are treated, including mapping strategies for understanding the ranges of material properties.
Course usually offered in fall term
Also Offered As: MSE 405, MSE 505
Activity: Lecture
1 Course Unit

MEAM 415 Product Design
This course provides tools and methods for creating new products. The course is intended for students with a strong career interest in new product development, entrepreneurship, and/or technology development. The course follows an overall product design methodology, including the identification of customer needs, generation of product concepts, prototyping, and design-for-manufacturing. Weekly student assignments are focused on the design of a new product and culminate in the creation of a prototype, which is launched at an end-of-semester public Design Fair. The course project is a physical good - but most of the tools and methods apply to services and software products. The course is open to any Penn sophomore, junior, senior or graduate student.
One-term course offered either term
Also Offered As: IPD 515
Activity: Lecture
1 Course Unit

MEAM 421 Control for Autonomous Robots
This course introduces the hardware, software and control technology used in autonomous ground vehicles, commonly called "self-driving cars." The weekly laboratory sessions focus on development of a small-scale autonomous car, incrementally enhancing the sensors, software, and control algorithms to culminate in a demonstration in a realistic outdoor operating environment. Students will learn basic physics and modeling; controls design and analysis in Matlab and Simulink; software implementation in C and Python; sensor systems and filtering methods for IMUs, GPS, and computer vision systems; and path planning from fixed map data.
One-term course offered either term
Also Offered As: ESE 421
Prerequisite: CIS 110 or CIS 120 or ENGR 105; ESE 210 or ESE 215 or MEAM 211 or permission of the instructor
Activity: Lecture
1.5 Course Unit

MEAM 445 Mechanical Engineering Design Projects
This capstone design project course is required of all mechanical engineering students. Student teams will design and test complex mechanical systems that address a societal or consumer need. Projects are devised by the team, sponsored by industry, or formulated by Penn professors. Each project is approved by the instructor and a faculty advisor. Topics treated in the course include project planning, prototyping, patent and library searches, intellectual property, ethics, and technical writing and presentations. The work is spread over MEAM 445 and MEAM 446.
Course usually offered in fall term
Prerequisite: Junior standing
Activity: Lecture
1 Course Unit
MEAM 446 Mechanical Engineering Design Projects
This is the second course in the two course sequence involving the capstone design project. See MEAM 445 for course description.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

MEAM 455 Continuum Biomechanics
Continuum mechanics with applications to biological systems. Fundamental engineering conservation laws are introduced and illustrated using biological and non-biological examples. Kinematics of deformation, stress, and conservation of mass, momentum, and energy. Constitutive equations for fluids, solids, and intermediate types of media are described and applied to selected biological examples. Class work is complemented by computational laboratory experiences.
Course usually offered in fall term
Also Offered As: BE 455
Activity: Lecture
1 Course Unit

MEAM 502 Energy Engineering in Power Plants and Transportation Systems
Most energy consumed in the U.S. and in the world is produced using thermal-to-mechanical energy conversion. In this course, students will learn the engineering principles that govern how heat is converted to mechanical power in electric power plants, jet aircraft, and internal combustion engines. Topics covered include a review of thermodynamics and basic power cycles, supercritical, combined, and hybrid cycles, cogeneration, jet propulsion, and reciprocating internal combustion engines. A brief introduction to desalination and combustion is also included. The material in this course will provide students a foundation important for industrial and research employment in energy engineering.
Course usually offered in fall term
Prerequisites: Undergraduate engineering thermodynamics (MEAM 203 or equivalent), and heat transfer (MEAM 333 or equivalent)
Activity: Lecture
1 Course Unit

MEAM 503 Direct Energy Conversion: from Macro to Nano
The course focuses on devices that convert thermal, solar, or chemical energy directly to electricity, i.e., without intermediate mechanical machinery such as a turbine or a reciprocating piston engine. A variety of converters with sizes ranging from macro to nano scale will be discussed, with the advantages offered by nanoscale components specifically highlighted. Topics will include thermoelectric energy converters and radioisotope thermoelectric generators (RTGs), thermionic energy converters (TEC), photovoltaic (PV) and thermophotovoltaic (TPV) cells, as well as piezoelectric harvesters. Additional topics may include magnetohydrodynamic (MHD) generators, alkali metal thermal-to-electric converters (AMTEC), and fuel cells.
One-term course offered either term
Prerequisites: Basics of thermodynamics (MEAM 203 or equivalent), Basics of heat transfer (MEAM 333 or equivalent)
Activity: Lecture
1 Course Unit

MEAM 504 Tribology
The course will comprehensively cover both theoretical and practical tribology, the science and technology of interacting surfaces in relative motion. The various modes of lubrication, hydrodynamic, elastohydrodynamic, hydrostatic, mixed, solid and dry, will be studied in detail. The contact between solid surfaces will be covered, leading to an understanding of friction and various modes of wear. At each stage, it will be shown how the tribological principles learned can be applied in practice to improve the efficiency and durability of mechanical equipment and thereby enhance sustainability through energy and materials conservation.
One-term course offered either term
Prerequisites: Senior standing in Mechanical Engineering or Materials Science or by permission of the instructor.
Activity: Lecture
1 Course Unit

MEAM 505 Mechanical Properties of Macro/Nanoscale Materials
The application of continuum and microstructural concepts to consideration of the mechanics and mechanisms of flow and fracture in metals, polymers and ceramics. The course includes a review of tensors and elasticity with special emphasis on the effects of symmetry on tensor properties. Then deformation, fracture and degradation (fatigue and wear) are treated, including mapping strategies for understanding the ranges of material properties.
Course usually offered in fall term
Also Offered As: MSE 405
Activity: Lecture
1 Course Unit

MEAM 507 Fundamentals of Materials
This course will provide a graduate level introduction to the science and engineering of materials. It is designed specifically to meet the needs of students who will be doing research that involves materials but who do not have an extensive background in the field. The focus is on fundamental aspects of materials science and will emphasize phenomena and how to describe them. The course assumes an undergraduate background in any area of physical/chemical science and undergraduate mathematics appropriate to this. The course will also be accessible to students of applied mathematics.
One-term course offered either term
Also Offered As: MSE 507
Activity: Lecture
1 Course Unit

MEAM 508 Materials and Manufacturing for Mechanical Design
The selection of materials and manufacturing processes are critical in the design of mechanical systems. Material properties and manufacturing processes are often tightly linked, thus this course covers both topics in an integrated manner. The properties and manufacturing processes for a wide range of materials (i.e., metals, ceramics, polymers, composites) are examined from both a fundamental and practical perspective. From a materials standpoint, the course focuses on mechanical properties, including modulus, strength, fracture, fatigue, wear, and creep. Established and emerging manufacturing processes will be discussed. Design-based case studies are used to illustrate the selection of materials and processes.
One-term course offered either term
Activity: Lecture
1 Course Unit
MEAM 510 Design of Mechatronic Systems
In many modern systems, mechanical elements are tightly coupled with electronic components and embedded computers. Mechatronics is the study of how these domains are interconnected, and this hands-on, project-based course provides an integrated introduction to the fundamental components within each of the three domains, including: mechanical elements (prototyping, materials, actuators and sensors, transmissions, and fundamental kinematics), electronics (basic circuits, filters, op amps, discrete logic, and interfacing with mechanical elements), and computing (interfacing with the analog world, microprocessor technology, basic control theory, and programming).
Course usually offered in fall term
Prerequisite: Graduate standing in engineering or permission of the instructor
Activity: Lecture
1 Course Unit

MEAM 513 Feedback Control Design and Analysis
Basic methods for analysis and design of feedback control in systems. Applications to practical systems. Methods presented include time response analysis, frequency response analysis, root locus, Nyquist and Bode plots, and the state-space approach.
Course usually offered in spring term
Also Offered As: ESE 505
Prerequisites: MEAM 321 or ESE 210, Juniors and Seniors encouraged to enroll
Activity: Lecture
1 Course Unit

MEAM 514 Design for Manufacturability
This course is aimed at providing current and future product design/development engineers, manufacturing engineers, and product development managers with an applied understanding of Design for Manufacturability (DFM) concepts and methods. The course content includes materials from multiple disciplines including: engineering design, manufacturing, marketing, finance, project management, and quality systems.
Course usually offered in spring term
Also Offered As: IPD 514
Prerequisites: MEAM 101 or equivalent, MEAM 210 or equivalent, senior or graduate standing in the School of Design, Engineering, or Business with completed product development and/or design engineering core coursework or related experience.
Activity: Lecture
1 Course Unit

MEAM 516 Advanced Mechatronic Reactive Spaces.
This course combines performance art and advanced mechatronics concepts that include the design and implementation of large-scale actuation, advanced sensing, actuation and control. This course pairs design school and engineering students to form interdisciplinary teams that together design and build electro-mechanical reactive spaces and scenic/architectural elements in the context of the performing arts. The two disciplinary groups will be treated separately and receive credit for different courses (ARCH746 will be taught concurrently and in some cases co-located) as they will be learning different things. Engineering students gain design sensibilities and advanced mechatronics in the form of networked embedded processing and protocols for large scale actuation and sensing. Design students learn elementary mechatronics and design reactive architectures and work with engineering students to build them. The class will culminate in a some artistic performance (typically with professional artists) such as a Shakespeare play, robotic ballet, a mechatronic opera.
Course usually offered in spring term
Also Offered As: IPD 516
Prerequisite: MEAM 510 (Mechatronics) or equivalent
Activity: Lecture
1 Course Unit

MEAM 517 Control and Optimization with Applications in Robotics
This course covers a variety of advanced topics in model-based nonlinear control, primarily focused on computational techniques and dynamic robotic applications. Students will learn both the theoretical basics of nonlinear and optimal control along with computational algorithms. Topics include dynamic programming, trajectory optimization, canonical underactuated systems, control of limit cycles, stability analysis, nonsmooth mechanics, and model predictive control. Applications include walking and running robots, manipulation, and flying machines. As the course will cover state of the art techniques, we will review relevant research papers. At the end of the semester, students will prepare and present a final project on a related topic of their choosing. Prerequisites: MATH 312 or equivalent, MEAM 513/ESE 505, ESE 500, MEAM 520 or equivalent, MEAM 211 or equivalent, programming experience highly recommend, or permission of the instructor.
Activity: Lecture
1 Course Unit

MEAM 519 Elasticity and Micromechanics of Materials
This course is targeted to engineering students working in the areas on micro/nanomechanics of materials. The course will start with a quick review of the equations of linear elasticity and proceed to solutions of specific problems such as the Hertz contact problem, Eshelby’s problem etc. Failure mechanisms such as fracture and the fundamentals of dislocations/plasticity will also be discussed.
One-term course offered either term
Also Offered As: MSE 550
Activity: Lecture
1 Course Unit
MEAM 520 Introduction to Robotics
The rapidly evolving field of robotics includes systems designed to replace, assist, or even entertain humans in a wide variety of tasks. Recent examples include human-friendly robot arms for manufacturing, interactive robotic pets, medical and surgical assistive robots, and semi-autonomous search-and-rescue vehicles. This course presents the fundamental kinematic, dynamic, and computational principles underlying most modern robotic systems. The main topics of the course include: rotation matrices, homogeneous transformations, manipulator forward kinematics, manipulator inverse kinematics, jacobians, path and trajectory planning, sensing and actuation, feedback control, haptic interfaces, and teleoperation. The material is reinforced with hands-on lab exercises involving a robotic arm and a haptic interface.
Course usually offered in fall term
Prerequisites: MEAM 211 and MATH 240 or equivalent
Activity: Lecture
1 Course Unit

MEAM 527 Finite Element Analysis
The objective of this course is to equip students with the background needed to carry out finite elements-based simulations of various engineering problems. The first part of the course will outline the theory of finite elements. The second part of the course will address the solution of classical equations of mathematical physics such as Laplace, Poisson, Helmholtz, the wave and the Heat equations. The third part of the course will consist of case studies taken from various areas of engineering and the sciences on topics that require or can benefit from finite element modeling. The students will gain hands-on experience with the multi-physics, finite element package FemLab.
Course usually offered in fall term
Also Offered As: ENM 427
Prerequisites: MATH 241 or ENM 251 and PHYS 151
Activity: Lecture
1 Course Unit

MEAM 529 Introduction to MEMS and NEMS
Introduction to RM MEMS technologies; need for RF MEMS components in wireless communications. Review of micromachining techniques and MEMS fabrication approaches. Actuation methods in MEMS, TRF MEMS design and modeling. Examples of RF MEMS components from industry and academia. Case studies: micro-switches, tunable capacitors, inductors, resonators, filters, oscillators and micromachined antennas. Overview of RF NEMS.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MEAM 530 Continuum Mechanics
This course serves as a basic introduction to the Mechanics of continuous media, and it will prepare the student for more advanced courses in solid and fluid mechanics. The topics to be covered include: Tensor algebra and calculus, Lagrangian and Eulerian kinematics, Cauchy and Piola-Kirchhoff stresses, General principles: conservation of mass, conservation of linear and angular momentum, energy and the first law of thermodynamics, entropy and the second law of thermodynamics; constitutive theory, ideal fluids, Newtonian and non-Newtonian fluids, finite elasticity, linear elasticity, materials with microstructure.
Course usually offered in spring term
Prerequisites: Multivariable Calculus, Linear Algebra, Partial Differential Equations
Activity: Lecture
1 Course Unit

MEAM 535 Advanced Dynamics
Course usually offered in fall term
Prerequisites: MEAM 211 and some Linear Algebra. Senior or Master’s Standing in Engineering or permission of the instructor.
Activity: Lecture
1 Course Unit

MEAM 536 Viscous Fluid Flow and Modern Applications
This is an intermediate course that builds on the basic principles of Fluid Mechanics. The course provides a more in depth and unified framework to understand fluid flow at different time and length scales, in particular viscous flows. Topics include review of basic concepts, conservation laws (momentum, mass, and heat), fluid kinematics, tensor analysis, Stokes’ approximations, non-Newtonian fluid mechanics, and turbulence. The course will explore important modern topics such as microfluidics, swimming of micro-organisms, wind turbines, rheology, biofluid mechanics, and boundary layers.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This course is intended for juniors, seniors and graduate students from the Schools of Engineering and/or Arts and Sciences that have a general interest in fluid dynamics and its modern applications. Students should have an understanding of basic concepts in fluid mechanics and a good grasp on differential equations.
MEAM 537 Nanotribology
Engineering is progressing to ever smaller scales, enabling new technologies, materials, devices, and applications. This course will provide an introduction to nano-scale tribology and the critical role it plays in the developing areas of nanoscience and nanotechnology. We will discuss how contact, adhesion, friction, lubrication, and wear at interfaces originate, using an integrated approach that combines concepts of mechanics, materials science, chemistry, and physics. We will cover a range of concepts and applications, drawing connections to both established and new approaches. We will discuss the limits of continuum mechanics and present newly developed theories and experiments tailored to describe micro- and nano-scale phenomena. We will emphasize specific applications throughout the course. Reading of scientific literature, critical peer discussion, individual and team problem assignments, and a peer-reviewed literature research project will be assigned as part of the course.
Course usually offered in spring term
Also Offered As: MSE 537
Prerequisites: Freshman physics; MEAM 354 or equivalent, or consent of instructor.
Activity: Lecture
1 Course Unit

MEAM 538 Turbulence
This course is an introductory course on turbulent flows. The course provides physical and mathematical framework for quantiative and qualitative descriptions of fundamental processes involved in turbulent flows. Topics include the Navier-Stokes equations, the statistical description of turbulence, equations for mean and fluctuations, energy cascade, turbulence spectra, Kolmogorov hypotheses, behavior of shear flows, and isotropic turbulence. The course will also explore modern topics such as computational modeling of turbulence.
Taught by: MEAM 302 or equivalent
One-term course offered either term
Prerequisite: MEAM 302 or equivalent
Activity: Lecture
1 Course Unit
Notes: Instructor Permission required for undergraduates

MEAM 543 Performance, Stability and Control of UAVs
This course covers the application of classical aircraft performance and design concepts to fixed-wing and rotary-wing Unmanned Aerial Vehicles (UAVs). A survey of the latest developments in UAV technology will be used to motivate the development of quantitative mission requirements, such as payload, range, endurance, field length, and detectability. The implications of these requirements on vehicle configuration and sizing will be revealed through application of the fundamentals of aerodynamics and propulsion systems. The course will also cover basic flight dynamics and control, including typical inner-loop feedback applications.
One-term course offered either term
Prerequisites: MEAM 210, 211, MATH 240 or equivalents
Activity: Lecture
1 Course Unit

MEAM 545 Aerodynamics
Review of fluid kinematics and conservation laws; vorticity theorems; two-dimensional potential flow; airfoil theory; finite wings; oblique shocks; supersonic wing theory; laminar and turbulent boundary layers.
Course usually offered in spring term
Prerequisite: MEAM 302
Activity: Lecture
1 Course Unit

MEAM 550 Design of Microelectromechanical Systems
A course that covers the design and fabrication of micro- and nano-electromechanical systems. Topics in the course include micro- and nano-fabrication techniques, mechanics of flexures, thin film mechanics, sensing and actuation approaches (e.g., electrostatic, piezoelectric, and piezoresistive), as well as materials and reliability issues. The fundamentals of these topics will be augmented with device-based case studies.
Course not offered every year
Prerequisites: MEAM 354 or equivalent is recommended.
Activity: Lecture
1 Course Unit

MEAM 553 Atomic Modeling in Materials Science
This course covers two major aspects of atomic level computer modeling in materials. 1. Methods: Molecular statics, Molecular dynamics, Monte Carlo, Kinetic Monte Carlo as well as methods of analysis of the results such as radial distribution function, thermodynamics deduced from the molecular dynamics, fluctuations, correlations and autocorrelations. 2. Semi-empirical descriptions of atomic interactions: pair potentials, embedded atom method, covalent bonding, ionic bonding. Basics of the density functional theory. Mechanics, condensed matter physics, thermodynamics and statistical mechanics needed in interpretations are briefly explained.
Course usually offered in spring term
Also Offered As: MSE 561
Prerequisites: Ability to write a basic code in a computer language such as fortran, C, C++
Activity: Lecture
1 Course Unit

MEAM 555 Nanoscale Systems Biology
Nano-science and engineering approaches to systems in biology are of growing importance. They extend from novel methods, especially microscopies that invite innovation to mathematical and/or computational modeling which incorporates physics and chemistry of small scale biology. Proteins and DNA, for example, are highly specialized polymers that interact, catalyze, stretch and bend, move, and/or store information. Membranes are also used extensively by cells to isolate, adhere, deform, and regulate reactions. In this course, students will become familiar with cell & molecular biology and nanobiotechnology through an emphasis on nano-methods, membranes, molecular machines, and ‘polymers’ - from the quantitative perspectives of thermodynamics, statistical physics, and mechanics. We specifically elaborate ideas of energetics, fluctuations and noise, force, kinetics, diffusion, etc. on the nano- thru micro- scale, drawing from very recent examples in the literature. Laboratory experiments will provide hands-on exposure to microscopies in a biological context (eg. fluorescence down to nano-scale, AFM), physical methods (eg. micromanipulation, tracking virus-scale particles or quantum dots), and numerical problems in applied biophysics, chemistry, and engineering. A key goal of the course is to familiarize students with the concepts and technology (plus their limitations) as being employed in current research problems in nanoscale systems biology, extending to nanobiotechnology.
One-term course offered either term
Also Offered As: BE 555, CBE 555
Prerequisites: Background in Biology, Physics, Chemistry or Engineering with coursework in Thermodynamics or permission of the instructor.
Activity: Lecture
1 Course Unit
MEAM 561 Thermodynamics: Foundations, Energy, Materials
To introduce students to advanced classical equilibrium thermodynamics based on Callen’s postulatory approach, to exergy (Second-Law) analysis, and to fundamentals of nonequilibrium thermodynamics. Applications to be treated include the thermodynamic foundations of energy processes and systems including advanced power generation and aerospace propulsion cycles, batteries and fuel cells, combustion, diffusion, transport in membranes, materials properties and elasticity, superconductivity, biological processes.
Course not offered every year
Prerequisites: Undergraduate thermodynamics.
Activity: Lecture
1 Course Unit

MEAM 564 The Principles and Practice of Microfabrication Technology
A laboratory course on fabricating microelectronic and micromechanical devices using photolithographic processing and related fabrication technologies. Lectures discuss: clean room procedures, microelectronic and microstructural materials, photolithography, diffusion, oxidation, materials deposition, etching and plasma processes. Basic laboratory processes are covered in the first two thirds of the course with students completing structures appropriate to their major in the final third. Students registering for ESE 574 will be expected to do extra work (including term paper and additional project).
Course usually offered in fall term
Also Offered As: ESE 460, ESE 574
Prerequisites: Any of the following courses: ESE 218, MEAM 333, CBE 351, PHYS 250 or permission of the instructor
Activity: Lecture
1 Course Unit

MEAM 570 Transport Processes I
The course provides a unified introduction to momentum, energy (heat), and mass transport processes. The basic mechanisms and the constitutive laws for the various transport processes will be delineated, and the conservation equations will be derived and applied to internal and external flows featuring a few examples from mechanical, chemical, and biological systems. Reactive flows will also be considered.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

MEAM 571 Advanced Topics in Transport Phenomena
The course deals with advanced topics in transport phenomena and is suitable for graduate students in mechanical, chemical and bioengineering who plan to pursue research in areas related to transport phenomena or work in an industrial setting that deals with transport issues. Topics include: Transport processes with drops, Bubbles and particles; Phase change Phenomena: condensation, evaporation, and combustion; Radiation heat transfer: non-participating media, participating media, equation of radiative transfer, optically thin and thick limits; Introduction to Hydrodynamic and Thermal Instability; Microscale energy transport; Nano-particle motion in fluids and transport.
Course not offered every year
Prerequisites: Either MEAM 570, MEAM 642, CBE 640 or equivalent, or Written permission of the Instructor.
Activity: Lecture
1 Course Unit

MEAM 575 Micro and Nano Fluidics
The course focuses on topics relevant for micro-fluidics, lab on chip technology, point of care diagnostics, nano-technology, biosensing, and interfacial phenomena. Although we will discuss briefly the fabrication of micro and nano fluidic devices, the course will mostly focus on physical phenomena from the continuum point of view. The mathematical complexity will be kept to a minimum. The course will be reasonably self-contained, and any necessary background material will be provided, consistent with the students’ background and level of preparation. Specifically, we will examine fluid and nanoparticle transport under the action of pressure, electric, magnetic, and capillary forces; the structure and role of superhydrophobic surfaces; how the solid/liquid interface acquires electric charge; ion transport in electrolytes (Poisson-Nernst-Planck equations); colloid stability; electroosmosis, electrophoresis, and particle polarization; electrowetting and digital microfluidics; particle and cell sorting; immunoassays; and enzymatic amplification of nucleic acids.
Course not offered every year
Activity: Lecture
1 Course Unit

MEAM 580 Electrochemistry for Energy, Nanofabrication and Sensing
Principles and mathematical models of electrochemical processes in energy conversion and storage, water desalination, nanofabrication, electroplating, and sensing for engineering and science graduate students and advanced undergraduates, lacking prior background in electrochemistry. The course covers equivalent circuits, electrode kinetics, electrokinetic and transport phenomena, and electrostatics. The course will introduce and use the finite element program COMSOLTM. We will discuss, among other things, applications to stationary and flow batteries, supercapacitors, integrated electric circuit fabrication, electrokinetics, and biosensing. In contrast to CBE 545 Electrochemical Energy Conversion that focuses on solid state electrochemistry, this course emphasizes liquid-based electrochemistry.
One-term course offered either term
Prerequisites: Undergraduate course in Fluid Mechanics (MEAM 302), and in Heat and Mass Transfer (MEAM 333)
Activity: Lecture
1 Course Unit

MEAM 597 Master’s Thesis Research
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

MEAM 599 Master’s Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
MEAM 613 Nonlinear Control Theory
The course studies issues in nonlinear control theory, with a particular emphasis on the use of geometric principles. Topics include: controllability, accessibility, and observability, for nonlinear systems; Forbenius’ theorem; feedback and input/output linearization for SISO and MIMO systems; dynamic extension; zero dynamics; output tracking and regulation; model matching disturbance decoupling; examples will be taken from mechanical systems, robotic systems, including those involving nonholonomic constraints, and active control of vibrations. Course not offered every year
Also Offered As: CBE 617, CIS 613, ESE 617
Prerequisites: A sufficient background to linear algebra (ENM 510 or ENM 511 or equivalent) and a course in linear control theory (MEAM 513 or equivalent), or written permission of the instructor.
Activity: Lecture
1 Course Unit

MEAM 620 Advanced Robotics
This course covers advanced topics in robotics and includes such topics as multi-body dynamics, nonlinear control theory and planning algorithms with application to robots and systems of multiple robots. Course usually offered in spring term
Prerequisites: Graduate standing in engineering and MEAM 535 or ESE 500 or CIS 580 or MEAM 520.
Activity: Lecture
1 Course Unit

MEAM 630 Advanced Continuum Mechanics
This course is a more advanced version of MEAM 530. The topics to be covered include: tensor algebra and calculus, Lagrangian and Eulerian kinematics; Cauchy and Piola-Kirchhoff stresses. General principles: conservation of mass, conservation of linear and angular momentum, energy and the first law of thermodynamics, entropy and the second law of thermodynamics. Constitutive theory, ideal fluids, Newtonian and non-Newtonian fluids, finite elasticity, linear elasticity, materials with microstructure. Course not offered every year
Prerequisites: One graduate level course in applied mathematics and one in either fluid or Solid Mechanics.
Activity: Lecture
1 Course Unit

MEAM 632 Plasticity
This course develops the mathematical theory of plastic deformation for both crystalline and disordered materials. Phenomenological models for strain-hardening, creep and size-dependent plastic flow as well as physically-based theories for single crystals are discussed. Applications are drawn from problems in structural mechanics, deformation processing, friction and contact, and fracture. Large strain deformations and problems involving strain localization are considered. Course not offered every year
Prerequisites: MEAM 519 or permission of instructor.
Activity: Lecture
1 Course Unit

MEAM 633 Mechanics of Adhesion and Fracture
This course focuses on mechanics aspects of adhesion and fracture of solids. The topics are intimately related, as fracture involves decohesion. Topics include forces of interaction between surfaces of solids, perfect versus imperfect adhesion, aspects of contact mechanics, linear analysis of cracks in elastic materials, non-linear analysis of cracks in elastic-plastic materials, J-integral methods, phenomenological theories, crack growth and heeling, and stability. Micro-mechanical models of fracture are analyzed using non-linear elasticity and energy methods. Applications to various material systems and processes, including structural materials, layered materials, friction and wear. Course not offered every year
Prerequisites: Background equivalent to MEAM 519 and ENM 510
Activity: Lecture
1 Course Unit

MEAM 634 Rods and Shells
This course is intended for 2nd year graduate students and introduces continuum mechanics theory of rods and shells with applications to structures and to biological systems as well as stability and buckling. The course begins with topics from differential geometry of curves and surfaces and the associated tensor analysis on Riemannian spaces. A brief introduction to variational calculus is included since variational methods are a powerful tool for formulating approximate structural mechanics theories and for numerical analysis. The structural mechanics theories of rods, plates and shells are introduced including both linear and nonlinear theories. Course not offered every year
Prerequisites: First-year graduate-level applied mathematics for engineers (ENM 510 and 511) and a first course in continuum mechanics or elasticity or permission of instructor.
Activity: Lecture
1 Course Unit

MEAM 635 Composite Materials
This course deals with the prediction of the average, or effective properties of composite materials. The emphasis will be on methods for determining effective behavior. The course will be concerned mostly with linear mechanical and physical properties, with particular emphasis on the effective conductivity and elastic moduli of multi-phase composites and polycrystals. However, time-dependent and non-linear properties will also be discussed. Course not offered every year
Prerequisite: ENM 510
Corequisite: ENM 511
Activity: Lecture
1 Course Unit

MEAM 642 Advanced Fluid Mechanics
Fluid mechanics as a vector field theory; basic conservation laws, constitutive relations, boundary conditions, Bernoulli theorems, vorticity theorems, potential flow. Viscous flow; large Reynolds number limit; boundary layers. One-term course offered either term
Activity: Lecture
1 Course Unit
MEAM 646 Computational Mechanics
The course is divided into two parts. The course first introduces general numerical techniques for elliptical partial differential equations - finite difference method, finite element method and spectral method. The second part of the course introduces finite volume method. SIMPLER formulation for the Navier-Stokes equations will be fully described in the class. Students will be given chances to modify a program specially written for this course to solve some practical problems in heat transfer and fluid flows.
Course not offered every year
Prerequisites: ENM 510, ENM 511, and one graduate level introductory course in mechanics. FORTRAN or C programming experience is necessary.
Activity: Lecture
1 Course Unit

MEAM 650 Mechanics of Soft and Biomaterials
This course is aimed to expose the students to a variety of topics in mechanic materials via discussion of "classic" problems that have had the widest impact long period of time and have been applied to analyze the mechanical behavior a variety of biological and engineering materials. One-term course offered either term
Also Offered As: MSE 650
Activity: Lecture
1 Course Unit

MEAM 662 Advanced Molecular Thermodynamics
This course begins with a brief review of classical thermodynamics, including the development of Maxwell relationships and stability analysis. The remainder of the course develops the fundamental framework of statistical mechanics, then reviews various related topics including ideal and interacting gases, Einstein and Debye models of crystals, lattice models of liquids, and the basis of distribution function theory.
Course usually offered in fall term
Also Offered As: BE 662, CBE 618
Activity: Lecture
1 Course Unit

MEAM 663 Entropic Forces in Biomechanics
This course is targeted for engineering/physics students working in the areas of nano/bio technology. The course will start with a quick review of statistical mechanics and proceed to topics such as Langevin dynamics, solution biochemistry (Poisson-Boltzmann and Debye-Huckel theory), entropic elasticity of bio-polymers and networks, reaction rate kinetics, solid state physics and other areas of current technological relevance. Students will be expected to have knowledge of undergraduate mechanics, physics and thermodynamics.
One-term course offered either term
Activity: Lecture
1 Course Unit

MEAM 690 Advanced Topics in Thermal Fluid Science or Energy
This course will be offered when demand permits. The topics will change due to the interests and specialties of the instructor(s). Some topics could include: Computational Fluid Mechanics, Visualization of Computational Results, Free Surface Flows, Fluid Mechanics of the Respiratory System, and transport in Reacting Systems.
Course not offered every year
Activity: Lecture
1 Course Unit

MEAM 691 Special Topics in Mechanics of Materials
This course will be offered when demand permits. The topics will change due to the interests and specialties of the instructor(s). Some topics could include: Compliant Mechanisms, Optimal Control, and Fluid-Structure interaction.
Course not offered every year
Activity: Lecture
1 Course Unit

MEAM 692 Topics in Mechanical Systems
This course will be offered when demand permits. The topics will change due to the interests and specialties of the instructor(s). Some topics could include: Electromagnetics, Control Theory, and Micro-Electro-Mechanical Systems.
Course not offered every year
Activity: Lecture
1 Course Unit

MEAM 699 MEAM Seminar
The seminar course has been established so that students get recognition for their seminar attendance as well as to encourage students to attend. Students registered for this course are required to attend weekly departmental seminars given by distinguished speakers from around the world. There will be no quizzes, tests, or homeworks. The course will be graded S/U. In order to obtain a satisfactory (S) grade, the student will need to attend more than 70% of the departmental seminars. Participation in the seminar course will be documented and recorded on the students transcript. In order to obtain their degree, doctoral students will be required to accumulate six seminar courses and MS candidates (beginning in the Fall 2001) two courses. Under special circumstances, i.e. in case of conflict with a course, the student may waive the seminar requirement for a particular semester by petition to the Graduate Group Chair.
One-term course offered either term
Activity: Seminar
1 Course Unit

MEAM 895 Teaching Practicum
This course provides training in the practical aspects of teaching. The students will work with a faculty member to learn and develop teaching and communication skills. As part of the course, the students will participate in a range of activities that may include: giving demonstration lectures, leading recitations, supervising laboratory experiments, developing instructional laboratories, developing instructional material, preparing homework assignments, and preparing examinations. Some of the recitations will be supervised and feedback and comments will be provided to the student by the faculty responsible for the course. At the completion of the 0.5 c.u. of teaching practicum, the student will receive a Satisfactory/Unsatisfactory grade and a written evaluation from the faculty member responsible for the course. The evaluation will be based on comments of the students taking the course and the impressions of the faculty.
One-term course offered either term
Activity: Lecture
0.5 Course Units
MEAM 899 Independent Study
For students who are studying specific advanced subject areas in mechanical engineering and applied mechanics. Before the beginning of the term, the student must submit a proposal outlining and detailing the study area, along with the faculty supervisor’s consent, to the graduate group chair for approval. At the conclusion of the independent study, the student should prepare a brief report.
One-term course offered either term
Activity: Independent Study
1 Course Unit

MEAM 990 Masters Thesis
Master’s Thesis
Activity: Masters Thesis
1 Course Unit

MEAM 995 Dissertation
Activity: Dissertation
1 Course Unit

MEAM 999 Thesis/Dissertation Research
For students working on an advanced research program leading to the completion of master’s thesis or Ph.D. dissertation requirements.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Both terms.
MILITARY SCIENCE (MSCI)

MSCI 101 Basic Leadership I Laboratory/Practicum
Provides hands-on experience to reinforce leadership fundamentals, while emphasizing increased awareness of and proficiency in military skills.
Course usually offered in fall term
Corequisites: Enrollment in MSCI 110 Basic Leadership I Lecture required.
Activity: Laboratory
1 Course Unit
Notes: 1 h. No credit, or as awarded by cross-enrolled schools

MSCI 102 Basic Leadership I Laboratory/Practicum
Provides hands-on experience to reinforce leadership fundamentals, while emphasizing increased awareness of and proficiency in military skills.
Course usually offered in spring term
Corequisites: Enrollment in MSCI 120 Basic Leadership I Lecture required.
Activity: Laboratory
1 Course Unit
Notes: 1 h. No credit, or as awarded by cross-enrolled schools

MSCI 110 Leadership and Personal Development
Introduces students/cadets to the personal challenges and competencies that are critical for effective leadership. Focus is placed on developing basic knowledge and comprehension of the U.S. Army’s Leadership Dimensions while gaining a "big picture" understanding of the Army ROTC program, its purpose in the U.S. Army and our nation, and its advantages for the student. Classes are conducted for one hour once each week.
Course usually offered in fall term
Corequisites: Enrollment in MSCI 101 Basic Leadership I Lab required.
Activity: Lecture
1 Course Unit
Notes: 1.00 CU - Credit excluded from full-time calculation.

MSCI 120 Foundations In Leadership
Reviews leadership fundamentals such as setting direction, problem solving, listening, presenting briefs, providing feedback and using effective writing skills. Students/cadets are also exposed to key fundamentals of skills required to be successful as an MS II cadet; namely military map reading and land navigation, and small unit operations/leadership drills.
Course usually offered in spring term
Corequisites: Enrollment in MSCI 102 Basic Leadership I Lab required.
Activity: Lecture
1 Course Unit
Notes: 1.00 CU - Credit excluded from full-time calculation.

MSCI 201 Basic Leadership 2 Laboratory/Practicum
Provides hands-on experience to reinforce leadership fundamentals, while emphasizing increased awareness of and proficiency in military skills.
Course usually offered in fall term
Corequisites: Enrollment in MSCI 210 Basic Leadership 2 Lecture required.
Activity: Laboratory
1 Course Unit
Notes: 2 h. No credit, or as awarded by cross-enrolled schools.

MSCI 202 Basic Leadership Laboratory/Practicum
Provides hands-on experience to reinforce leadership fundamentals, while emphasizing increased awareness of and proficiency in military skills.
Basic Course Leadership Laboratory. 2h. Open only to (and required of) students in the associated Military Science course. Series, with different roles for students at different levels in the program. Learn and practice basic skills. Gain insight into Advanced Course in order to make an informed decision whether to apply for it. Build self-confidence and team-building leadership skills that can be applied throughout life.
Course usually offered in spring term
Corequisites: Enrollment in MSCI 202 Leadership I Lecture required.
Activity: Laboratory
1 Course Unit
Notes: 2 h. No credit, or as awarded by cross-enrolled schools

MSCI 210 Innovative Tactical Leadership
Explores the dimensions of creative and innovative tactical leadership strategies and styles by studying historical case studies and engaging in interactive student exercises. Focus is on continued development of the knowledge of leadership values and attributes through an understanding of rank, uniform, customs and courtesies.
Course usually offered in fall term
Corequisites: Enrollment in MSCI 201 Basic Leadership 2 Laboratory required.
Activity: Lecture
1 Course Unit
Notes: 1.00 CU - Credit excluded from full-time calculation.

MSCI 220 Leadership In Changing Environments
Examines the challenges of leading in complex contemporary operational environments. Students/cadets are exposed to more complex land navigation/map reading tasks, as well as more advanced small unit operations/leadership drills. Cadets develop greater self awareness as they practice communication and team building skills.
Corequisites: Enrollment in MSCI 202 Leadership I Lab required.
Activity: Lecture
1 Course Unit
Notes: 1.00 CU - Credit excluded from full-time calculation.

MSCI 301 Leadership Laboratory/Practicum 3
Provides hands-on experience to reinforce leadership fundamentals, while emphasizing increased awareness of and proficiency in military skills.
Course usually offered in fall term
Prerequisites: Completion of MSCI 100 and 200 level courses.
Corequisites: Enrollment in MSCI 310 Basic Leadership 3 Lecture required.
Activity: Laboratory
1 Course Unit
Notes: 2.5 hours. No credit, or as awarded by cross-enrolled schools.
MSCI 302 Leadership Laboratory/Practicum
Provides hands-on experience to reinforce leadership fundamentals, while emphasizing increased awareness of and proficiency in military skills. ROTC Advanced Camp. A six-week camp conducted at an Army post. Only open to (and required of) students who have completed MS 301 and 302. The student receives pay. Travel, lodging and most meal cost are defrayed by the US Army. The Advanced Camp environment is highly structured and demanding, stressing leadership at small unit levels under varying, challenging conditions. Individual leadership and basic skills performance are evaluated throughout the camp. The leaders and skills evaluations at the camp weigh heavily in the subsequent selection process that determines the type commission and job opportunities given to the student upon graduation from ROTC and the university
Course usually offered in spring term
Prerequisites: Completion of MSCI 100 and 200 level courses.
Corequisites: Enrollment in MSCI 320 Basic Leadership 3 Lecture required.
Activity: Laboratory
1 Course Unit
Notes: 2.5 hours. No credit, or awarded by cross-enrolled schools.

MSCI 310 Leadership in Contact
Uses increasingly intense situational leadership challenges to build cadet awareness and skills in leading small units. Skills in decision-making, persuading, and motivating team members when "in combat" are explored, evaluated, and developed.
Prerequisites: Completion of MSCI 100 and 200 level courses.
Corequisites: Enrollment in MSCI 301 Leadership 3 Lab required.
Activity: Lecture
2 Course Units
Notes: 1.00 CU - Credit excluded from full-time calculation.

MSCI 320 Complex Team Leadership Issues
Challenges cadets with more complex leadership issues to further develop, practice, and evaluate adaptive leadership. Cadets continue to analyze and evaluate their own leadership values, attributes, skills and actions in preparation for the Leadership Development and Assessment Course (LDAC). Primary attention is given to preparation for LDAC and the development of both tactical skills and leadership qualities.
Course usually offered in spring term
Corequisites: Enrollment in MSCI 302 Leadership I Lab required.
Activity: Lecture
1 Course Unit
Notes: 1.00 CU - Credit excluded from full-time calculation.

MSCI 401 Leadership Laboratory/Practicum 4
Provides hands-on experience to reinforce leadership fundamentals, while emphasizing increased awareness of and proficiency in military skills.
Course usually offered in fall term
Prerequisites: Completion of MSCI 100, 200 and 300 level courses.
Corequisites: Enrollment in MSCI 410 Leadership 4 Lecture required.
Activity: Laboratory
1 Course Unit
Notes: 1.00 CU - credit excluded from full-time calculation.

MSCI 402 Leadership Laboratory/Practicum
Provides hands-on experience to reinforce leadership fundamentals, while emphasizing increased awareness of and proficiency in military skills. Advance Course Leadership Laboratories. 2h. Open only to students in the associated Military Science course. Series, with different roles for students at different levels in the program. Involves leadership responsibilities for the planning, coordination, execution and evaluation of various training and activities with Basic Course students and for the ROTC program as a whole. Students develop, practice and refine leadership skills by serving and being evaluated in a variety of responsible positions.
Course usually offered in spring term
Prerequisites: Completion of MSCI 100, 200 and 300 level courses.
Corequisites: Enrollment in MSCI 420 Basic Leadership 4 Lecture required.
Activity: Laboratory
1 Course Unit
Notes: 2.5 hours. No credit, or as awarded by cross-enrolled schools.

MSCI 410 Developing Adaptive Leaders
Develops cadet proficiency in planning, executing, and assessing complex operations, functioning as a member of a staff, and providing leadership performance feedback to subordinates. Cadets are given situational opportunities to assess risk, make ethical decisions, and provide coaching to fellow ROTC cadets.
Course usually offered in fall term
Prerequisites: Completion of MSCI 100, 200 and 300 level courses.
Corequisites: Enrollment in MSCI 401 Leadership 4 Lab required.
Activity: Lecture
1 Course Unit
Notes: 1.00 CU - credit excluded from full-time calculation.

MSCI 420 Leadership in the Contemporary Operating Environment of the 21st Century
Explores the dynamics of leading in the complex situations of current military operations. Cadets examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. Aspects of interacting with non-government organizations, civilians on the battlefield, and host nation support are examined and evaluated.
Prerequisites: Completion of MSCI 100, 200 and 300 level courses.
Corequisites: Enrollment in MSCI 402 Leadership 4 Lab required.
Activity: Lecture
2 Course Units
Notes: 1.00 CU - Credit excluded from full-time calculation.
MUSIC (MUSC)

MUSC 005 College Music Program
Private study in voice, keyboard, strings, woodwind, brass, percussion, and non-western instruments. Such study is designed to meet the artistic, technical, and/or professional needs of the student. Note: This is not a syllabus. Course requirements and assessment will be determined by the private instructor. Private lessons in the College House Music cannot be taken Pass/Fail. Please visit http://www.sas.upenn.edu/music/performance. Students cannot register through Penn In Touch. Registration will be maintained by the music department upon receipt of application and instructor permission.
Activity: Studio
0.5 Course Units
Notes: Permits will be entered after student completes College Music House form. Forms available in Music department.

MUSC 007 Ensemble Performance
Successful participation in a music department sponsored group. Ensemble groups: University Orchestra, University Wind Ensemble, Choral Society, University Choir, Ancient Voices, Baroque and Recorder Ensemble, Chamber Music Society, Arab Music Ensemble, Samba and Jazz Combo. This course must be taken for a letter grade (Pass/Fail registration option may not be utilized for this course).
Activity: Studio
0.5 Course Units
Notes: Please contact Ensemble Director if you are interested in taking Music 007 for credit.

MUSC 010 Marian Anderson Performance Program
Special instruction in vocal and instrumental performance for music majors and minors only. Students must demonstrate in an audition that they have already attained an intermediate level of musical performance. They also must participate in a Music Department ensemble throughout the academic year, perform in public as a soloist at least once during the year (recital), perform a jury at the end of the spring semester, and attend and participate in masterclasses.
Two terms. student must enter first term.
Prerequisite: Must be a music major or minor
Activity: Lecture
0.5 Course Units

MUSC 016 Freshman Seminar
The primary goal of the freshman seminar program is to provide every freshman the opportunity for a direct personal encounter with a faculty member in a small setting devoted to a significant intellectual endeavor. Specific topics will be posted at the beginning of each academic year. Please see the College Freshman seminar website for information on current course offerings http://www.college.upenn.edu/courses/seminars/freshman.php.
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 018 Freshman Seminar
The primary goal of the freshman seminar program is to provide every freshman the opportunity for a direct personal encounter with a faculty member in a small sitting devoted to a significant intellectual endeavor. Specific topics will be posted at the beginning of each academic year. Please see the College Freshman seminar website for information on current course offerings http://www.college.upenn.edu/courses/seminars/freshman.php.
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 030 1000 Years of Musical Listening
We know that we like music and that it moves us, yet it is often difficult to pinpoint exactly why, and harder still to explain what it is we are hearing. This course takes on those issues. It aims to introduce you to a variety of music, and a range of ways of thinking, talking and writing about music. The majority of music dealt with will be drawn from the so-called "Classical" repertory, from the medieval period to the present day, including some of the 'greats' such as Handel, Beethoven, Mozart, Berlioz, and Verdi, but will also introduce you to music you will most likely never have encountered before. This course will explore the technical workings of music and the vocabularies for analyzing music and articulating a response to it; it also examines music as a cultural phenomenon, considering what music has meant for different people, from different societies across the ages and across geographical boundaries. As well as learning to listen ourselves, we will also engage with a history of listening. No prior musical knowledge is required. (Formerly Music 021).
Fulfills College Cross Cultural Foundational Requirement.
For BA Students: Arts and Letters Sector
Taught by: Calcagno, Caldwell, Goodman
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Open to all students

MUSC 031 Symphony
This course will focus on a specific repertoire of representative symphonies by such composers as Haydn, Mozart, Beethoven, Schubert, Berlioz, Schumann, Brahms, Tchaikowsky, and Mahler. Historical developments will be considered, along with the effects upon symphonic literature of such major sociological changes as the emergence of the public concert hall. But the emphasis will be on the music itself-- particularly on the ways we can sharpen our abilities to engage and comprehend the composers' musical rhetoric. Topics will alternate term to term. Fulfills College Cross Cultural Foundational Requirement.
Taught by: Bernstein
One-term course offered either term
Activity: Lecture
1 Course Unit
MUSC 032 Composers
This course will center on the biography, works, and cultural context of a specific composer or group of composers. As well as introducing students to the musical works of the composer(s), the course will examine issues such as reception history, the canon, mechanisms of cult formation, authorship and attribution, identity, historical and social contexts, and nationalism and patriotism. Fulfills College Cross Cultural Foundational Requirement.
For BA Students: Arts and Letters Sector
Taught by: Calcagno, Caldwell, Goodman, Kallberg
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 033 History of Opera
An investigation, through a series of representative works, of the central problem of opera: how does the combination of music, text, and visual spectacle create an art form in which the whole is more powerful than its parts. Today this issue can be examined not only in live performances but also through media such as film, DVD, streaming video-- media to which this four-centuries-old multimedia form has adapted, evolving in still compelling ways. The works chosen for the course provide a chronological survey but also represent the variety of sources on which opera has drawn for it subject matter: myth and legend, the epic, the novel, and the play.
For BA Students: Arts and Letters Sector
Taught by: Calcagno, Goodman
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 034 Music Makers
Courses under this number will treat composer performers and performance. Courses will include a class on Haydn and Mozart (formerly 027); Beethoven (Formerly 028; and Mahler (formerly 025).
Taught by: Caldwell, Goodman, Kallberg
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 035 Jazz Style and History
This course is an exploration of the family of musical idioms called jazz. Attention will be given to issues of style development, selective musicians, and to the social and cultural conditions and the scholarly discourses that have informed the creation, dissemination and reception of this dynamic set of styles from the beginning of the 20th century to the present. Fulfills Cultural Diversity in the U.S.
Taught by: Ramsey
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This course is an exploration of the family of musical idioms called jazz. Attention will be given to issues of style development, selective musicians, and to the social and cultural conditions and the scholarly discourses that have informed the creation, dissemination and reception of this dynamic set of styles from the beginning of the 20th century to the present. Fulfills Cultural Diversity in the U.S.

MUSC 044 Popular Music
This course traces the history of popular music in America from the nineteenth century to the present. We will start with parlor songs and social class and the racialized rise of minstrelsy in the antebellum period, track the separation of highbrow and lowbrow culture in the 19th century, explore the explosion of new styles in the early twentieth century, and witness the birth of hugely influential genres such as rock n roll in the 1950s and hip hop in the 1970s and 1980s. Throughout the semester we will consider how popular music intersects with and reflects individual and social identity, particularly in terms of race, class, gender, and sexuality. Students will engage intensively with popular songs and pieces while also gaining a firm grounding in the historical and social forces of which music was a part.
Taught by: Goodman
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 049 Listening to Nostalgia from the Phonograph to YouTube.
In revising the past, nostalgia invites us to also rethink the present, its ideals and its utopias. This CWiC course covers a century of nostalgia’s aural technological mediation, from the invention of the phonograph to today’s digital media such as YouTube. We will explore how conflicting forms of aural nostalgia (the longing for the sounds of other times or other places) are seen either as a suspicious refuge or an empowering cultural resource, and how they affect personal and collective identities, such as enhancing self-esteem or providing interpersonal bonds. The objective is to develop the students public speaking skills by voicing their own experiences of nostalgia while trying to understand the broader social, cultural, and communal issues at stake in nostalgic sounds. Through the examination of readings, analyses of recent and archival recordings, exhibits, and discussions, we will examine the intricate roles nostalgia has played at the intersections of aesthetics, technology, politics, marketing, the environment, and various audiovisual media, and how they affect us as individuals and communities. In order to develop their oral communication skills, students will be required to give presentations on two nostalgic topics of their choice in formats that employ different research, organization, and presentation competencies. Every week a small group of students will report on an example of sonic nostalgia found in Philadelphia in the style of a nostalgic radio program (or podcast). Each student will give a more formal oral critique of a nostalgic artifact of their choice, engaging with the plurality of oral (and aural) forms of nostalgia.
Taught by: Pare-Morin
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Communication within the Curriculum.
MUSC 050 World Musics and Cultures
This course examines how we as consumers in the "Western" world engage with musical difference largely through the products of the global entertainment industry. We examine music cultures in contact in a variety of ways—particularly as traditions in transformation. Students gain an understanding of traditional music as live, meaningful person-to-person music making, by examining the music in its original site of production, and then considering its transformation once it is removed, and recontextualized in a variety of ways. The purpose of the course is to enable students to become informed and critical consumers of "World Music" by telling a series of stories about particular recordings made with, or using the music of, peoples culturally and geographically distant from the US. Students come to understand that not all music downloads containing music from unfamiliar places are the same, and that particular recordings may be embedded in intriguing and controversial narratives of production and consumption. At the very least, students should emerge from the class with a clear understanding that the production, distribution, and consumption of world music is rarely a neutral process. Fulfills College Cross Cultural Foundational Requirement.
For BA Students: Arts and Letters Sector Taught by: Muller,Rommen,Sykes One-term course offered either term Activity: Lecture 1 Course Unit

MUSC 051 Music of Africa
African Contemporary Music: North, South, East, and West. Come to know contemporary Africa through the sounds of its music: from South African kwela, jazz, marabi, and kwaito to Zimbabwean chimurenga; Central African soukous and pygmy pop; West African Fuji, and North African rai and hophop. Through reading and listening to live performance, audio and video recordings, we will examine the music of Africa and its intersections with politics, history, gender, and religion in the colonial and post colonial era. (Formerly Music 053). Fulfills College Cross Cultural Foundational Requirement.
Taught by: Muller Course not offered every year Activity: Lecture 0 Course Units

MUSC 056 Seeing/Hearing South Africa: Politics and History through Contemporary Performance
This course begins in the regular semester—students are provided a general introduction to South African history, politics, environment, and performance through a range of resources: scholarly literature, film, music, and online resources; with particular focus on sites, communities, and events included in the two week intensive travel to South Africa (either Fall semester Intro with winter break travel; or spring semester Intro with late spring intensive travel). Students are given guidelines for writing about and representing live performances and experiences of exhibits and heritage sites. For fall/winter travel: focus is on Cape Town’s New Year’s Festival performed by those historically called “Cape Coloured” a Festival that makes complicated understandings of race, slavery, and transatlantic translation of borrowed culture. For the Spring/late spring travel, the destination is music festivals in mid-May. Both classes include visits to Robben island, Kirstenbosch gardens; ‘Cape Malay’ heritage sites; travel to KwaZulu Natal, and to Johannesburg’s apartheid museum, Soweto’s anti apartheid destinations, the Cradle of Humankind works heritage site, a game park, and the Union Buildings in Pretoria. En route we will stop over to view Khoisan rock art. For BA Students: Arts and Letters Sector Taught by: Muller Course not offered every year Prerequisites: APPLICATION THROUGH PENN GLOBAL REQUIRED. http://global.upenn.edu/pennabroad/ Activity: Seminar 1 Course Unit Notes: Application required through Penn Global: https://global.upenn.edu/pennabroad/pgs

MUSC 060 Beginning Tabla I
An introduction to the tabla, the premier drum of north Indian and Pakistani classical music traditions.
Course not offered every year Activity: Lecture 1 Course Unit

MUSC 061 Indian Musical Performance A: Elementary
Introduction to the fundamentals of Indian music; instruction in performance on the sitar.
Taught by: Nalbandian One-term course offered either term Activity: Lecture 1 Course Unit

MUSC 062 Beginning Tabla II
Continued study in Tabla Course usually offered in spring term Activity: Lecture 1 Course Unit

MUSC 063 Beginning Sitar II
Taught by: Nalbandian One-term course offered either term Activity: Lecture 1 Course Unit Notes: Continuation of MUSC 061
This course will cover basic skills and vocabulary for reading, hearing, performing, analyzing, and writing music. Students will gain command of musical rudiments, including notation, reading and writing in treble and bass clefs, intervals, keys, scales, triads and seventh chords, and competence in basic melodic and formal analysis. The course will include an overview of basic diatonic harmony, introduction to harmonic function and tonicization. Musicianship skills will include interval and chord recognition, rhythmic and melodic dictation and familiarity with the keyboard. There will be in-depth study of selected compositions from the "common practice" Western tradition, including classical, jazz, blues and other popular examples. Listening skills—both with scores (including lead sheets, figured bass and standard notation), and without—will be emphasized. There is no prerequisite. Students with some background in music may place out of this course and into Music 170, Theory and Musicianship I. (Formerly Music 70, 71). Fulfills College Formal Reasoning and Analysis Foundational Requirement.
Taught by: Waltham-Smith, Weesner
One-term course offered either term
Prerequisites: There is no prerequisite. Students with some background in music may place out of this course and into Music 170, Theory and Musicianship I.
Activity: Lecture
1 Course Unit

MUSC 080 Literatures of Jazz
That modernism is steeped as much in the rituals of race as of innovation is most evident in the emergence of the music we have come to know as jazz, which results from collaborations and confrontations taking place both across and within the color line. In this course we will look at jazz and the literary representations it engendered in order to understand modern American culture. We will explore a dizzying variety of forms, including autobiography and album liner notes, biography, poetry, fiction, and cinema. We'll examine how race, genre, and class influenced the development of jazz music, and then will use jazz music to develop critical approaches to literary form. Students are not required to have a critical understanding of music. Class will involve visits from musicians and critics, as well as field trips to some of Philadelphia's most vibrant jazz venues.
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 081 Film Music in Post 1950 Italy: Nino Rota and Ennio Morricone
An exploration of cinematic sound through the lens of specific composer/director collaborations in post-1950 Italy, examining scores, soundtracks, and the interaction of diegetic and non-diegetic music with larger soundscapes. Composers Nino Rota and Ennio Morricone serve as case studies, in partnership with directors Fellini, Visconti, Leone, Pontecorve, Pasolini, and Coppola. Highlights include several excerpts from the Fellini/Rota collaboration, including The White Sheik, I vitelloni, The Road, Nights of Cabiria, La dolce vita, 8 1/2, Juliet of the Spirits, Satyricon, The Clowns, Roma, Amarcord, Casanova, and Orchestra Rehearsal. Rota’s music for Visconti will be examined in Senso, the Leopard, and Rocco and his Brothers, along with his Transatlantic collaboration for The Godfather. Morricone’s work with various directors will be discussed in The Good, the Bad, and the Ugly, The Battle of Algiers, and Teorema, as well as for American films such as Malick's Days of Heaven and Tarantino's The Hateful Eight. Weekly screenings required. Open to all: music majors, minors, and non-majors; will count toward requirements for music minor. Knowledge of music and Italian helpful but not required. All readings and lectures in English.
Taught by: Samuel
Activity: Seminar
1 Course Unit

MUSC 082 African-American Literature
An introduction to African-American literature, typically ranging across a wide spectrum of moments, methodologies, and ideological postures, from Reconstruction and the Harlem Renaissance to the Civil Rights Movement. Most versions of this course will begin in the 19th century; some versions of the course will concentrate only on the modern period. See the English Department’s website at www/english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 130 Introduction to European Art Music
This course aims to introduce students to what it means to study the European musical tradition. Students will approach the diverse music that constitute the classical tradition from a variety of scholarly perspectives. The goal of this class is to listen deeply and think broadly. Students will consider questions such as: what sort of object is music? Where is it located? What does it mean to say a work is "canonic"? What is left out of the story? This class will be in dialog with other tier-one classes, and will consider what the historian can bring to the study and understanding of music.
For BA Students: Arts and Letters Sector
Taught by: Calcagno, Caldwell, Goodman, and Kallberg
Course not offered every year
Prerequisite: Music 070
Activity: Lecture
1 Course Unit
Notes: Fulfills the requirements of the Music Major. Music 070 prerequisite.
MUSC 135 Introduction to the Music Life in America
This course surveys American musical life from the colonial period to the present. Beginning with the music of Native Americans, the European legacy, and the African Diaspora, the course treats the singular social and political milieu that forged the profile of America's musical landscape. Attention will be given to the establishment of the culture industry and to various activities such as sacred music, parlor music, concert and theater music, the cultivation of oral traditions, the appearance of jazz, the trajectory of western art music in the United States, and the eventual global dominance of American popular music. Music 070 prerequisite. Preference given to music Majors and Minors. Fulfills the Cultural Diversity in the U.S. College Requirement.
Taught by: Ramsey, Goodman
Course not offered every year
Prerequisite: Music 070
Activity: Lecture
1 Course Unit

MUSC 150 Introduction to Ethnomusicology
This course introduces students to the field of ethnomusicology through a series of case studies that explore a range of traditional, popular, and art musics from around the world. The course takes as a point of departure several works of musical ethnography, musical fiction, and musical autobiography and, through in-depth reading of these texts, close listening to assigned sound recordings, and in-class case studies, generates a context within which to think and write about music.
Taught by: Muller, Rommen, Sykes
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Fulfills the requirements of the Music Major.

MUSC 161 Intermediate Sitar I
North Indian classical music is performed in a format shared by stringed, bowed and wind instruments. Intermediate North Indian Instrumental performance is open to students who play a Western or Indian instrument with at least an intermediate degree of proficiency and to those who have completed Beginning Sitar. The course will cover North Indian methods of composition, rhythm and improvisation and focus on two or three performance pieces. A group performance will be given at the end of the semester.
Taught by: Miner
One-term course offered either term
Activity: Lecture
1 Course Unit

MUSC 170 Theory and Musicianship I
Introduction to and development of principles of tonal voice-leading, harmonic function, counterpoint, and form through written analysis, composition, improvisation, and written work. Course covers diatonic harmony and introduction to chromaticism. Repertoires will focus on Western classical music. Musicianship component will include sight-singing, dictation keyboard harmony. Fulfills College Formal Reasoning and Analysis Foundational Requirement.
Taught by: Moreno, Primosch, Reise, Waltham-Smith, Weesner
Course usually offered in fall term
Prerequisite: Music 070 or successful completion of diagnostic test
Activity: Lecture
1.5 Course Unit
Notes: Required of music majors.

MUSC 171 Theory and Musicianship II
Continuation of techniques established in Theory and Musicianship I. Explores chromatic harmony. Concepts will be developed through analysis and model composition. Musicianship component will include sight singing, clef reading, harmonic dictation and keyboard harmony.
Taught by: Moreno, Reise, Waltham-Smith, Weesner
Course usually offered in spring term
Prerequisite: Music 170
Activity: Lecture
1.5 Course Unit
Notes: Required of music majors.

MUSC 230 Historical Eras and Topics: Earlier Periods
This course offers an in-depth look at topics and repertoires of the "earlier" periods, namely one (or more) of three historical epochs: Medieval, Renaissance, or Baroque. The purpose of this course is to give students the opportunity to engage deeply with musical works historically, analytically, and contextually, in addition to introducing a range of methodologies within the historical study of Music. (Formerly Music 120, 121,122).
Taught by: Calcagno, Caldwell, Goodman
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 231 Historical Eras and Topics: Later Periods
This course offers an in-depth look at topics and repertoires of the eighteenth century to today. Classes focus on one (or more) of four historical epochs: Enlightenment, Romantic, Modern, and Postmodern. The purpose of this course is to give students the opportunity to engage deeply with musical works historically, analytically and contextually, in addition to introducing a range of methodologies within the historical study of music. (Formerly 123, 124).
Taught by: Goodman, Kallberg, Ramsey
Activity: Lecture
1 Course Unit

MUSC 232 Themes in Music History
In this course, students will have the opportunity to explore music history from a thematic or conceptual perspective, frequently through several eras. Past themes organizing the course include the Voice, the Sacred, Uncanny, Technology, Instruments, Orality and Literacy, and Machines.
Taught by: Calcagno, Caldwell, Goodman, Kallberg, Ramsey
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 234 Music Makers
Courses under this number will treat composer, performers, and performance. This class may also on occasion have a performance component, including collaborations with local performance venues, artists in residence. Courses will include a class on Haydn and Mozart (formerly 027); Beethoven (formerly 28); Mahler (formerly 25); Monks and Nuns; String Quartets.
Taught by: Calcagno, Caldwell, Goodman, Kallberg, Ramsey
Course not offered every year
Activity: Lecture
1 Course Unit
MUSC 235 Studies in African-American Music
This course explores aspects of the origins, style development, aesthetic philosophies, historiography, and contemporary conventions of African-American musical traditions. Topics covered include: the music of West and Central Africa, the music of colonial America, 19th century church and dance music, minstrelsy, music of the Harlem Renaissance, jazz, blues, gospel, hip-hop, and film music. Special attention is given to the ways that black music produces “meaning” and to how the social energy circulating within black music articulates myriad issues about American identity at specific historical moments. The course will also engage other expressive art forms from visual and literary sources in order to better position music making into the larger framework of African American aesthetics. (Formerly Music 146).
Taught by: Ramsey
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 236 Performance, Analysis, History
Participation in the course is contingent upon a successful audition. This course must be taken for a letter grade (pass/fail option may not be utilized for this course). This weekly seminar will explore music from the past and present through class discussions of performance, historical context, and analytical aspects of the music led by a professor and/or performer. One example of a class in this number will be an indepth study of chamber music repertoire led by the Daedalus Quartet. Students will prepare for a final performance at the end of the semester as well as a paper/presentation. Students interested in this applied approach to music may also wish to take 256 and/or 276.
Taught by: Weesner
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 239 Guided Reading in Musicology
Individual research under the supervision of a member of the faculty. Students who take Music 239 may not take Music 259 or 279. Prerequisite 130 and one other class from tier 1 or 2. Student must complete one guided Reading Course in order to be eligible for departmental honors.
One-term course offered either term
Prerequisites: Musc 130 or 135; and 170
Activity: Independent Study
1 Course Unit

MUSC 246 Sound Studies
This course provides an introduction to the burgeoning field of sound studies. With clear roots in Music studies, sound studies is at the same time a trans-disciplinary endeavor that spans literature, media theory, sensory history, and anthropology, and is engaged with substantive issues of race, gender, and global politics. Students will engage with texts drawn from a variety of fields, as well as sound and performance art, fiction, podcasts, and film, and they will be encouraged to experiment with creative, multimedia elements in their final projects.
Taught by: Waltham-Smith
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 252 Music, Religion, Ritual in South and Southeast Asia.
What role does music play in articulating religious identities and spaces? What is the importance of ritual musics as they persist and change in the modern world? How does music reflect and articulate religious ways of thinking and acting? In this course, we explore these and other questions about the interrelations between music, religion, and ritual in South and Southeast Asia. Focusing on India, Sri Lanka, Malaysia, and Indonesia, the course emphasizes musics from Hindu, Buddhist, Muslim and Christian traditions; nevertheless, it draws widely to touch upon sacred musics in Pakistan, Nepal, Burma, Thailand, Vietnam, and among some indigenous peoples in the region. Throughout, we explore ontologies of sound; sonic occurrences in religious structures, public processions, and pilgrimage sites; the construction of religion and ritual as ideas forged through colonial encounter and modern scholarship on religion; the politics of sacred sounds in today’s public spaces and contemporary media, such as television and online; and the surprising fluidity between popular and sacred musical genres.
Taught by: Sykes
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 255 Accordions of the New World
This course focuses on the musical genres and styles (both traditional and popular) that have grown up around the accordion in the New World. We will begin our explorations in Nova Scotia and move toward the Midwest, travelling through the polka belt. From there, our investigation turns toward Louisiana and Texas—toward zydeco, Cajun, and Tex-Mex music. We will then work our way through Central and South America, considering norteno, cumbia, vallenato, tango, chamame, and forro. The semester, the musical case studies will be matched by readings and film that afford ample opportunity to think about the ways that music is bound up in ethnicity, identity, and class. We will also have occasion to think about the accordion as a multiply meaningful instrument that continues to be incorporated into debates over cultural politics and mobilized as part of strategies of representation through the New World. (Formerly Music 157).
Taught by: Rommen
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 256 Music and Performance of Africa
This class provides an overview of the most popular musical styles and discussion of the cultural and political contexts in which they emerged in contemporary Africa. Learning to perform a limited range of African music/dance will be part of this course. No prior performance experience required. (Formerly Music 253).
Taught by: Muller
Course not offered every year
Activity: Lecture
1 Course Unit
MUSC 257 Caribbean Music and Diaspora
This course considers Caribbean musics within a broad and historical framework. Caribbean musical practices are explored by illustrating the many ways that aesthetics, ritual, communication, religion, and social structure are embodied in and contested through performance. These initial inquiries open onto an investigation of a range of theoretical concepts that become particularly pertinent in Caribbean contexts—concepts such as post-colonialism, migration, ethnicity, hybridity, syncretism, and globalization. Each of these concepts, moreover, will be explored with a view toward understanding its connections to the central analytical paradigm of the course—diaspora. Throughout the course, we will listen to many different styles and repertories of music ranging from calypso to jankanoo, from rumba to merengue, and from dance hall to zouk. We will then work to understand them not only in relation to the readings that frame our discussions but also in relation to our own North-American contexts of music consumption and production. (Formerly Music 258).

Taught by: Rommen
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 258 Latin American Music
This survey course considers Latin American musics within a broad cultural and historical framework. Latin American musical practices are explored by illustrating the many ways that aesthetics, ritual, communication, religion, and social structure are embodied in and contested through performance. These initial inquiries open onto an investigation of a range of theoretical concepts that become particularly pertinent in Latin American contexts—concepts such as post-colonialism, migration, ethnicity, and globalization. Throughout the course, we will listen to many different styles and repertories of music and then work to understand them not only in relation to the readings that frame our discussions but also in relation to our own North American contexts of music consumption and production. (Formerly Music 158).

Taught by: Rommen
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 259 Guided Research Ethnomusicology
Individual research under the supervision of a member of the faculty. Students who take Music 259 may not take 239 or 279.

One-term course offered either term
Prerequisites: Music 150 and 170.
Activity: Independent Study
1 Course Unit

MUSC 265 Performing Arts in South Asia
This course is a survey of selected traditions of theater, music, and dance in India and surrounding regions. Topics include ritual practices, theater, classical dance, classical music, devotional music, regional genres, and contemporary popular musics. Readings and lectures are supplemented by audio and visual materials and live performances. The aim of the course is to expose students to a variety of performance practices from this part of the world and to situate the performing arts in their social and cultural contexts. The course has no prerequisites.

For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

MUSC 266 Music Cult in India & Pak
One-term course offered either term
Activity: Lecture
1 Course Unit

MUSC 270 Theory and Musicianship III
Continuation of techniques established in Theory and Musicianship I and II. Concepts will be developed through analysis and model composition. Musicianship component will include advanced sight singing, clef reading, harmonic dictation and keyboard harmony.

Taught by: Moreno, Primosch, Reise, Waltham-Smith
Course usually offered in fall term
Prerequisites: Music 170 and 171
Activity: Lecture
1.5 Course Unit
Notes: Required of music majors.

MUSC 271 Composition I: Historical Practices
Studies in selected 16th through 19th century compositional practices. Possible topics may include 16th century modal counterpoint; sonata forms in Viennese classicism; advanced chromatic harmony. Course includes analysis of relevant pieces and student compositional projects reflecting course topic.

Taught by: Primosch, Reise, Waltham-Smith
Course not offered every year
Prerequisites: Music 170, 171, 270
Activity: Lecture
1 Course Unit

MUSC 272 Composition II: Contemporary Practices
Studies in selected 20th and 21st century compositional practices. Possible topics may include symmetry in post-tonal harmony; composing for piano; the sonata in the 20th century. Course includes analysis of relevant pieces and student compositional projects reflecting course topic.

Taught by: Reise
Course not offered every year
Prerequisites: Music 170, 171, 270
Activity: Lecture
1 Course Unit

MUSC 273 Orchestration
An introduction to writing for the instruments of the orchestra. Course will include study of individual instruments and various instrumental combinations, including full orchestra. Representative scores from the 18th century to the present day will be analyzed. Students will be responsible for several scoring projects and will have opportunities to hear readings of their projects. Prerequisite: at least two semesters of music theory or permission of instructor. (Formerly 285).

Taught by: Primosch
Course not offered every year
Prerequisite: Music 70 or 170
Activity: Lecture
1 Course Unit

MUSC 285 Theory and Musicianship I
Continuation of techniques established in Theory and Musicianship I and II. Concepts will be developed through analysis and model composition. Musicianship component will include advanced sight singing, clef reading, harmonic dictation and keyboard harmony.

Taught by: Moreno, Primosch, Reise, Waltham-Smith
Course usually offered in fall term
Prerequisites: Music 170 and 171
Activity: Lecture
1.5 Course Unit
Notes: Required of music majors.
MUSC 275 Electronic Music
MUSC275 offers an introduction to electronic music/sound production with a focus on analogue systems and performance. Guest artists will join us for in-class visits and performances during the semester. Meetings will take place in the classroom, in concert spaces and in the studio. Preference given to Music majors and minors for registration.
Taught by: Lew
Course not offered every year
Prerequisite: Music 070 or 170
Activity: Lecture
1 Course Unit

MUSC 277 Recording Music.
An introduction to music and sound recording with a focus on concerts and live performances. The entire process will be examined from start to finish, including the roles played by composers, musicians, listeners, performance spaces, and recording technology. Meetings will take place in the classroom, in concert spaces and in the studio. Music majors and minors will be given preference for registration.
Taught by: Lew
Course usually offered in fall term
Prerequisites: Music 170.
Activity: Seminar
1 Course Unit
Notes: This course is for Music Majors and minors.

MUSC 278 Composition for Musicians
Music 278 is a Composition Seminar that treats composing as both an end in itself and a means for thinking broadly and speculatively about music. We will work on various compositional techniques through exercises as well as 'free' composition, giving attention to skills as well as to personal voice. We will survey the current musical landscape through listening, analysis and discussion. The question of musical style itself will be pursued, and while we will be oriented to western art music, we will consider a wide range of styles, including popular music. It is assumed that students will have fluency with musical notation. Prerequisite: Music 171, or permission of the instructor.
Taught by: Weesner
Prerequisite: Music 171
Activity: Seminar
1 Course Unit
Notes: Music 171 prerequisite

MUSC 279 Guided Research in Theory and Composition
Individual research under the supervision of a member of the faculty. Students who take Music 279 may not take Music 239 or Music 259. A research paper (15-20 pages in length with a bibliography) is expected at end of term summarizing research.
Prerequisites: Music 170, 171 and one other tier 2 class
Activity: Independent Study
1 Course Unit

This global cities seminar will discuss the cultural politics of memory as they develop through the spatial and sonic atmosphere of post-war Berlin. A city rich in history and focused on the future, Berlin is a laboratory for how exploration of the recent past is re-scripting the near future. The city becomes a palimpsest sonically, visually, and spatially that is available for investigation and interpretation as a means to understand historical patterns and their relationship to novel practices and methods in the present. Media, and in particular sonic cultures, as well as real estate economics and ecological design will form interrelated prisms through which to understand cities, urban practices, urban memory and the transformation of the environment. Methodologically, the course will be an experiment in the use of media to understand cities and engage with urban practices. The course also involves a mandatory, funded field trip to Berlin during spring break when students will participate in the ongoing Anthropocene Curriculum at the Haus der Kultur der Welt and will visit sound art galleries and sound design studios, as well as meeting with practitioners and researchers. Entrance to the course is via application.
Music320(naomiwal@sas.upenn.edu)&ARCH320(barberda@design.upenn.edu)
Taught by: Daniel Barber and Naomi Waltham Smith
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 330 Seminar in Music History
Advanced seminar in topics in musicology.
Taught by: Calcagno, Caldwell, Goodman, Kallberg, Ramsey
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 350 Seminar in Ethnomusicology
Advanced study in a selected topic in Ethnomusicology.
Taught by: Muller, Rommen, Sykes
One-term course offered either term
Activity: Seminar
1 Course Unit

MUSC 370 Seminar in Theory and Composition
Advanced seminar in topics of music theory and compositions.
Taught by: Waltham-Smith, Weesner, Moreno
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 508 Advanced Musicianship
Advanced techniques of score reading and general musicianship at the keyboard. Goals of the course include increasing proficiency in sight singing (including C clefs). Taking harmonic, melodic, and rhythm dictations. Accurate performance of rhythms. Two terms. student must enter first term.
Prerequisites: Reasonable keyboard and sight-reading facility
Activity: Lecture
1 Course Unit

MUSC 515 Analysis of Twentieth-Century Music
Analytical studies of twentieth-century music.
Taught by: Primosch
Course not offered every year
Activity: Seminar
1 Course Unit
MUSC 516 Analysis of 20th Century Music II
Analytical Studies of 20th century music focusing on post World War II music.
Taught by: Primosch, Reise
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 520 Orchestration
A study of the instruments of the orchestra and their combination.
Frequent written projects.
Taught by: Reise
Course not offered every year
Activity: Lecture
1 Course Unit

MUSC 525 Composition in Selected Forms
Study of the style and form of one genre, composer, or historical period, with emphasis on written projects.
Taught by: Reise
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 530 Composition and Electronic Media.
This course is intended for advanced composers who have substantial experience and training in composition. Students in MUSC530 will complete short etudes utilizing the student's choice of media. Examples from the literature will be discussed.
Taught by: Primosch
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 601 Texts and Material Culture
Topics may include book, manuscript, and print culture; history of the book; history of music notation; codicology and paleography; textual criticism, philology, and editing; encoding and textual technologies; musical bibliographies.
Taught by: Caldwell
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 603 Aesthetics and Criticism
Topics may include hermeneutics, methods of formulating value judgements, the relationship of evaluation to interpretation, and the role of aesthetics in history.
Taught by: Kallberg
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 604 Historiography and Methodologies.
Theories and models of historical investigation. Analysis of historiographic writings and musicological works exemplifying particular approaches, such as transnational, environmental/landscape, gender/sexuality, critical race studies, performance studies, archives, and the digital humanities.
Taught by: Calcagno, Caldwell, Goodman
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 605 Anthropology of Music
Topics may include the intellectual history of ethnomusicology, current readings in ethnomusicology, a consideration of theoretical principles based upon the reading and interpretation of selected monographs, and area studies. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions.
Taught by: Muller, Rommen, Sykes
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Open to graduate students from all departments

MUSC 606 The Interpretation of Oral Traditions
Topics may draw on methodologies derived from jazz studies, chant studies, and ethnomusicology. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions.
Taught by: Ramsey
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 620 Analytical Methods: Tonal Music
Current methods in the analysis of tonal music. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions.
Taught by: Moreno, Waltham-Smith
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 621 Analytical Methods: Twentieth-Century Music
Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions.
Taught by: Moreno, Waltham-Smith
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 622 Tonal and Post-Tonal Music
Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions.
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 630 Perspectives on the String Quartet
Course not offered every year
Activity: Seminar
1 Course Unit
MUSC 650 Field Methods in Ethnomusicology
The goal of the seminar is to give students a compressed dissertation research experience—taking them from the beginnings of "researching" a community and its music, through the documentation and representation stages. Students do background and methods reading, though the focus of the class is the development of basic ethnographic and documentation skills. This is a community partnership seminar, which means that all forms of representation are produced in collaboration with community partners in West Philadelphia. These include photographic essays, an NPR style audio documentary, but most significantly, twenty-thirty minute documentary films on a particular subject. See sample syllabus and projects on http://ccat.sas.upenn.edu/music/westphillymusic Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions. Taught by: Muller, Rommen, Sykes
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 700 Seminar in Composition
Seminar in selected compositional problems, with emphasis on written projects. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions. Taught by: Primosch, Reise, Weesner
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 705 Seminar in Ethnomusicology
Topics in Ethnomusicology. Please see department website https://www.sas.upenn.edu/music/node/53425 for current term course descriptions. Taught by: Muller, Rommen, Sykes
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Open to graduate students from all departments

MUSC 710 Studies in Medieval Music
PLEASE see department website for current term course description. http://www.sas.upenn.edu/music/courses/music/courses . Taught by: Caldwell
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 720 Studies in Renaissance Music
Seminar on selected topics in the music of the Renaissance. Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 730 Studies in Baroque Music
Seminar on selected topics in the music of the Baroque period. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions. Taught by: Calcagno
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 740 Studies in Classical Music
Seminar on selected topics in the music of the Classical period. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions. Taught by: Goodman, Kallberg
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 750 Studies in Romantic Music
Studies of Music in the 19th-Century. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions. Taught by: Kallberg
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 760 Studies in Twentieth-Century Music
Seminar on selected topics in the music of the twentieth century. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions. Taught by: Kallberg
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 770 Seminar in Afro-American Music
Seminar course description offerings can be found on the Music department website: https://www.sas.upenn.edu/music/courses. Scroll through Current graduate seminar offerings on right. Taught by: Ramsey
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 780 Studies in Music Theory and Analysis
Seminar on selected topics in music theory and analysis. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions. Taught by: Moreno, Waltham-Smith
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 781 Writing Sound--Sounding Literature
Seminar on selected topics in sound studies. Please see department website https://www.sas.upenn.edu/music/courses for current term course descriptions. Taught by: Waltham-Smith
Course not offered every year
Activity: Seminar
1 Course Unit

MUSC 799 Guided Reading in Musical Scholarship
Guidance in preparation for the A.M. comprehensive examination in the history and theory of music. One-term course offered either term
Activity: Independent Study
1 Course Unit

MUSC 800 Teaching Music History
The teaching of music history courses to undergraduates. Course not offered every year
Activity: Independent Study
1 Course Unit
MUSC 801 Teaching Music Theory
The teaching of music theory courses to undergraduates.
Course not offered every year
Activity: Independent Study
1 Course Unit

MUSC 802 Teaching World Musics
The teaching of world music courses to undergraduates.
Taught by: Muller, Rommen.
Course not offered every year
Activity: Independent Study
1 Course Unit

MUSC 994 Preparation of Ph.D. Proposal
Preparation of Ph.D. essay. Completion of Course and submission of
Ph.d. essay marks official entry to Ph.D. program.
One-term course offered either term
Activity: Independent Study
1 Course Unit

MUSC 998 Independent Study in Composition
Private instruction in musical composition.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: May be taken for multiple course-unit credit

MUSC 999 Independent Study and Research
Individual study and research under the supervision of a member of the
faculty.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: May be taken for multiple course-unit credit
NANOTECHNOLOGY (NANO)

NANO 597 Master's Thesis Research
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

NANO 599 Master's Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

NANO 990 Masters Reg
One-term course offered either term
Activity: Masters Thesis
1 Course Unit
NAVAL SCIENCE (NSCI)

NSCI 100 Naval Science Drill
A professional laboratory covering various aspects of naval leadership and professional development. While emphasis is given to military marching, formation, and parade, the course also includes lectures from sources in and out of the Navy. Guest speakers cover topics such as leadership, Navy career paths, equal opportunity, rights and responsibilities, AIDS awareness, terrorism/counterterrorism, naval warfare doctrine, employment of naval forces, ethics and values, operations security, and safety. One-term course offered either term
Prerequisites: Prerequisite (Sophomores, Juniors, Seniors) Fall NSCI 101/Spring NSCI 102
Corequisite: Corequisite (Freshmen) Fall NSCI 101/Spring NSCI 102
Activity: Lecture
1 Course Unit

NSCI 101 Naval Orientation
A course designed to familiarize the student with the history, characteristics and present employment of sea power. Particular emphasis is placed upon our naval forces and their capability in achieving and maintaining our national objectives. Naval organization and operational functions are discussed in conjunction with sea power concepts. Additionally, the student is given an insight into the Naval Service, shipboard organization and safety, time management skills and study techniques. Course usually offered in fall term
Activity: Lecture
1 Course Unit

NSCI 102 Seapower and Maritime Affairs
A broad survey of naval history designed to add historical perspective to current defense problems. Topics covered include: naval power as an aspect of national defense policy, navies as an instrument of foreign policy, strategy selection, resource control, technology, and manning. Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Engineering and Nursing students receive credit

NSCI 201 Leadership & Management
This course emphasizes principles of leadership, personnel and material management, and subordinate development in the context of the naval organization. Practical applications are explored through experiential exercises and case studies. Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Only Engineering, Nursing, and Wharton students receive credit.

NSCI 202 Navigation I
A comprehensive study of the theory and practice of terrestrial, and electronic navigation and the laws of vessel operations. Topics include fundamentals of coastal and harbor piloting, electronic navigation and mean of navigating without reference to land. An in-depth study of the international and inland nautical Rules of the Road is also included. Case studies and practical exercises are used to reinforce the fundamentals of marine navigation. Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Only Engineering students receive credit.

NSCI 301 Engineering
This course provides an overview of how propulsion and electricity are provided to our Navy's fighting ships. The basic engineering principles relating to thermodynamics, steam propulsion (conventional and nuclear), gas turbine propulsion, internal combustion engines, electricity generation and distribution, and various support systems will be taught. Ship design, stability, damage control, and some engineering-related ethical issues will also be discussed. Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Only Engineering students receive credit.

NSCI 302 Weapons
This course provides an overview of the theory and concepts underlying modern weapons systems. The principles behind sensors and detection systems, tracking systems, computational systems, weapon delivery systems, and the fire control problem will be examined, with a consistent emphasis on the integration of these components into a "weapons system". Case studies will be used to illustrate and reinforce concepts introduced in the course. Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Only Engineering students receive credit.

NSCI 310 Evolution of Warfare
This course is designed to add broad historical perspective to understanding military power. Treating war and the military as an integral part of society, the course deals with such topics as: war as an instrument of foreign policy, military influences on foreign policy, the military as a reflection of society, manning and strategy selection. Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit

NSCI 401 Navigation II
Insight into modern naval operations is gained through analysis of relative motion pertaining to ships at sea, underway replenishment, shiphandling, and tactical communications. The process of command and control and leadership is examined through case studies of actual incidents at sea. Course usually offered in fall term
Activity: Lecture
1 Course Unit

NSCI 402 Leadership and Ethics
The capstone course of the NROTC curriculum, this course is intended to provide the midshipman with the ethical foundation and basic leadership tools to be effective junior officers. Topics such as responsibility, accountability, ethics, the law of armed conflict, military law, division organization and training, and discipline are introduced through practical exercises, group discussion, and case studies. Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Only Wharton students receive credit.
NSCI 410 Fundamentals of Maneuver Warfare
This course prepares future military officers and other leaders for service by studying modern tactical principles, current military developments, and other aspects of warfare and their interactions with the influences on maneuver warfare doctrine. There is a specific focus on the United States Marine Corps as the premier maneuver warfighting organization. Study also includes historical influences on tactical, operational, and strategic levels of maneuver warfare practices in the current and future operating environments.
Course offered fall; odd-numbered years
Activity: Lecture
1 Course Unit
NEAR EASTERN LANGUAGES & CIVILIZATION (NELC)

NELC 010 Archaeology & Technology
Spring 2018: This seminar explores how humans apply and modify technologies in contexts as diverse as everyday life, major politico-economic undertakings, or scholarly research. We investigate this through a comparison of technologies of the past with technologies of the present used to study the past. We will dig into the details of topics like building pyramids and tombs, the function of ancient astronomical devices, pre-telegraph long-distance communication, tools for cutting and carving stone, and kilns for firing pottery. Archaeologists study these issues by examining the material remains of past societies: the cut-marks on stone blocks, extant tomb structures, the debris of manufacturing activities, and much more. Today’s technologies enable the detailed scientific examination of the evidence, improving our understanding of the past. Thus, in parallel with our investigation of past technologies, we will also study the history of the application of present technologies to research on the archaeological record. We will dig into topics like the first uses of computers and databases, the development of statistical methods, early digital 3D modeling of objects and architecture, the adoption of geophysical prospection and geographic information systems, and the emerging uses of machine learning. In some cases, we can even compare old and new technologies directly, such as with land measurement and surveying techniques. Throughout the class we will engage in readings and discussions on the theory of humans and technology, to gain a better understanding of how processes such as innovation function in all time periods.

Taught by: Cobb, Peter
Activity: Seminar
1 Course Unit

NELC 031 History of the Middle East Since 1800
A survey of the modern Middle East with special emphasis on the experiences of ordinary men and women as articulated in biographies, novels, and regional case studies. Issues covered include the collapse of empires and the rise of a new state system following WWI, and the roots and consequences of the Palestinian-Israeli conflict, the Iranian revolution and the U.S.-Iraq War. Themes include: the colonial encounter with Europe and the emergence of nationalist movements, the relationship between state and society, economic development and international relations, and religion and cultural identity. Requirements: one paper and two take-home exams.
For BA Students: History and Tradition Sector
Taught by: Kashani-Sabet
One-term course offered either term
Activity: Recitation
1 Course Unit

NELC 032 Topics in 20th C. Middle East
If "the clash of civilizations" is the first image that jumps to mind when thinking about the modern Middle East, then this is the course for you. From the familiar narratives about the creation of modern nation-states to the oft-neglected accounts of cultural life, this course surveys the multi-faceted societies of the twentieth-century Middle East. Although inclusive of the military battles and conflicts that have affected the region, this course will move beyond the cliches of war and conflict in the Middle East to show the range of issues and ideas with which intellectuals and governments grappled throughout the century. The cultural politics and economic value of oil as well as the formation of a vibrant literary life will be among the topics covered in the course. Ty considering illustrative cultural moments that shed light on the political history of the period, this course will adopt a nuanced framework to approach the Arab/Israeli conflict, the history of the Gulf States, the Iran-Iraq War, and U.S. involvement in the region.

Taught by: Kashani-Sabet
One-term course offered either term
Activity: Lecture
1 Course Unit

NELC 034 Israel in the Middle East
This introductory level course will offer an in-depth look at Israeli history and society, and how it relates to the Middle East through varying lenses. We will consider such topics as the rise of Jewish, Palestinian, and Arab nationalisms in the context of changing imperial control over Palestine/Israel (from Ottoman to British), and the emergence of the Middle East in its current borders; Conflict and conflict-resolution in Israel, Palestine, and the Middle East; Israel’s Palestinian minority. Jewish immigrants to Israel from the Middle East, food and music culture in Israel, and their connection to the Middle East; or the place of the Middle East in Israeli literature and film. We will use cutting edge research from several disciplines, as well as literature, film, audio, and photographic evidence. Students will leave the class with a firm grasp of Israeli history and society, and will be widely familiar with the different narratives, viewpoints, and complexities concerning Israel and its position in the Middle East. Prior knowledge of Israeli or Middle Eastern history is not required.

Taught by: Tam
Activity: Seminar
1 Course Unit

NELC 036 The Middle East through Many Lenses
This freshman seminar introduces the contemporary Middle East by drawing upon cutting-edge studies written from a variety of disciplinary perspectives. These include history, political science, and anthropology, as well as studies of mass media, sexuality, religion, urban life, and the environment. We will spend the first few weeks of the semester surveying major trends in modern Middle Eastern history. We will spend subsequent weeks intensively discussing assigned readings along with documentary films that we will watch in class. The semester will leave students with both a foundation in Middle Eastern studies and a sense of current directions in the field.

Taught by: Sharkey H
Course usually offered in fall term
Activity: Seminar
1 Course Unit
NELC 046 Myths and Religions of the Ancient World
This course will survey the religions of the ancient Middle East, situating each in its historical and socio-cultural context and focusing on the key issues of concern to humanity: creation, birth, the place of humans in the order of the universe, death, and destruction. The course will cover not only the better-known cultures from the area, such as Egypt and Mesopotamia, but also some lesser-known traditions, such as those of the Hittites, or of the ancient Mediterranean town of Ugarit. Religion will not be viewed merely as a separate, sealed-off element of the ancient societies, but rather as an element in various cultural contexts, for example, the relationship between religion and magic and the role of religion in politics will be recurring topics in the survey. Background readings for the lectures will be drawn not only from the modern scholarly literature, but also from the words of the ancients themselves in the form of their myths, rituals, and liturgies.
For BA Students: History and Tradition Sector
Taught by: Frame
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NELC 051 Jews and Judaism in Antiquity
A broad introduction to the history of Jewish civilization from its Biblical beginnings to the Middle Ages, with the main focus on the formative period of classical rabbinic Judaism and on the symbiotic relationship between Judaism, Christianity, and Islam.
Taught by: Dohrmann
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NELC 052 Medieval and Early Modern Jewry
Exploration of intellectual, social, and cultural developments in Jewish civilization from the dawn of rabbinic culture in the Near East through the assault on established conceptions of faith and religious authority in 17th century Europe. Particular attention will be paid to the impact of Christian and Muslim "host societies" on expressions of Jewish culture.
For BA Students: History and Tradition Sector
Taught by: Ruderman
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NELC 053 The History of Jewish Civilization from the Late Seventeenth Century to the Present
This course offers an intensive survey of the major currents in Jewish culture and society from the late middle ages to the present. Focusing upon the different societies in which Jews have lived, the course explores Jewish responses to the political, socio-economic, and cultural challenges of modernity. Topics to be covered include the political emancipation of Jews, the creation of new religious movements within Judaism, Jewish socialism, Zionism, the Holocaust, and the emergence of new Jewish communities in Israel and the United States. No prior background in Jewish history is expected.
For BA Students: History and Tradition Sector
Taught by: Ruderman
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NELC 061 Literary Legacy of Ancient Egypt
This course surveys the literature of Ancient Egypt from the Old Kingdom through the Greco-Roman period, focusing upon theme, structure, and style, as well as historical and social context. A wide range of literary genres are treated, including epics; tales, such as the "world's oldest fairy tale;" poetry, including love poems, songs, and hymns; religious texts, including the "Cannibal Hymn"; magical spells; biographies; didactic literature; drama; royal and other monumental inscriptions; and letters, including personal letters, model letters, and letters to the dead. Issues such as literacy, oral tradition, and the question poetry vs. prose are also discussed. No prior knowledge of Egyptian is required.
Taught by: Houser Wegner
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 062 Land of the Pharaohs
This course provides an introduction to the society, culture and history of ancient Egypt. The objective of the course is to provide an understanding of the characteristics of the civilization of ancient Egypt and how that ancient society succeeded as one of the most successful and long-lived civilizations in world history.
For BA Students: History and Tradition Sector
Taught by: Wegner
One-term course offered either term
Activity: Lecture
1 Course Unit

NELC 064 The World of Cleopatra
The figure of Cleopatra is familiar from modern stories, legends, and film. Was this famous woman a brazen seductress or a brilliant political mind? How many of these presentations are historically accurate? This class will examine the Ptolemaic period in Egypt (305-30 BCE), the time period during which Cleopatra lived, in an attempt to separate myth from reality. The Ptolemaic period is filled with political and personal intrigue. It was also a time of dynamic multiculturalism. Arguably one of the most violent and fascinating eras in ancient Egyptian history, the Ptolemaic period is largely unknown and often misunderstood. This course will examine the history, art, religion and literature of Egypt's Ptolemaic period which culminated in the reign of Cleopatra VII.
Taught by: Houser Wegner
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 068 Art and Architecture in Ancient Egypt
This course will be an introduction to the art, architecture and minor arts that were produced during the three thousand years of ancient Egyptian history. This material will be presented in its cultural and historical contexts through illustrated lectures and will include visits to the collection of the University Museum.
Taught by: Silverman
Course not offered every year
Activity: Lecture
1 Course Unit
NELC 101 Introduction to the Ancient Near East
The great pyramids and mysterious mummies of Egypt, the fabled Tower of Babel, and the laws of the Babylonian king Hammurabi are some of the things that might come to mind when you think of the ancient Near East. Yet these are only a very few of the many fascinating -- and at time perplexing -- aspects of the civilizations that flourished there c. 3300-300 BCE. This is where writing first developed, where people thought that the gods wrote down what would happen in the future on the lungs and livers of sacrificed sheep, and where people knew how to determine the length of hypotenuse a thousand years before the Greek Pythagoras was born. During this course, we will learn more about these other matters and discover their place in the cultures and civilizations of that area.
This is an interdisciplinary survey of the history, society and culture of the ancient Near East, in particular Egypt and Mesopotamia, utilizing extensive readings from ancient texts in translation (including the Epic of Gilgamesh, "one of the great masterpieces of world literature"), but also making use of archaeological and art historical materials. The goal of the course is to gain an appreciation of the various societies of the time, to understand some of their great achievements, to become acquainted with some of the fascinating individuals of the time (such as Hatshepsut, "the women pharaoh," and Akhenaten, "the heretic king"), and to appreciate the rich heritage that they have left us.
For BA Students: History and Tradition Sector
Taught by: Frame
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NELC 102 Introduction to the Middle East
This is the second half of the Near East sequence. This course surveys Islamic civilization from circa 600 (the rise of Islam) to the start of the modern era and concentrates on political, social, and cultural trends. Although the emphasis will be on Middle Eastern societies, we will occasionally consider developments in other parts of the world, such as sub-Saharan Africa, Central Asia, and Spain, where Islamic civilization was or has been influential. Our goal is to understand the shared features that have distinguished Islamic civilization as well as the varieties of experience that have endowed it with so much diversity.
For BA Students: History and Tradition Sector
Taught by: Cobb, Sharkey
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Fulfills Cross-Cultural Analysis

NELC 103 Origin and Culture of Cities
The UN estimates that 2.9 of the world's 6.1 billion people live in cities and that this percentage is rapidly increasing in many parts of the world. This course examines urban life and urban problems by providing anthropological perspectives on this distinctive form of human association and land use. First we will examine the "origin" of cities, focusing on several of the places where cities first developed, including Mesopotamia and the Valley of Mexico. We will then investigate the internal structure of non-industrial cities by looking at case studies from around the world and from connections between the cities of the past and the city in which we live and work today.
For BA Students: History and Tradition Sector
Taught by: Zettler
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NELC 106 Pastoral Nomadism in the Past and Present
Pastoral nomadism is a "third way" of human subsistence separate from farming and foraging. It is a sustainable human adaptation to grassland and arid environments practiced through particular technologies and domesticated animals. This course begins by examining the human ecology and social organization that emerge from mobile ways of life, drawing on modern, ethnographic, and archaeological examples of pastoral nomadic groups in the Middle East and Central Asia. Academic readings and ethnographic films will form the basis of discussions about several larger themes, including: the origins of pastoral nomadism and horse riding; the development of dairy-based foods and human adaptations allowing the digestion of lactose; the historical relationship between mobile groups of pastoralists and territorial states; popular perceptions of nomads in various forms of historical and modern media; and the influence of ideas about nomads on modern senses of heritage and nationalism in the Middle East and Central Asia.
Taught by: Hammer
Activity: Seminar
1 Course Unit

NELC 111 Water in the Middle East Throughout History
The role of water in the Middle East cannot be overstated. The Middle East is an arid region, but human and natural systems have interacted to determine relative water scarcity and abundance at different times and places. The location, accessibility, yield, and quality of natural and managed water resources significantly influenced the location and longevity of ancient and modern settlements. Control of water has always affected the economic, political, social life of the communities inhabiting these settlements. This course examines the distribution of water resources throughout the Middle East and the archaeology and anthropology of water exploitation and management over the last 9000 years. It will consider water in river valleys, deserts, highland zones, steppes, and coastal areas of Mesopotamia, Egypt, the Levant, and Arabia from environmental, political, social, cultural, and technical perspectives. We will engage with a variety of media, including academic readings, popular journalism, films, satellite imagery, and digital maps. We will examine irrigation, water supply, sanitation, and water-driven power systems known from ethnographic studies and archaeological excavations. These data will allow us to engage with debates in Middle Eastern anthropology, including those concerning the relationship between water and political power, the environment in which the earliest cities arose, and present and potential future water crises and "water wars." In our final weeks, we will discuss archaeology and historical anthropology's contribution to conceptions of water sustainability and examine attempts to revive traditional and ancient technologies in an effort to better manage modern water resources.
Taught by: Hammer
Activity: Lecture
1 Course Unit
NELC 118 Iranian Cinema: Gender, Politics and Religion
This seminar explores Iranian culture, society, history and politics through the medium of film. We will examine a variety of cinematic works that represent the social, political, economic and cultural circumstances of contemporary Iran, as well as the diaspora. Along the way, we will discuss issues pertaining to gender, religion, nationalism, ethnicity, and the role of cinema in Iranian society and beyond. Discusisons topics will include the place of the Iranian diaspora in cinema, as well as the transnational production, distribution, and consumption of Iranian cinema. Films will include those by internationally acclaimed filmmakers, such as Rakhshaz Bani-Etemad, Asghar Farhadi, Bahman Ghobadi, Abbas Kiarostami, Mohsen Makhmalbaf, Dariush Mehrjui, Tahmineh Milani, Jafar Panahi, Marjane Satrapi and others. All films will be subtitled in English. No prior knowledge is required.
Taught by: Entezari
Course usually offered in fall term
Activity: Seminar
1 Course Unit

NELC 130 Introduction to the Qur'an
The goal of this course is to provide students with a general introduction to the holy scripture of the religion of Islam, the Qur'an. In particular, students will become familiar with various aspects of Qur'anic content and style, the significance of the Qur'an in Islamic tradition and religious practice, scholarly debates about the history of its text, and contemporary interpretations of it. Through close readings of a wide range of passages and short research assignments, students will gain first-hand knowledge of the Qur'an's treatment of prophecy, law, the Biblical tradition, and many other topics. No previous background in Islamic studies or Arabic language is required for this course.
For BA Students: Humanities and Social Science S
Taught by: Lowry
Course offered fall; odd-numbered years
Activity: Lecture
1 Course Unit

NELC 133 Penn/Philadelphia/and the Middle East
This seminar explores the historic engagement of the University of Pennsylvania and its faculty, students, and graduates in the Near and Middle East. It does so while drawing on archives, rare books and manuscripts, and artifacts that are now preserved in the University Archives, the Penn Museum, and the Penn Libraries. Together we will consider how, beginning in the late nineteenth century, Penn scholars engaged in archaeological expeditions to celebrated sites like Ur (in what is now Iraq) and Memphis (in Egypt) and how some of these efforts influenced the late Ottoman Empire's policies towards antiquities and museums. We will examine how Penn's curriculum changed over time to accommodate Semitics, including the study of languages and biblical traditions, in light of or in spite of historic tensions at the university between secular and religious learning. We will assess how Penn responded to changing American popular attitudes and U.S. foreign policy concerns relative to the Middle East, including during the Cold War and post-2001 (post-9/11) eras. Finally, we will trace the stories or biographies of some individual objects in Penn collections in order to appreciate the university's roles in collecting, preserving, analyzing, and disseminating knowledge about the region's deep cultural heritage. Ultimately, by investigating and writing.
Taught by: Sharkey,H
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 134 Getting Crusaded
What did it feel like to get crusaded? In this course, we will examine the roughly two-century period from the call of the First Crusade in 1095 to the final expulsion of Latin Crusaders from the Middle East in 1291. Our examination will be primarily from the perspective of the invaded, rather than the invaders, as is usually done. How did the Muslims, Jews, and Eastern Christians of the medieval Middle East respond to the presence of Frankish invaders from Europe?
For BA Students: History and Tradition Sector
Taught by: Cobb
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit

NELC 136 Introduction to Islam
This course is an introduction to Islam as a religion as it exists in societies of the past as well as the present. It explores the many ways in which Muslims have interpreted and put into practice the prophetic message of Muhammad through historical and social analyses of varying theological, philosophical, legal, political, mystical and literary writings, as well as through visual art and music. The aim of the course is to develop a framework for explaining the sources and symbols through which specific experiences and understandings have been signified as Islamic, both by Muslims and by other peoples with whom they have come into contact, with particular emphasis given to issues of gender, religious violence and changes in beliefs and behaviors which have special relevance for contemporary society.
Taught by: Elias
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NELC 145 Near Eastern Topics
Course topics will vary
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Sometimes offered as a Benjamin Franklin Seminar.

NELC 150 Introduction to the Bible (The "Old Testament")
An introduction to the major themes and ideas of the Hebrew Bible (the Old Testament), with attention to the contributions of archaeology and modern Biblical scholarship, including Biblical criticism and the response to it in Judaism and Christianity. All readings are in English.
For BA Students: Humanities and Social Science S
Course usually offered in fall term
Activity: Lecture
1 Course Unit
NELC 154 Women in Jewish Literature
This course introduces students of literature, women’s studies, and Jewish studies to the long tradition of women as readers, writers, and subjects in Jewish literature. All texts will be in translation from Yiddish and Hebrew, or in English. Through a variety of genres—devotional literature, memoir, fiction, and poetry—we will study women’s roles and selves, the relation of women and men, and the interaction between Jewish texts and women’s lives. The legacy of women in Yiddish devotional literature will serve as background for our reading of modern Jewish fiction & poetry from the past century. The course is divided into five segments. The first presents a case study of the Matriarchs Rachel and Leah, as they are portrayed in the Hebrew Bible, in rabbinic commentary, in pre-modern prayers, and in modern poems. We then examine a modern novel that recasts the story of Dinah, Leah’s daughter. Next we turn to the seventeenth century Glikl of Hamel, the first Jewish woman memoirist. The third segment focuses on devotional literature for and by women. In the fourth segment, we read modern women poets in Yiddish, Hebrew, and English. The course concludes with a fifth segment on fiction and a memoir written by women in Yiddish, Hebrew, and English. “Jewish woman, who knows your life? In darkness you have come, in darkness do you go” J. L. Gordon (1890)
For BA Students: Arts and Letters Sector
Taught by: Hellerstein
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 155 ARCHAEOLOGY & THE BIBLE
Archaeology and the Bible is a chronological survey of the long span of human occupation in the Land of the Bible, known by the names of the modern nation-states and political entities that occupy the area, as well as various short hands such as Levant and Syria-Palestine, from ca. 10,000 BCE, when humans first began to farm and herd animals through the time of the Divided Monarchy of Israel and Judah. While archaeology has moved beyond a primary concern with illuminating the Bible, NELC 155 will investigate the broader import of archaeological discoveries for our understanding of ancient Israel and its neighbors.
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 156 Great Books of Judaism (Fall 2018: Lifecycle in the Talmud)
The Babylonian Talmud, known simply as the Bavli, is the foundational legal and ethical document of rabbinic Judaism. It is one of the best read works of world literature, and it is the most widely disseminated and revered rabbinic work. It not only contains legal discussions and rulings but rather it also presents the worldview of the rabbis. This course will analyze and contextualize the perspectives of the Talmud towards the important phases of life. We will examine in-depth several Talmudic passages relating to the various stages of the human lifecycle: birth and naming of the child; circumcision; bar/bat mitzva and adulthood; earning a livelihood and choosing a career; marriage and divorce; procreation and raising children; death, burial, mourning and the belief in the resurrection of the dead among others. We will evaluate these teachings in light of other traditions and in their broader late antiquity and contemporary contexts. All texts will be read in their English translation but originals will also be provided.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Activity: Seminar
1 Course Unit

NELC 158 Jewish Literature in the Middle Ages in Translation
Course explores the cultural history of Jews in the lands of Islam from the time of Mohammed through the late 17th century (end of Ottoman expansion into Europe) –in Iraq, the Middle East, al-Andalus and the Ottoman Empire. Primary source documents (in English translation) illuminate minority-majority relations, internal Jewish tensions (e.g., Qaraism), and developments in scriptural exegesis, rabbinic law, philosophy, poetry, polemics, mysticism and liturgy. Graduate students have additional readings and meetings. Spring 2015
Taught by: Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 159 Modern Hebrew Literature and Culture in Translation: Autobiography
This course follows and analyzes the transformations in Israeli literature and cinema. The lens through which we study this canon changes each semester. These “lenses” include: “Childhood,” “Holocaust,” “Cities,” “Madness,” and others. Israeli works constitute much of the course’s material, but European and American film and fiction play comparative roles. For a description of the current theme, please see the websites of Cinema and Media Studies, Jewish Studies, NELC, COML, or ENGL.
For BA Students: Arts and Letters Sector
Taught by: Gold
One-term course offered either term
Activity: Lecture
1 Course Unit

NELC 166 The Religion of Ancient Egypt
Weekly lectures (some of which will be illustrated) and a field trip to the University Museum’s Egyptian Section. The multifaceted approach to the subject matter covers such topics as funerary literature and religion, cults, magic religious art and architecture, and the religion of daily life.
Taught by: Silverman/Wegner
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 168 Women in Ancient Egypt
This class will examine the many roles played by women in ancient Egypt. From goddesses and queens, to wives and mothers, women were a visible presence in ancient Egypt. We will study the lives of famous ancient Egyptian women such as Hatshepsut, Nefertiti and Cleopatra. More independent than many of their contemporaries in neighboring areas, Egyptian women enjoyed greater freedoms in matters of economy and law. By examining the evidence left to us in the literature (including literary texts and non-literary texts such as legal documents, administrative texts and letters), the art, and the archaeological record, we will come away with a better understanding of the position of women in this ancient culture.
Taught by: Houser Wegner
Course not offered every year
Activity: Lecture
1 Course Unit
NELC 180 Narrative Across Cultures
An introduction to literary study through a genre, either the short story or poetry. Versions of this course will vary widely in the selection of texts assigned. Some versions will begin with traditional stories or poems, including a sampling of works in translation. Others will focus exclusively on modern and contemporary American short fiction or poetry. This course is designed for the General Requirement, and is ideal for the students wishing to take an English course but not necessarily intending to major.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

NELC 182 Ancient Civilizations of the World
This course explores the archaeology (material culture) of early complex societies or civilizations in Egypt, Mesopotamia, and the Aegean. According to the traditional paradigm, civilization first emerged during the fourth millennium BCE in Egypt and Mesopotamia. In the Mediterranean, state-level societies first appeared in Crete and mainland Greece in the early second millennium BCE. This course investigates how and why these civilizations developed, as well as their appearance and structure in the early historic (or literate) phases of their existence. A comparative perspective will illustrate what these early civilizations have in common and the ways in which they are unique. This course will consist largely of lectures which will outline classic archaeological and anthropological theories on state formation, before turning to examine the available archaeological (and textual) data on emerging complexity in Egypt, Mesopotamia, and the Aegean. This course does not presuppose any knowledge of archaeology or ancient languages; the instructor will provide any background necessary. Because this is a course on material culture, some of the class periods will be spent at the Penn Museum of Archaeology and Anthropology. These will consist of a guided tour of a relevant gallery, as well as a hands-on object-based lab with archaeological materials selected by the instructor. This course meets the General Education Curriculums Cross Cultural Analysis foundational requirement.
For BA Students: History and Tradition Sector
Taught by: Burge
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit

NELC 186 Jewish Mysticism
Survey of expressions of Jewish mysticism from Hebrew Scripture through the 21st century. Topics include rabbincic concerns about mystical speculation, the ascent through the celestial chambers - heikhalot; the Book of Creation, the relationship of Jewish philosophy and mysticism, techniques of letter permutation, schematization of the Divine Body, the prominence of gender and sexuality in kabalistic thought, the relationship of kabbalah to the practice of the commandments, Zohar, Lurianic kabbalah, Hasidism, New-Age Jewish spirituality and the resurgence of Jewish mysticism in the 20th century. All readings will be in English translation.
For BA Students: Arts and Letters Sector
Taught by: Fishman
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 201 Modern Middle Eastern Literature in Translation
The Middle East boasts a rich tapestry of cultures that have developed a vibrant body of modern literature that is often overlooked in media coverage of the region. While each of the modern literary traditions that will be surveyed in this introductory course-Arabic, Hebrew, Persian and Turkish-will be analyzed with an appreciation of the cultural context unique to each body of literature, this course will also attempt to bridge these diverse traditions by analyzing common themes such as modernity, social values, the individual and national identity-as reflected in the genres of poetry, the novel and the short story. This course is in seminar format to encourage lively discussion and is team-taught by four professors whose expertise in modern Middle Eastern literature serves to create a deeper understanding and aesthetic appreciation of each literary tradition. In addition to honing students' literary analysis skills, the course will enable students to become more adept at discussing the social and political forces that are reflected in Middle Eastern literature, explore important themes and actively engage in reading new Middle Eastern works on their own in translation. All readings are in English.
For BA Students: Arts and Letters Sector
Taught by: Allen/Gold
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Fulfills Cross-Cultural Analysis

NELC 216 Persian Poetry in Translation
This course introduces some of the major genres and themes of Persian poetry from ancient to modern Iran. Epic and romance, love and mysticism, wine and drunkenness, wisdom and madness, body and mind, sin and temptation are some of the key themes that will be explored through a close reading of poems in this course. The course suits undergraduate students of all disciplines, as it requires no prior knowledge of or familiarity with the Persian language or the canon of Persian literature. All teaching materials are available in English translation. Students are expected to attend seminars and take part in discussions.
Taught by: Shams
Course usually offered in spring term
Activity: Seminar
1 Course Unit

NELC 218 Media and Culture in Contemporary Iran
This course is an introduction to the major cultural themes and trends of contemporary Iran. Through the lens of press, cinema, literature and drama, the course will examine the ways in which contemporary Iranian society has been subject to rapid change and transformation over the past century. This class is designed for both junior and senior students who are keen to better understand the cultural context of Iran as one of the most influential and significant countries in the Middle East.
Taught by: Shams Esmaeili
One-term course offered either term
Activity: Seminar
1 Course Unit
NELC 231 Modern Arabic Literature
This course is a study of modern Arabic literary forms such as the free verse poem, the prose-poem, drama, the novel, and the short story. The class examines issues related to Arabic culture and identity in the modern and post-modern era through the study of Arabic literature. The aim of the course is to introduce students to key samples of modern Arabic literature which trace major social and political developments in Arab society. All readings will be in English translations. The class will also address the role of translation in shaping modern Arabic literary forms and creating the image of Arabic literature in other languages. Recent topics have included: Arab Women and War, Modernism and Arabic Poetry, The Arabic Free Verse movement.
Taught by: Fakhreddine
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 235 Food in the Islamic Middle East: History, Memory, Identity
In the tenth century, a scholar named Ibn Sayyar al-Warraq produced an Arabic manuscript called Kitab al-Tabikh (The Book of Cooking). This volume, which compiled and discussed the recipes of eighth- and ninth-century Islamic rulers (caliphs) and their courts in Iraq, represents the oldest known surviving cookbook of the Arab-Islamic world. Many more such cookbooks followed; in their day they represented an important literary genre among cultured elites. As one food historian recently noted, there are more cookbooks in Arabic from before 1400 than in the rest of the worlds languages put together. Ibn Sayyars cookbook can help us to think about the historical and cultural dynamics of food. In this class, we will focus on the Middle East across the sweep of the Islamic era, into the modern period, and until the present day, although many of the readings will consider the study of food in other places (including the contemporary United States) for comparative insights. The class will use the historical study of food and foodways as a lens for examining subjects that relate to a wide array of fields and interests. These subjects include economics, agricultural and environmental studies, anthropology, literature, religion, and public health. With regard to the modern era, the course will pay close attention to the consequences of food for shaping memories and identities including religious, ethnic, national, and gender-based identities particularly among people who have dispersed or otherwise migrated. It will also focus considerably on the politics of food, that is, on the place of food in power relations. Among the questions we will debate are these: How does food reflect, shape, or inform history? By approaching the study of Middle Eastern cultures through food, what new or different things can we see? What is the field of food studies, and what can it offer to scholars? What is food writing as a literary form, and what methodological and conceptual challenges face those who undertake it?
Taught by: Sharkey
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 238 Introduction to Islamic Law
This course will introduce students to classical Islamic law, the all-embracing sacred law of Islam. Among the world’s various legal systems, Islamic law may be the most widely misunderstood and even misrepresented; certainly, misconceptions about it abound. Islamic law is, however, the amazing product of a rich, fascinating and diverse cultural and intellectual tradition. Most of the readings in this course will be taken from primary sources in translation. Areas covered will include criminal law, family law, law in the Quran, gender and sexuality, the modern application of Islamic law, Islamic government and other selected topics.
Taught by: Lowry
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit

NELC 239 Migration and the Middle East
This reading-and-discussion-intensive seminar examines the phenomenon of migration into, out of, within, and across the Middle East and North Africa. We will focus on the period from the late nineteenth century to the present, and will emphasize the cultural (rather than economic) consequences of migration. Along the way we will trace connections between the Middle East and other regions— notably the Americas, sub-Saharan Africa, South Asia, the Caucasus, and Western Europe. Readings are interdisciplinary and include works of history, anthropology, sociology, medical research, literature, political science, geography, and human rights advocacy. As students develop final projects on topics of their choice, we will spend time throughout the semester discussing tactics for research and writing.
Taught by: Sharkey
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 241 Iraq: Ancient Cities and Empires
Iraq: Ancient Cities and Empires is a chronological survey of the ancient civilization that existed in the drainage basin of the Tigris and Euphrates Rivers from the early settled village farming communities of the 7th millennium BCE to the middle of the 1st millennium BCE, when Nebuchadnezzar II ruled Babylon and much of the Middle East. Though organized period by period, NELC 241 explores various social, political, economic, and ideological topics, exposing students to various strands of evidence, including settlement survey data, excavated architectural remains, artifacts, and documentary sources, as well as an eclectic mix of theoretical perspectives. The course aims to provide students with a strong foundation for the further study of the ancient and pre-modern Middle East.
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 241 Iraq: Ancient Cities and Empires
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Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit
NELC 244 Reading Ancient Mesopotamia
An introduction to the literature of Ancient Mesopotamia. The literature of ancient Mesopotamia flourished thousands of years ago in a culture all of its own, yet the survival of hundreds of thousands of written records challenges us to read it and make sense of it without simply approximating it to the realm of our own understanding. How can we learn to do this? Situating our understanding of how we read and how we understand culture within an interdisciplinary range of literary-critical and analytic approaches, we will approach this question by immersing ourselves in the myths tales and mentalities that made Mesopotamian literature meaningful. To give us a measure of our progress we will bracket the semester by reading Gilgamesh which is never less than a great story, but which will take on new layers of meaning as the semester develops and we learn to read the text in more and more Mesopotamian ways. As we journey through these mysterious realms we will reflect not only Mesopotamia and its immortal literature but on what it means to read and understand any cultures other than our own.
Taught by: Tinney
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 249 Myth in Society
In this course we will explore the mythologies of selected peoples in the Ancient Near East, Africa, Asia, and Native North and South America and examine how the gods function in the life and belief of each society. The study of mythological texts will be accompanied, as much as possible, by illustrative slides that will show the images of these deities in art and ritual.
Taught by: Ben-Amos
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 250 The Bible in Translation
This course introduces undergraduates and graduate students to one specific Book of the Hebrew Bible. "The Bible in Translation" involves an in-depth reading of a biblical source against the background of contemporary scholarship. Depending on the book under discussion, this may also involve a contextual reading with other biblical books and the textual sources of the ancient Near East. Although no prerequisites are required, NELC 250 is a perfect follow-up course for NELC 150 "Intro to the Bible."
Taught by: Cranz
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 252 THEMES JEWISH TRADITION: Iberian Conversos: Jew-Christian?
Course topics will vary; they have included The Binding of Isaac, Responses to Catastrophes in Jewish History, Holy Men & Women (Ben-Amos); Rewriting the Bible (Dohrmann); Performing Judaism (Fishman); Jewish Political Thought (Fishman); Jewish Esotericism (Lorberbaum) Democratic culture assumes the democracy of knowledge - the accessibility of knowledge and its transparency. Should this always be the case? What of harmful knowledge? When are secrets necessary? In traditional Jewish thought, approaching the divine has often assumed an aura of danger. Theological knowledge was thought of as restricted. This seminar will explore the "open" and "closed" in theological knowledge, as presented in central texts of the rabbinic tradition: the Mishnah, Maimonides and the Kabbalah. Primary sources will be available in both Hebrew and English.
For BA Students: History and Tradition Sector
Taught by: Ben-Amos/ Dohrmann/Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 254 Jewish Humor
In modern American popular culture Jewish humor is considered by Jews and non-Jews as a recognizable and distinct form of humor. Focusing upon folk-humor, in this course we will examine the history of this perception, and study different manifestation of Jewish humor as a particular case study of ethnic in general. Specific topics for analysis will be: humor in the Hebrew Bible, Jewish humor in Europe and in America, JAP and JAM jokes, Jewish tricksters and pranksters, Jewish humor in the Holocaust and Jewish humor in Israel. The term paper will be collecting project of Jewish jokes.
For BA Students: Arts and Letters Sector
Taught by: Ben-Amos
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 258 Jewish Folklore
The Jews are among the few nations and ethnic groups whose oral tradition occurs in literary and religious texts dating back more than two thousand years. This tradition changed and diversified over the years in terms of the migrations of Jews into different countries and the historical, social, and cultural changes that these countries underwent. The course attempts to capture the historical and ethnic diversity of Jewish Folklore in a variety of oral literary forms.
Taught by: Ben-Amos
Course usually offered in fall term
Activity: Lecture
1 Course Unit
NELC 259 Introduction to Modern Hebrew Literature
The objective of this course is to develop an artistic appreciation for literature through in-depth class discussions and text analysis. Readings are comprised of Israeli poetry and short stories. Students examine how literary language expresses psychological and cultural realms. The course covers topics such as: the short story reinvented, literature and identity, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students’ literary understanding.
For BA Students: Arts and Letters Sector
Taught by: Gold
Course usually offered in fall term
Prerequisites: Hebrew 054 or the equivalent, per instructor’s evaluation
Activity: Seminar
1 Course Unit

NELC 266 History of Ancient Egypt
Review and discussion of the principal aspects of ancient Egyptian history, 3000–500 BC.
Taught by: Wegner
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NELC 281 Topics In Anthropology and the Modern World
This course relates anthropological models and methods to current problems in the Modern World. The overall objective is to show how the research findings and analytical concepts of anthropology may be used to illuminate and explain events as they have unfolded in the recent news and in the course of the semester. Each edition of the course will focus on a particular country or region that has been in the news.
Taught by: Spooner
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NELC 285 Jews Under Medieval Islam
This seminar will examine what Jews living in Muslim lands wrote during medieval times, focusing on a range of primary sources including poetry, Bible commentary, historiography and polemics. Through these sources we will develop an understanding of the place of this community in Jewish history as well as within the medieval empire of Islam.
For BA Students: Humanities and Social Science Sector
Taught by: Goldstein
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 302 Digital Exploration of the Past: Archives, Databases, Maps, and Museums
This course exposes students to digital methods for investigating past environments and societies, including digitization of analog records, the construction and querying of databases, and the creation of digital maps. The ultimate goal of the course will be to carry out a final project that benefits the Penn Museum and the public. In fall 2018, our exploration of digital methods will center around the archaeological site of Ur (Tell el-Muqayyar), located in southern Iraq. Ur was one of the earliest cities in the world, and, thanks to campaigns partly funded by Penn in the 1920s and 1930s, is one of the best-excavated sites in southern Mesopotamia. Here at Penn, we have unparalleled access to archival documentation and artifacts from the site. We will draw upon this access to contribute to an ongoing digital humanities project in the Penn Museum (the public “Ur Online” database). In the process, students will re-assess data that has the potential to change anthropological ideas about issues such as the environmental setting of the earliest cities and archaeological ideas about demographic and urban structure within the city of Ur itself. There are no prerequisites, but students must bring an interest in Mesopotamian archaeology and/or the origins of urbanism and be motivated to carry out individual and group research guided by the instructor & classmates.
Taught by: Hammer
Activity: Seminar
1 Course Unit

NELC 323 Origins of Art / Origins of Writing
Each of the earliest systems of writing had intimate and enduring ties to pictorial traditions. This seminar addresses the fundamental relationship between texts and visual imagery in the Mesopotamian, Egyptian, Chinese, and Maya traditions. The class will take a comparative approach to examine the parallel development of scripts and images, extending from their earliest beginnings to their on-going lives as mature systems. As the individual scripts became more capable of representing speech, the subject matter, composition, and function of images changed, and one goal of this class is to identify these processes. Emphasis will be put on seeing text and image as collaborative and interactive constructions, in which parts of a single message can be encoded and presented in different ways. The class will make extensive use of the collections and the curatorial expertise of the Penn Museum.
Taught by: Hammer
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 332 North Africa: History, Culture, Society
This interdisciplinary seminar aims to introduce students to the countries of North Africa, with a focus on the Maghreb and Libya (1830-present). It does so while examining the region’s close economic and cultural connections to sub-Saharan Africa, Europe, and the Middle East. Readings will include histories, political analyses, anthropological studies, and novels, and will cover a wide range of topics such as colonial and postcolonial experiences, developments in Islamic thought and practice, and labor migration. This class is intended for juniors, seniors, and graduate students.
Taught by: Sharkey
Course not offered every year
Prerequisites: A university-level survey course in Middle Eastern, African, or Mediterranean history.
Activity: Seminar
1 Course Unit
NELC 334 Africa and the Middle East
Taught by: Trout Powell
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 335 Muslims, Christians, and Jews in the Middle East: Historical Perspectives
A reading- and discussion-intensive seminar that addresses several recurring questions with regard to the Middle East and North Africa. How have Islam, Judaism, and Christianity influenced each other in these regions historically? How have Jews, Christians, and Muslims fared as religious minorities? To what extent have communal relations been characterized by harmony and cooperation, or by strife and discord, and how have these relations changed in different contexts over time? To what extent and under what circumstances have members of these communities converted, intermarried, formed business alliances, and adopted or developed similar customs? How has the emergence of the modern nation-state system affected communal relations as well as the legal or social status of religious minorities in particular countries? How important has religion been as one variable in social identity (along with sect, ethnicity, class, gender, etc.), and to what extent has religious identity figured into regional conflicts and wars? The focus of the class will be on the modern period (c. 1800-present) although we will read about some relevant trends in the early and middle Islamic periods as well. Students will also pursue individually tailored research to produce final papers. Prior background in Islamic studies and Middle Eastern history is required. Middle Eastern history is required. This class is intended for juniors, seniors, and graduate students.
Taught by: Sharkey
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 336 Nationalism and Communal Identity in the Middle East
This seminar views the phenomenon of nationalism as it affected the modern Middle East in the nineteenth and twentieth centuries. Together we will consider the diverse components of nationalism, including religion, language, territorial loyalty, and ethnicity, and test the thesis that nations are "imagined communities" built on "invented traditions." At the same time, we will examine other forms of communal identity that transcend national borders or flourish on more localized scales. This class approaches nationalism and communal identity as complex products of cultural, political, and social forces, and places Middle Eastern experiences within a global context. Students must take a survey of modern Middle Eastern history or politics before enrolling in this class. This class is intended for juniors, seniors, and graduate students.
Taught by: Sharkey
Course usually offered in fall term
Prerequisites: NELC 102 or other relevant introductory courses on the Middle East.
Activity: Seminar
1 Course Unit

NELC 339 Descent to the Underworld in Ancient Near-Eastern and Western Literature
From antiquity to the present the hero's journey to the underworld, or the land of the dead, has offered poets and philosophers a metaphor to express our search for life's meaning. In antiquity that meaning was to be found by an extraordinary individual in a heroic quest beyond the grave. In this course we will consider various interpretations what of this "katabasis" means within the context of our everyday struggle to find meaning.
Taught by: Foley
Activity: Seminar
1 Course Unit

NELC 346 GIS for the Digital Humanities and Social Sciences
This course introduces students to theory and methodology of the geospatial humanities and social sciences, understood broadly as the application of Geographical Information Systems (GIS) and spatial analysis techniques to the study of social and cultural patterns in the past and present. By engaging with spatial theory, spatial analysis case studies, and technical methodologies, students will develop an understanding of the questions driving, and tools available for, humanistic and social science research projects that explore change over space and time. We will use ESRI's ArcGIS software to visualize, analyze, and integrate historical, anthropological, and environmental data. Techniques will be introduced through the discussion of case studies and through demonstration of software skills. During supervised laboratory sessions, the various techniques and analyses covered will be applied to sample data and also to data from a region/topic chosen by the student.
Taught by: Hammer
Activity: Lecture
1 Course Unit

NELC 359 Seminar in Modern Hebrew Literature
This course introduces students to selections from the best literary works written in Hebrew over the last hundred years in a relaxed seminar environment. The goal of the course is to develop skills in critical reading of literature in general, and to examine how Hebrew authors grapple with crucial questions of human existence and national identity. Topics include: Hebrew classics and their modern "descendants," autobiography in poetry and fiction, the conflict between literary generations, and others.
Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students' literary understanding.
Taught by: Gold
Course usually offered in spring term
Prerequisites: Hebrew 059 or the equivalent, per instructor's evaluation
Activity: Seminar
1 Course Unit
NELC 362 Intro to Digital Archaeology
Digital methods allow archaeologists to approach research questions about the human past with increasing accuracies on larger datasets and at multiple scales. This class introduces students to the three main steps of digital archaeology: data management, analysis, and sharing. Data management involves the design, creation, and curation of digital objects that capture the archaeological process and evidence. Students will gain deep familiarity in working with the main types of digital archaeological data: structured data (relational databases), 3d models/spatial data, and raster images. The class will provide abundant hands-on experience with the latest hardware and software for working with many different kinds of data. We will learn about data analysis techniques through a close examination of a variety of case studies in the literature that demonstrate how other archaeologists have applied digital methods to their archaeological questions. Finally, we will discuss the importance of sharing data through open access data publication and we will apply our skills with structured data to existing online archaeological datasets. The goal of this class is to prepare students to make methodological decisions during future research endeavors, both in the field and in the archaeological lab.
Taught by: Peter Cobb
Prerequisite: Prior archaeological classwork and/or experience preferred
Activity: Lecture
1 Course Unit

NELC 383 The Religious Other
Course explores attitudes toward monotheists of other faiths, and claims made about these "religious Others" in real and imagined encounters between Jews, Christians and Muslims from antiquity to the present. Strategies of "othering" will be analyzed through an exploration of claims about the Other’s body, habits and beliefs, as found in works of scripture, law, theology, polemics, art, literature and reportage. Attention will be paid to myths about the other, inter-group violence, converts, cases of cross-cultural influence, notions of toleration, and perceptions of Others in contemporary life. Primary sources will be provided in English.
Taught by: Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 395 Senior Conference
Directed study for seniors.
One-term course offered either term
Activity: Independent Study
1 Course Unit

NELC 399 Independent Study
Supervised reading and research.
One-term course offered either term
Activity: Independent Study
1 Course Unit

NELC 422 Intermediate Urdu Part II
This continuing second-year course allows students to continue improving their Urdu proficiency while also gaining a broad foundational understanding of Urdu society and culture throughout South Asia. The course provides students the tools needed to handle a variety of authentic written and spoken Urdu sources including film, music, media reports, folk tales, and simple literature. Students will also continue to increase their speaking and writing proficiency to be able to discuss a broad range of concrete, real-world topics. The course is designed for students with one year of previous Urdu or Hindi study or the equivalent proficiency.
For BA Students: Last Language Course
Taught by: Pien
Activity: Seminar
1 Course Unit

NELC 434 Arabic Literature and Literary Theory
This course will explore different critical approaches to the interpretation and analysis of Arabic literature from pre-Islamic poetry to the modern novel and prose-poem. The course will draw on western and Arabic literary criticism to explore the role of critical theory not only in understanding and contextualizing literature but also in forming literary genres and attitudes. Among these approaches are: Meta-poetry and inter-Arts theory, Genre theory, Myth and Archetype, Poetics and Rhetoric, and Performance theory. This course is taught in translation.
Taught by: Fakhreddine
One-term course offered either term
Activity: Lecture
1 Course Unit

NELC 437 Islamic Intellectual Tradition
This comprehensive survey of the traditions of rational thought in classical Islamic culture is distinguished by its attempt to contextualize and localize the history of what is best described as philosophy in Islam, including not only the Islamic products of the Hellenistic mode of thought but also religious and linguistic sciences whose methodology is philosophical. The course examines the influence of these different disciplines upon each other, and the process of the Islamic "aspecting" of the Greek intellectual legacy. The readings thus include not only the works of Hellenized philosophers (falasifa) of Islam, but also those of theologians (mutakallimun), legists (fiqh scholars), and grammarians (nahw/lugha scholars). No prerequisites. Additional advanced-level assignments can be given for graduate credit.
Taught by: Lowry
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 450 Introduction to the Bible (The "Old Testament")
An introduction to the major themes and ideas of the Hebrew Bible (the Old Testament), with attention to the contributions of archaeology and modern Biblical scholarship, including Biblical criticism and the response to it in Judaism and Christianity. All readings are in English.
For BA Students: Humanities and Social Science S
Course usually offered in fall term
Activity: Lecture
1 Course Unit
NELC 451 Jews and Judaism in Antiquity
A broad introduction to the history of Jewish civilization from its Biblical beginnings to the Middle Ages, with the main focus on the formative period of classical rabbinic Judaism and on the symbiotic relationship between Judaism, Christianity, and Islam.
Taught by: Dohrmann
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NELC 454 Spirit and Law
While accepting "the yoke of the commandments", Jewish thinkers from antiquity onward have perennially sought to make the teachings of revelation more meaningful in their own lives. Additional impetus for this quest has come from overtly polemical challenges to the law, such as those leveled by Paul, medieval Aristotelians, Spinoza and Kant. This course explores both the critiques of Jewish Law, and Jewish reflections on the Law's meaning and purpose, by examining a range of primary sources within their intellectual and historical contexts. Texts (in English translation) include selections from Midrash, Talmud, medieval Jewish philosophy and biblical exegesis, kabbalah, Hasidic homilies, Jewish responses to the Enlightenment, and contemporary attempts to re-value and invent Jewish rituals.
Taught by: Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 456 Great Books of Judaism (Fall 2018: Lifecycle in the Talmud)
The Babylonian Talmud, known simply as the Bavli, is the foundational legal and ethical document of rabbinic Judaism. It is one of the best read works of world literature, and it is the most widely disseminated and revered rabbinic work. It not only contains legal discussions and rulings but rather it also presents the worldview of the rabbis. This course will analyze and contextualize the perspectives of the Talmud towards the important phases of life. We will examine in-depth several Talmudic passages relating to the various stages of the human lifecycle: birth and naming of the child; circumcision; bar/bat mitzva and adulthood; earning a livelihood and choosing a career; marriage and divorce; procreation and raising children; death, burial, mourning and the belief in the resurrection of the dead among others. We will evaluate these teachings in light of other traditions and in their broader late antiquity and contemporary contexts. All texts will be read in their English translation but originals will also be provided.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Activity: Seminar
1 Course Unit

NELC 458 Jewish Literature in the Middle Ages in Translation
Course explores the cultural history of Jews in the lands of Islam from the time of Mohammed through the late 17th century (end of Ottoman expansion into Europe) –in Iraq, the Middle East, al-Andalus and the Ottoman Empire. Primary source documents (in English translation) illuminate minority-majority relations, internal Jewish tensions (e.g., Qaraism), and developments in scriptural exegesis, rabbinic law, philosophy, poetry, polemics, mysticism and liturgy. Graduate students have additional readings and meetings. Spring 2015
Taught by: Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 463 Literary Legacy of Ancient Egypt
This course surveys the literature of Ancient Egypt from the Old Kingdom through the Graeco-Roman period, focusing upon theme, structure, and style, as well as historical and social context. A wide range of literary genres are treated, including epics; tales, such as the “world’s oldest fairy tale”; poetry, including love poems, songs, and hymns; religious texts, including the “Cannibal Hymn”; magical spells; biographies; didactic literature; drama; royal and other monumental inscriptions; and letters, including personal letters, model letters, and letters to the dead. Issues such as literacy, oral tradition, and the question poetry vs. prose are also discussed. No prior knowledge of Egyptian is required.
Taught by: Silverman
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 467 History of Egypt - New Kingdom
Covers principal aspects of ancient Egyptian culture (environment, urbanism, religion, technology, etc.) with special focus on archaeological data; includes study of University Museum artifacts. Follows NELC 266/466 - History of Egypt taught in the fall semester.
Taught by: Wegner
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 468 The Religion of Ancient Egypt
Weekly lectures (some of which will be illustrated) and a field trip to the University Museum's Egyptian Section. The multifaceted approach to the subject matter covers such topics as funerary literature and religion, cults, magic religious art and architecture, and the religion of daily life.
Taught by: Silverman/Wegner
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 469 The Archaeology of Nubia
The course will examine the archaeology of Ancient Nubia from Pre-history through the Bronze and Iron Ages, ca. 5000 BCE to 300 AD. The course will focus on the various Nubian cultures of the Middle Nile, and social and cultural development, along with a detailed examination of the major archaeological sites and central issues of Nubian archaeology.
Taught by: Wegner
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 481 Elementary Amharic I
The Elementary Amharic I course can be taken to fulfill a language requirement, or for linguistic preparation to do research on Ethiopia/Africa-related topics. The course emphasizes communicative competence to enable the students to acquire linguistic and extra-linguistic skills in Amharic. The content of the course is selected from various everyday life situations to enable the students to communicate in predictable common daily settings. Culture, as it relates to language use, is also part of the course content.
For BA Students: Language Course
Taught by: Haile
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center
NELC 482 Elementary Amharic II
Continuation of Elementary Amharic I.
For BA Students: Language Course
Course usually offered in spring term
Prerequisite: Completion of NELC 481
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

NELC 483 Intermediate Amharic I
For BA Students: Language Course
Taught by: Hailu
Course usually offered in fall term
Prerequisites: Completion of NELC 482 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

NELC 484 Intermediate Amharic II
For BA Students: Last Language Course
Taught by: Hailu
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

NELC 489 Medieval Islamic Art and Architecture
An introduction to the major architectural monuments and trends, as well as to the best-known objects of the medieval (seventh-to fourteenth-century) Islamic world. Attention is paid to such themes as the continuity of late antique themes, architecture as symbol of community and power, and the importance of textiles and primacy of writing. Suitable for students of literature, history, anthropology as well as art history.
Taught by: Holod
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 518 Media and Culture in Contemporary Iran
This course is an introduction to the major cultural themes and trends of contemporary Iran. Through the lens of press, cinema, literature and drama, the course will examine the ways in which contemporary Iranian society has been subject to rapid change and transformation over the past century. This class is designed for both junior and senior students who are keen to better understand the cultural context of Iran as one of the most influential and significant countries in the Middle East.
Taught by: Shams Esmaeili
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 535 Muslims, Christians, and Jews in the Middle East: Historical Perspectives
This class is a reading- and discussion-intensive seminar that addresses several recurring questions with regard to the Middle East and North Africa. How have Islam, Judaism, and Christianity influenced each other in these regions historically? How have Jews, Christians, and Muslims fared as religious minorities? To what extent have communal relations been characterized by harmony and cooperation, or by strife and discord, and how have these relations changed in different contexts over time?
To what extent and under what circumstances have members of these communities converted, intermarried, formed business alliances, and adopted or developed similar customs? How has the emergence of the modern nation-state system affected communal relations as well as the legal or social status of religious minorities in particular countries? How important has religion been as one variable in social identity (along with sect, ethnicity, class, gender, etc.), and to what extent has religious identity figured into regional conflicts and wars? The focus of the class will be on the modern period (c. 1800-present) although we will read about some relevant trends in the early and middle Islamic periods as well. Students will also pursue individually tailored research to produce final papers. Prior background in Islamic studies useful.
Taught by: Sharkey
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 536 Nationalism and Communal Identity in the Middle East
This seminar views the phenomenon of nationalism as it affected the modern Middle East in the nineteenth and twentieth centuries. Together we will consider the diverse components of nationalism, including religion, language, territorial loyalty, and ethnicity, and test the thesis that nations are "imagined communities" built on "invented traditions." At the same time, we will examine other forms of communal identity that transcend national borders or flourish on more localized scales. This class approaches nationalism and communal identity as complex products of cultural, political, and social forces, and places Middle Eastern experiences within a global context.
Taught by: Sharkey
Course usually offered in fall term
Prerequisites: NELC 102 or other relevant introductory courses on the Middle East.
Activity: Seminar
1 Course Unit

NELC 544 Reading Ancient Mesopotamia
An introduction to the literature of Ancient Mesopotamia.
Taught by: Tinney
One-term course offered either term
Activity: Seminar
1 Course Unit
NELC 550 The Bible in Translation
This course introduces undergraduates and graduate students to one specific Book of the Hebrew Bible. "The Bible in Translation" involves an in-depth reading of a biblical source against the background of contemporary scholarship. Depending on the book under discussion, this may also involve a contextual reading with other biblical books and the textual sources of the ancient Near East. Although no prerequisites are required, NELC 250 is a perfect follow-up course for NELC 150 "Intro to the Bible."
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit.

NELC 552 Themes Jewish Tradition
Course topics will vary; they have included: Holy Men & Women (Ben-Amos); Rewriting the Bible (Dohrmann); Jewish Political Thought & Action (Fishman) When did the Bible become the Bible? What was the nature of canon and authority in early Israel and Judaism, and how did biblical communities think about their sacred texts? How and what did the Bible mean to ancient readers? The answers to these questions are varied and surprising. This course looks at early biblical and Jewish texts that both write and re-write the tradition's own central texts. We will think widely and creatively about ancient textuality, orality, interpretation, composition, and authority. Drawing on literary theory, the course will examine the ways that biblical and post-biblical literature from the Second Temple to the rabbinic period (with some forays into contemporary literature) manifest complex ideas about power, meaning, and religiously in early Judaism.
Taught by: Ben-Amos/Dohrmann/Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 557 Seminar in Rabbinic Literature
Most of the foundational writings of rabbinic Judaism corpora of Midrash, Mishna, and the two Talmuds were in existence by the end of the sixth century CE. Yet, for several centuries thereafter, there is little evidence attesting to the lived nature of rabbinic culture and society. Course will focus on writings by Jews and about Jews, produced between the 7th and 10th centuries, complemented by secondary sources.
Texts will include selections from archaeological inscriptions; Midrash; liturgical poetry; Targum, Masora; geonic responsa, writings by Muslims and by Church Fathers. While students must be able to read Hebrew, much class time will be devoted to the improvement of reading and comprehension skills. Undergraduates should seek permission of the instructor.
Course usually offered in spring term
Prerequisites: Proficiency in Hebrew and/or Greek recommended. Undergraduates need permission to enroll.
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit

NELC 559 Introduction to Modern Hebrew Literature
The objective of this course is to develop an artistic appreciation for literature through in-depth class discussions and text analysis. Readings are comprised of Israeli poetry and short stories. Students examine how literary language expresses psychological and cultural realms. The course covers topics such as: the short story reinvented, literature and identity, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students’ literary understanding.
For BA Students: Arts and Letters Sector
Taught by: Gold
Course usually offered in fall term
Prerequisites: Hebrew 054 or the equivalent, per instructor’s evaluation
Activity: Seminar
1 Course Unit

NELC 562 Intro to Digital Archaeology
Digital methods allow archaeologists to approach research questions about the human past with increasing accuracies on larger datasets and at multiple scales. This class introduces students to the three main steps of digital archaeology: data management, analysis, and sharing. Data management involves the design, creation, and curation of digital objects that capture the archaeological process and evidence. Students will gain deep familiarity in working with the main types of digital archaeological data: structured data (relational databases), 3d models/spatial data, and raster images. The class will provide abundant hands-on experience with the latest equipment and software for working with many different kinds of data. We will learn about data analysis techniques through a close examination of a variety of case studies in the literature that demonstrate how other archaeologists have applied digital methods to their archaeological questions. Finally, we will discuss the importance of sharing data through open access data publication and we will apply our skills with structured data to existing online archaeological datasets. The goal of this class is to prepare students to make methodological decisions during future research endeavors, both in the field and in the archaeological lab.
Taught by: Peter Cobb
Prerequisite: Prior archaeological classwork and/or experience preferred
Activity: Lecture
1 Course Unit

NELC 567 Seminar on Egyptian Archaeology and History
Specific topics will vary from year to year.
Taught by: Wegner
Course not offered every year
Activity: Seminar
1 Course Unit
NELC 568 Women in Ancient Egypt
This class will examine the many roles played by women in ancient Egypt. From goddesses and queens, to wives and mothers, women were a visible presence in ancient Egypt. We will study the lives of famous ancient Egyptian women such as Hatshepsut, Nefertiti and Cleopatra. More independent than many of their contemporaries in neighboring areas, Egyptian women enjoyed greater freedoms in matters of economy and law. By examining the evidence left to us in the literature (including literary texts and non-literary texts such as legal documents, administrative texts and letters), the art, and the archaeological record, we will come away with a better understanding of the position of women in this ancient culture.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NELC 582 Prose Narrative
Historical, literary, comparative, and ethnographic methods contribute to study of prose narratives which were told in oral societies in antiquity and in modern times and were documented in literary societies for different purposes. Oral storytellers, both professional and amateurs, performed them in private and public spaces. Their recording from antiquity to modern times became an integral element of modern life in general and in education and arts in particular. The storytellers, their performances in oral and literary cultures, their genres, and their symbolic meanings are the subjects of the course, together with the analytical methods that help mapping their distribution worldwide.
Activity: Seminar
1 Course Unit

NELC 606 Pastoral Nomadism in the Past and Present
Pastoral nomadism is a "third way" of human subsistence separate from farming and foraging. It is a sustainable human adaptation to grassland and arid environments practiced through particular technologies and domesticated animals. This course begins by examining the human ecology and social organization that emerge from mobile ways of life, drawing on modern, ethnographic, and archaeological examples of pastoral nomadic groups in the Middle East and Central Asia. Academic readings and ethnographic films will form the basis of discussions about several larger themes, including: the origins of pastoral nomadism and horse riding; the development of dairy-based foods and human adaptations allowing the digestion of lactose; the historical relationships between mobile groups of pastoralists and territorial states; popular perceptions of nomads in various forms of historical and modern media; and the influence of ideas about nomads on modern senses of heritage and nationalism in the Middle East and Central Asia.
Taught by: Pastoral Nomadism in the Past and Present
Activity: Seminar
1 Course Unit

NELC 617 Topics in the Art of Iran
Topic varies. Spring 2018: The pro-seminar will examine aspects of continuity and rupture in the visual culture(s) of the Iranian world. This is an opportunity for students whose preparations may be centered on other contiguous periods or regions to consider the manner in which Middle Asia and its rich visual cultures contributed to the forging of Late Antique and medieval/ Islamic visual expressions of kingship, territory and religion. The seminar will consider a range of materials from archaeological sites, rock reliefs and wall paintings to textiles, silver vessels, coins and ceramics, with special attention to materials excavated or otherwise held by the Penn Museum.
Taught by: Holod, Kuttner
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 618 Iranian Cinema: Gender, Politics and Religion
This seminar explores Iranian culture, art, history and politics through film in the contemporary era. We will examine a variety of works that represent the social, political, economic and cultural circumstances of post-revolutionary Iran. Along the way, we will discuss issues pertaining to gender, religion, nationalism, ethnicity, and the function of cinema in present day Iranian society. Films to be discussed will be by internationally acclaimed filmmakers, such as Abbas Kiarostami, Mohsen Makhmalbaf, Rakhshan Bani-Etemad, Tahmineh Milani, Jafar Panahi, Bahman Gobadi, among others.
One-term course offered either term
Activity: Seminar
1 Course Unit

NELC 620 Digital Exploration of the Past: Archives, Databases, Maps, and Museums
This course exposes students to digital methods for investigating past environments and societies, including digitization of analog records, the construction and querying of databases, and the creation of digital maps. The ultimate goal of the course will be to carry out a final project that benefits the Penn Museum and the public. In fall 2018, our exploration of digital methods will center around the archaeological site of Ur (Tell el-Muqayyar), located in southern Iraq. Ur was one of the earliest cities in the world, and, thanks to campaigns partly funded by Penn in the 1920s and 1930s, is one of the best-excavated sites in southern Mesopotamia. Here at Penn, we have unparalleled access to archival documentation and artifacts from the site. We will draw upon this access to contribute to an on-going digital humanities project in the Penn Museum (the public "Ur Online" database). In the process, students will re-assess data that has the potential to change anthropological ideas about issues such as the environmental setting of the earliest cities and archaeological ideas about demographic and urban structure within the city of Ur itself. There are no prerequisites, but students must bring an interest in Mesopotamian archaeology and/or the origins of urbanism and be motivated to carry out individual and group research guided by the instructor & classmates.
Taught by: Hammer
Activity: Seminar
1 Course Unit
NELC 632 North Africa: History, Culture, Society
This interdisciplinary seminar aims to introduce students to the countries of North Africa, with a focus on the Maghreb and Libya (1830-present). It does so while examining the region’s close economic and cultural connections to sub-Saharan Africa, Europe, and the Middle East. Readings will include histories, political analyses, anthropological studies, and novels, and will cover a wide range of topics such as colonial and postcolonial experiences, developments in Islamic thought and practice, and labor migration. This class is intended for juniors, seniors, and graduate students.
Taught by: Sharkey
Course not offered every year
Prerequisites: A university-level survey course in Middle Eastern, African, or Mediterranean history.
Activity: Seminar
1 Course Unit

NELC 633 Seminar in Selected Topics in Arabic Literature
This is the graduate seminar course in which a variety of aspects of Arabic literature studies are covered at the advanced graduate level. Students in this course are expected to be able to read large amounts of literature in Arabic on a weekly basis and to be able to discuss them critically during the class itself. Topics are chosen to reflect student interest. Recent topics have included: 1001 NIGHTS; the short story; the novel; MAQAMAT; classical ADAB prose; the drama, the novella; modern Arabic poetry.
Taught by: Allen
Course usually offered in spring term
Activity: Seminar
1 Course Unit

NELC 638 Approaches to Islamic Law
This course aims to introduce students to the study of Islamic law, the all-embracing sacred law of Islam. In this course we will attempt to consider many different facets of the historical, doctrinal, institutional and social complexity of Islamic law. In addition, the various approaches that have been taken to the study of these aspects of Islamic law will be analyzed. The focus will be mostly, though not exclusively, on classical Islamic law. Specific topics covered include the beginnings of legal thought in Islam, various areas of Islamic positive law (substantive law), public and private legal institutions, Islamic legal theory, and issues in the contemporary development and application of Islamic law.
Taught by: Lowry
Course not offered every year
Prerequisites: Some background knowledge about Islam is an asset.
Activity: Seminar
1 Course Unit

NELC 641 Iraq: Ancient Cities and Empires
This course consists of an analytical survey of civilization in the ancient Mesopotamia from prehistoric periods to the middle centuries of the first millennium B.C. A strong focus is placed on Mesopotamia (Iraq, eastern Syria) proper, but it occasionally covers its adjacent regions, including Anatolia (Turkey), north-central Syria, and the Levantine coast. As we chronologically examine the origin and development of civilization in the region, various social, political, economic, and ideological topics will be explored, including subsistence, cosmovology, writing, trade, technology, war, private life, burial custom, and empire. Based on both archaeological and historical evidence, these topics will be examined from archaeological, anthropological, historical and art historical perspectives. Students will be exposed to a variety of theoretical approaches and types of relevant evidence, including settlement survey data, excavated architectural remains and artifacts, and written documents. The course aims to provide students with a strong foundation for further study in Near Eastern civilization.
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 646 GIS for the Digital Humanities and Social Sciences
This course introduces students to theory and methodology of the geospatial humanities and social sciences, understood broadly as the application of Geographical Information Systems (GIS) and spatial analysis techniques to the study of social and cultural patterns in the past and present. By engaging with spatial theory, spatial analysis case studies, and technical methodologies, students will develop an understanding of the questions driving, and tools available for, humanistic and social science research projects that explore change over space and time. We will use ESRI's ArcGIS software to visualize, analyze, and integrate historical, anthropological, and environmental data. Techniques will be introduced through the discussion of case studies and through demonstration of software skills. During supervised laboratory sessions, the various techniques and analyses covered will be applied to sample data and also to data from a region/topic chosen by the student.
Taught by: Hammer
Activity: Lecture
1 Course Unit

NELC 659 Seminar in Modern Hebrew Literature
This course introduces students to selections from the best literary works written in Hebrew over the last hundred years in a relaxed seminar environment. The goal of the course is to develop skills in critical reading of literature in general, and to examine how Hebrew authors grapple with crucial questions of human existence and national identity. Topics include: Hebrew classics and their modern “descendents,” autobiography in poetry and fiction, the conflict between literary generations, and others. Because the content of this course changes from year to year, students may take it for credit more than once. This course is conducted in Hebrew and all readings are in Hebrew. Grading is based primarily on participation and students’ literary understanding.
Taught by: Gold
Course not offered every year
Prerequisites: Hebrew 059 or the equivalent, per instructor’s evaluation
Activity: Seminar
1 Course Unit
NELC 664 The World of Cleopatra
The figure of Cleopatra is familiar from modern stories, legends, and film. Was this famous woman a brazen seductress or a brilliant political mind? How many of these presentations are historically accurate? This class will examine the Ptolemaic period in Egypt (305-30 BCE), the time period during which Cleopatra lived, in an attempt to separate myth from reality. The Ptolemaic period is filled with political and personal intrigue. It was also a time of dynamic multiculturalism. Arguably one of the most violent and fascinating eras in ancient Egyptian history, the Ptolemaic period is largely unknown and often misunderstood. This course will examine the history, art, religion and literature of Egypt's Ptolemaic period which culminated in the reign of Cleopatra VII.
Taught by: Houser Wegner
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 666 History of Ancient Egypt
Review and discussion of the principal aspects of ancient Egyptian history, 3000-500 BC.
Taught by: Wegner
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NELC 668 Art and Architecture in Ancient Egypt
This course will be an introduction to the art, architecture and minor arts that were produced during the three thousand years of ancient Egyptian history. This material will be presented in its cultural and historical contexts through illustrated lectures and will include visits to the collection of the University Museum.
Taught by: Silverman
Course not offered every year
Activity: Lecture
1 Course Unit

NELC 681 Topics In Anthropology and the Modern World
This course relates anthropological models and methods to current problems in the Modern World. The overall objective is to show how the research findings and analytical concepts of anthropology may be used to illuminate and explain events as they have unfolded in the recent news and in the course of the semester. Each edition of the course will focus on a particular country or region that has been in the news.
Taught by: Spooner
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NELC 686 Topics in Mid East History
Reading and discussion course on selected topics in Middle Eastern history.
Activity: Seminar
1 Course Unit

NELC 731 Topics in Islamic Archaeology
Course not offered every year
Activity: Seminar
1 Course Unit

NELC 999 Independent Study
Directed research or candidacy exam and proposal preparation.
One-term course offered either term
Activity: Independent Study
1 Course Unit
NETS 112 Networked Life
What kind of science is appropriate for understanding the Facebook? How does Google find what you're looking for... and exactly how do they make money doing so? What properties might we expect any social network to reliably have, and are there simple explanations for them? How does your position in an economic network (dis)advantage you? How are individual and collective behavior related in complex networks? What might we mean by the economics of spam? What do game theory and the Paris subway have to do with Internet routing? Networked Life looks at how our world is connected -- socially, economically, strategically and technologically -- and why it matters.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NETS 150 Market and Social Systems on the Internet
Want to understand the sociological and algorithmic aspects of friend recommendation? Want to know how Google decides what 10 answers to return, out of the 10 million matching results? Want to understand how search engines have revolutionized advertising? Then this is the course for you! NETS 150 provides an overview of the issues, theoretical foundations, and existing techniques in networks (social, information, communication) and markets on the Internet. Subsequent NETS courses are available for students wishing to explore any of these topics in greater detail.
Activity: Lecture
1 Course Unit

NETS 212 Scalable and Cloud Computing
What is the "cloud"? How do we build software systems and components that scale to millions of users and petabytes of data, and are "always available"? In the modern Internet, virtually all large Web services run atop multiple geographically distributed data centers: Google, Yahoo, Facebook, iTunes, Amazon, EBAY, Bing, etc. Services must scale across thousands of machines, tolerate failures, and support thousands of concurrent requests. Increasingly, the major providers (including Amazon, Google, Microsoft, HP, and IBM) are looking at "hosting" third-party applications in their data centers - forming so-called "cloud computing" services. This course, aimed at a sophomore with exposure to basic programming within the context of a single machine, focuses on the issues and programming models related to such cloud and distributed data processing technologies: how to think about dividing both data and work across large clusters of machines, both within and across data centers, how to design algorithms that do this parallel computation, and how to implement the algorithms in new frameworks such as MapReduce.
Course usually offered in fall term
Prerequisites: CIS 120, CIS 160
Corequisite: CIS 121
Activity: Lecture
1 Course Unit

NETS 213 Crowdsourcing and Human Computation
Crowdsourcing and human computation are emerging fields that sit squarely at the intersection of economics and computer science. They examine how people can be used to solve complex tasks that are currently beyond the capabilities of artificial intelligence algorithms. Online marketplaces like Mechanical Turk and CrowdFlower provide an infrastructure that allows micropayments to be given to people in return for completing human intelligence tasks. This opens up previously unthinkable possibilities like people being used as function calls in software. We will investigate how crowdsourcing can be used for computer science applications like machine learning, next-generation interfaces, and data mining. Beyond these computer science aspects, we will also delve into topics like prediction markets, how businesses can capitalize on collective intelligence, and the fundamental principles that underlie democracy and other group decision-making processes.
One-term course offered either term
Prerequisite: CIS 120 or prior programming experience
Activity: Lecture
1 Course Unit

NETS 312 Theory of Networks
Want to understand how memes spread across the Internet? How organisms exhibit flocking behavior? How the structure of a network can help predict behavior among the nodes? This course is a rigorous study of the structure and function of complex networks. From World Wide Web to networks of banks and lenders that form the financial sector, to friendship networks that influence our opinion and everyday decision-making, networks have become an integral part of our daily lives.
One-term course offered either term
Activity: Lecture
1 Course Unit

NETS 412 Algorithmic Game Theory
How should an auction for scarce goods be structured if the sellers wish to maximize their revenue? How badly will traffic be snarled if drivers each selfishly try to minimize their commute time, compared to if a benevolent dictator directed traffic? How can couples be paired so that no two couples wish to swap partners in hindsight? How can you be as successful as the best horse-racing expert at betting on horse races, without knowing anything about horse racing? In this course, we will take an algorithmic perspective on problems in game theory, to solve problems such as the ones listed above. Game theory has applications in a wide variety of settings in which multiple participants with different incentives are placed in the same environment, must interact, and each "player"s actions affect the others.
One-term course offered either term
Activity: Lecture
1 Course Unit
NEUROSCIENCE (NGG)

NGG 510 Neurotransmitter Signaling & Neuropsychopharmacology
The goals of this course are three-fold: 1. Provide an overview of major psychiatric disorders. 2. Provide in-depth information on neurotransmitters, emphasizing the wealth of new molecular information on how neurons function and communicate, as well as the basis for psychotherapeutics (one class per week). 3. Develop skills to appreciate, present, and critically evaluate the current literature in neurotransmitter signaling and neuropsychopharmacology (one class per week).
Taught by: Steve Thomas, Chris Pierce, Wade Berrettini, Liz Heller-Mesznik
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit

NGG 521 Brain Computer Interface
This course is geared to advanced undergraduate and graduate students interested in understanding the basics of implantable neuro-devices, their design, practical implementation, approval, and use. Reading will cover the basics of neuro signals, recording, analysis, classification, modulation, and fundamental principles of Brain-Machine Interfaces. The course will be based upon twice weekly lectures and "hands on" weekly assignments that teach basic signal recording, feature extraction, classification and practical implementation in clinical systems. Assignments will build incrementally toward constructing a complete, functional BMI system. Fundamental concepts in neurosignals, hardware and software will be reinforced by practical examples and in-depth study. Guest lecturers and demonstrations will supplement regular lectures.
Also Offered As: BE 521
Prerequisites: BE 301 (Signals and Systems) or equivalent, computer programming experience, preferably MATLAB (e.g., as used in BE labs, BE 209/210/310). Some basic neuroscience background (e.g. BIOL 215, BE 305, BE 520, NGG core course), or independent study in neuroscience, is required. This requirement may be waived based upon practical experience on a case by case basis by the instructor.
Activity: Lecture
1 Course Unit

NGG 534 Seminar in Current Genetics Research
In this course we will focus on examples of human disease gene models and examine how these genetic model systems can be used to learn more about how and why a disease occurs and how it might be better diagnosed or treated. The course will meet once a week for 1.5 - 2.0 hours. Prior to each class, the student discussion leader for the week is expected to meet at least once with the assigned faculty preceptor to discuss their presentation.
Taught by: Thomas Jongens
Course usually offered in spring term
Activity: Seminar
1 Course Unit

NGG 572 Electrical Language of Cells
This course introduces students to high-speed electro-chemical signaling mechanisms that occur in nerve and other excitable cells during normal activity. Topics considered in substantial detail include: a) basic description of the passive and active membrane electrical properties; b) the molecular architecture and functional role of ion channels in cell signaling; c) the role of the calcium ion as an ubiquitous chemical messenger, with applications to neuro-secretion; d) excitatory and inhibitory transmission in the central nervous system; e) sensory transduction, as illustrated by the visual, olfactory, and auditory pathways. The course assumes a standard background in cell biology, as well as basic concepts from college physics and college calculus.
Taught by: Toshinori Hoshi, Doug Coulter
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NGG 573 Systems Neuroscience
This course provides an introduction to what is known about how neuronal circuits solve problems for the organism and to current research approaches to this question. Topics include: vision, audition, olfaction, motor systems, plasticity, and oscillations. In addition, the course aims to provide an overview of the structure of the central nervous system. A number of fundamental concepts are also discussed across topics, such as: lateral inhibition, integration, filtering, frames of reference, error signals, adaptation. The course format consists of lectures, discussions, readings of primary literature, supplemented by textbook chapters and review articles.
Taught by: Yale Cohen, Christopher Pierce
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NGG 575 Neurobiology of Learning and Memory
This course focuses on the current state of our knowledge about the neurological basis of learning and memory. A combination of lectures and discussions will explore the molecular and cellular basis of learning in invertebrates and vertebrates from a behavioral and neural perspective. This course is intended for upper level undergraduate and graduate students.
Taught by: Hilary Gerstein
Course offered fall; odd-numbered years
Activity: Seminar
1 Course Unit
NGG 578 Advanced Topics in Behavioral Genetics
The first half of this course focuses on the use of genetic techniques to study the molecular and cellular bases of behavior. Reverse genetic approaches utilizing gene knockout and transgenic technology and forward genetic approaches using mutagenesis and quantitative genetic techniques will be discussed, as well as application of these studies to different model organisms. Genetic approaches to behavior and complex disease in humans will be illustrated with a lecture on neurodegenerative disorders. The second half of this survey course will provide an introduction to autism and other neurodevelopmental disorders. The class will include clinical descriptions of autism as well as closely related disorders such as Fragile X syndrome for which there are now well developed model systems. It will be team taught by experts in each of the content areas covered including psychology, neurology, genetics, animal modeling, cognitive neuroscience. The scope will be from genes to brain to behavior to treatment.
Taught by: Maja Bucan, Robert Schultz
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit

NGG 584 Neurobiology of Sleep and Arousal
The objectives of this course are to discuss mechanisms controlling sleep and arousal; to survey novel approaches to investigations in these areas; indicate the clinical relevance of these ideas where possible. The course is run in the style of a journal club where in each weekly session, students review and discuss influential papers in the field.
Taught by: David Raizen, Max Kelz
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit

NGG 588 Topics in Translational Neuroscience
This course will introduce graduate students in neuroscience and related disciplines to basic mechanisms and clinical features of major categories of nervous system disease. Each two-hour class will consist of two-parts; a formal lecture followed by a seminar on the same topic. The formal basic science lectures will discuss genetic, molecular, and cellular mechanisms relevant to the disease examined while the seminar will illustrate how that information can be used in the clinical setting to promote further discovery and inform treatment. Some of the seminar will be associated with the Clinical Neuroscience Training Program (CNST) to provide the opportunity to interact with medical students and clinicians. The course will rely on assigned readings of primary research papers and discussions during class.
Taught by: Mariella De Biasi
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NGG 594 Theoretical and Computational Neuroscience
This course surveys recent theoretical models of neural function. Students will be introduced to the basic techniques of modelling and computer simulation. Topics include models of synaptic plasticity, neuronal processing and oscillations, and models of various brain regions including cortex, thalamus, cerebellum, and hippocampus. Particular emphasis will be placed on models of the visual system from development to perceptual phenomena such as structure-from-motion, shap-from-shading, and stereopsis. Higher level processes including cortical integration will be considered. Applied neural network models of Hopfield, Sejnowski, and parallel distributed processing will also be presented.
Taught by: Vijay Balasubramanian
Course usually offered in spring term
Prerequisites: Previous coursework in physiology and in differential equations and some familiarity with computers, or instructor’s permission.
Activity: Lecture
1 Course Unit

NGG 597 Neural Development, Regeneration and Repair
The goals of this course are to examine the principles underlying nervous system development and to learn how understanding developmental mechanisms can inform strategies to promote regeneration and repair. This is not a survey course. Rather, the course will focus on selected topics, for which we will discuss the genetic, molecular and cellular strategies employed to study these problems in different model organisms. Emphasis is on how to interpret and critically evaluate experimental data. Each class is 1.5 hours in length. During the first hour, and assigned paper will be discussed in detail. During the last 20-30 minutes, faculty will introduce methods, concepts and background information pertinent to the paper that will be discussed at the following meeting.
Taught by: Greg Bashaw, Wenqin Luo
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NGG 598 Advanced Systems Neuroscience
This course takes an integrative approach to the study of nervous system function. We will explore neural strategies for transforming sensory information into motor commands that specify specific behavior. We will use example systems of different modalities to explore concepts such as neural coding, action selection and learning etc., at levels ranging from synaptic input analysis at single sensory neurons and their effect on local network processing to larger scale population analyses. The course will consist of an introductory section to provide a conceptual framework for studying neural circuits at the systems level. This will be followed by additional sections that each explores specific neural systems within the context of this conceptual framework. Prerequisite: CORE III (NGG 573, Systems Neuroscience) or Permission of the Course Director.
Taught by: Marc Schmidt, Long Ding
Course offered fall; odd-numbered years
Prerequisite: Core III or Permission of course director
Activity: Lecture
1 Course Unit

NGG 600 Topics in Neurobiology of Disease 001: Neurodegenerative Diseases
Activity: Seminar
0.5 Course Units
NGG 615 Protein Conformational Diseases
Protein misfolding and aggregation has been associated with over 40 human diseases, including Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis, prion diseases, alpha (1)-antitrypsin deficiency, inclusion body myopathy, and systemic amyloidoses. This course will include lectures, directed readings and student presentations, to cover seminal and current papers on the cell biology of conformational diseases including topics such as protein folding and misfolding, protein degradation pathways, effects of protein aggregation on cell function, model systems to study protein aggregation and novel approaches to prevent protein aggregation.
Taught by: Yair Argon, Harry Ischiropoulos
Course offered fall; odd-numbered years
Also Offered As: BMB 518
Activity: Lecture
1 Course Unit

NGG 618 Recovery After Neural Injury
The human nervous system is subject to several types of injury, (traumatic, ischemic, epileptic, demyelinating and/or inflammatory) that cause serious functional deficits. The mechanisms used by the central and peripheral nervous systems for functional recovery from these injuries will be described in this course. The molecular and cellular pathobiology of CNS injury will be reviewed and methods to enhance functional recovery will be discussed in detail. These include the limitation of secondary neuronal damage by pharmacological manipulations (neuroprotection), the promotion of regeneration, and plasticity, the application of bioengineering strategies, and the use of behavioral rehabilitative approaches. Course Format: a combination of lecture, journal club type student presentations and classroom discussion.
Taught by: Akiva Cohen, D Kacy Cullen
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit

NGG 695 Scientific Writing
This 7-class course is designed to introduce students to basic scientific writing skills and is timed for second year graduate students preparing for qualifying examinations. Participants will review the general principles of clear, persuasive writing, and will apply these principles to writing for a scientific audience. Particular emphasis will be placed on conveying the significance of your research, outlining the aims, and discussing the results for scientific papers and grant proposals. The course will also provide an overview of the structure and style of research grant proposals and scientific manuscripts. Classes are highly interactive, and the majority of class time will be spent discussing student scientific writing. The goal of the course is to encourage active and open interaction among students. Ideal endpoints include improved self-editing, and development of effective strategies for offering and receiving editorial recommendations among peers.
Taught by: Harry Ischiropoulos, Joshua Ian Gold
Course usually offered in spring term
Prerequisites: NGG Pre-candidacy exam students only.
Activity: Seminar
0.5 Course Units

NGG 699 Lab Rotation
Activity: Laboratory
3 Course Units

NGG 706 Neuroeconomics
This seminar will review recent research that combines psychological, economic and neuroscientific approaches to study human and animal decision-making. This course will focus on our current state of knowledge regarding the neuroscience of decision-making, and how evidence concerning the neural processes associated with choices might be used to constrain or advance economic and psychological theories of decision-making. Topics covered will include decisions involving risk and uncertainty, decisions that involve learning from experience, decisions in strategic interactions and games, and social preferences.
Taught by: Joseph Kable
One-term course offered either term
Activity: Seminar
1 Course Unit

NGG 799 Independent Study Neurobiology and Neurophysiology of Addiction: Emphasis on Nicotine and Adolescence
One-term course offered either term
Activity: Independent Study
1 Course Unit

NGG 899 Pre-Dissertation Lab Rotation
One-term course offered either term
Activity: Laboratory
0.5 Course Units

NGG 990 Master's Thesis
Course not offered every year
Activity: Masters Thesis
1 Course Unit

NGG 995 Dissertation
Activity: Dissertation
1 Course Unit
NONPROFIT LEADERSHIP (NPLD)

NPLD 510 Social Innovation
This is a class focused on understanding how innovation plays a central role in public problem solving. We will explore how social entrepreneurs develop their ideas, define intended impact, market their solutions, understand competition, and collaborate with other actors. At the end of the course, students will have mastered a set of conceptual tools that will allow them to be effective problem solvers in diverse settings throughout their careers. The course has five core objectives: 1) To introduce students to the concepts and practices of social entrepreneurship; 2) To introduce students to the components of a successful social enterprise; 3) To equip students with the tools to be able to accurately identify and assess innovation and impact in social enterprises; 4) To train students to view the world from a perspective of social innovation; and 5) To equip students to develop their own innovative solutions to difficult social problems around the world.
Taught by: Frumkin
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Open to graduate and undergraduate students

NPLD 561 Nonprofit Branding
This course will provide the tools and framework for helping to understand the role that marketing and brand building can play in the non-profit sector. As such, we will create a shared understanding of the key concepts that help define branding and the classic elements of marketing that will serve as a foundation for discussion and analysis throughout the semester. We will identify the fundamental differences that non-profit organizations face in building their brands and how those challenges differ from tradition/for profit brand building. We will identify tools and frameworks that brands/organizations can use to help design and implement marketing strategy. We will utilize current and relevant case studies that help demonstrate the core concepts of this course.
Taught by: Rhode
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: half credit course

NPLD 562 (Almost) Everything You Need to Know About Nonprofit Law
This half credit course will provide a basic understanding of the law that applies to nonprofit organizations, with an emphasis on the law affecting 501(c)(3) public charities. It will focus on ways to obtain and maintain federal tax exempt status, including issues of private inurements and private benefit, limits on advocacy, lobbying and electioneering, unrelated business income tax, and excess benefits taxes. It will show how legal structure and governance procedures affect the answer to the questions "Whose Organization Is It?" Students will review bylaws of multiple organizations to see how differences in structure reflect the great diversity of nonprofits and why "one size does not fit all" within the sector. They will learn how to avoid bad legal drafting that can create problems for dysfunctional organizations. The course will explain the fiduciary duty of officers and directors, explore the extent of potential personal liability, and review necessary insurance and indemnification. It will review Form 990 publicly available tax returns of multiple nonprofits to see why a tax return may be a nonprofit's most important public relations document. It will also review the basics of charitable giving through a mock meeting of university development officers, outline the concepts of planned giving, and discuss the requirements for charitable solicitation registration at the state level. It will explain the legal requirements for maintaining endowments and discuss a series of ethical issues that can face nonprofit executives and their lawyers.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

NPLD 563 Raising Philanthropic Capital
Americans gave more than $350 billion to nonprofit organizations last year, the highest total ever recorded. Now, more than ever, it is crucial that nonprofit leaders master the art and science of raising philanthropic capital. Participants in this innovative class will: 1) acquire an understanding of the nonprofit funding landscape; 2) learn proven and creative strategies to secure investments; 3) gain the experience of giving and motivating charitable commitments; and 4) receive peer evaluation and professional consulting feedback. This experiential and interactive learning course will provide students an opportunity to evaluate a nonprofit organization endeavoring to attract voluntary support, and coach students to think through and develop the ideas, skills, and tools required to participate personally in today's philanthropic market.
Taught by: Hagin
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

NPLD 564 Social Entrepreneurship at the Bottom of the Pyramid
This half credit course will offer a broad and pragmatic perspective on social impact at the Bottom of the Pyramid. The early part of the course will focus on geneal characteristics, challenges, and opportunities of resource-poor settings and high-uncertainty environments. The bulk of the course will focus on tools and frameworks designed to operationalize such Social Impact initiatives. The course is aimed at students with no to moderate experience in entrepreneurship/international development. Students with extensive work experience in for-profits, nonprofits, NGOs, or development work are most welcome.
Taught by: Thompson
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
NPLD 565 Financial Management of Nonprofits
The half credit class will provide students with the ability to use the financial tools of cash flow, budgeting and forecasting models to assist in strategic thinking as it relates to a nonprofit organization. In addition, the class will provide tools that can be used to follow implementation of such strategies including: personal cash flow; basic financial statements; supplemental schedules; and cash flow, budgeting, and forecasting.
Taught by: Boylston
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

NPLD 566 Social Media Strategies
This course is intended as an introduction to strategic use of social media for social ventures. Many of you already use social media platforms in your personal lives, and have developed an intuitive understanding of how they work, and use them reflexively. If you’re unfamiliar with various social media venues, that’s ok! Many social media platforms will be described briefly in the lectures, but the course is not intended as a how-to for using them. We suggest that if you’re new to the various social media platforms mentioned, that you jump in and try them out! These platforms are designed for individuals with all levels of technical proficiency, and they’re designed to be inviting. You might find that with only a bit of effort that you become comfortable with them quickly. We expect that, regardless of your skill level, comfort, and current personal use of social media, you will gain real value from this course.
Much of this value relates to conveying an understanding of how to use these tools strategically, and on behalf of a social venture or a social cause you care about. This sort of use of social media is significantly different than the way you would use it in your personal life. We hope, as you move through this course, you will wonder: 1) What does it mean to craft the voice of an institution? 2) What is it like to speak in the voice of an institution instead of my own? 3) How could one possibly develop a strategic plan to organically and authentically engage a community? 4) How do you define, find, and build community? 5) More than retweets and likes, what is engagement, how do you measure it, and how do you create engagement to spark social change?
Course usually offered in fall term
Activity: Online Course
0.5 Course Units
Notes: Open only to students in the hybrid NPLD program

NPLD 580 Effective Governance Practices for Nonprofits
Effective governance relies upon consistent and ethical board leadership, yet nonprofit organizations that exemplify truly model governance are few and far between. This course introduces students to broad frameworks of governance, but will focus most deeply on the human dimensions of board leadership. In particular, we will examine real examples and cases of moral and ethical dilemmas faced by nonprofit boards and executive leaders, and the nuanced practices required to achieve effective board governance. This will involve a careful look at several real cases, as well as guest lectures from 3-4 different nonprofit board and CEO leaders. The invited leaders will use their own experiences to guide students through some of the most challenging ethical and managerial situations that can be encountered, with the goal of providing a practical grounding for students who expect to contribute to nonprofit leadership in their careers - either as executive staff or as board members.
Taught by: Shmavonian
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: .5 cu course

NPLD 582 NGOs and International Development
The course will offer a broad perspective on international development, aid, and the roles of NGOs and social enterprises. The latter half of the course will focus on issues in NGO management: fundraising, staff (expatriate and local), monitoring, and evaluation (including randomized controlled trials). The course is aimed at students with no to moderate experience in international development, but students with extensive work experience with NGOs or development work are also welcome.
Taught by: Thompson
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NPLD 585 Social Impact Lab: Grand Canyon
This is a 5-day, off-site, intensive service-learning course in social innovation. Students will learn how innovation and entrepreneurship play a central role in public problem solving. We will explore how social entrepreneurs co-develop new ideas with key stakeholders, articulate problems and solutions, define intended impact, understand competition, and collaborate with other actors. At the end of the course, students will have mastered a set of conceptual tools and strategies that will allow them to be effective problem solvers in diverse settings throughout their careers. Bring your purpose, passions, and pet societal challenges to share. The course has five objectives: 1) To introduce students to the concepts and practices of social entrepreneurship; 2) To introduce students to the components of a successful social enterprise; 3) To train students to view the world from a perspective of social innovation; 4) To encourage and empower students to develop their own innovative solutions to different social problems around the world. 5) To introduce students to real social issues and social innovations in a real-world setting.
Activity: Lecture
1 Course Unit
Notes: Application required; course meets in Grand Canyon with some pre-trip course sessions; program fee applies
NPLD 587 Interpersonal Dynamics In Nonprofits That Thrive
This course is designed for interdisciplinary students with an enthusiastic interest in cultivating flourishing organizations, engaged stakeholders, and inspiring leaders across sectors and especially within nonprofits. Over the past several years, the field of Positive Organizational Scholarship (POS) has proliferated, yielding a compelling body of knowledge on how and when people thrive at work. This course focuses on both the theoretical and practical insights that can be gained from cutting-edge POS research and applied to help practitioners enrich people’s experiences at work. Special attention is placed on how this wisdom applies not only across sectors but also specifically to the nonprofit organizational context. The course is built upon a foundation of experiential learning, such that students can expect to experiment and apply course concepts in their own lives throughout the semester. In other words, students will start with themselves as the first site of learning and development. The experiential community is enhanced further with team projects where students assess and consult with local nonprofit organizations. These team projects culminate in students presenting to their actual nonprofit organizations their recommendations for enhanced strategy and practices. In particular, the learning objectives of the course provide students with: 1) Techniques and real-world experience in using positive leadership concepts to enrich one’s own career, relationships, and life; 2) Ability to identify opportunities to use positive leadership practices in the workplace to enhance stakeholder engagement, individual and organizational performance, and collective impact; 3) Tools for applying positive leadership concepts in nonprofits, as well as all other organizational domains (e.g. business, government, coaching, the family etc.); 4) Research and consulting experience with a local non-profit organization.

Taught by: Myers
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NPLD 589 Ethics and the Pursuit of Social Impact
Leaders of organizations must often make difficult decisions that pit the rights of one set of stakeholders against another. Having multiple stakeholders or bottom-lines brings with it challenges when conflicts arise, with the perennial question of whose rights/benefits prevail? What trade-offs need to be made between multiple bottom lines? Does the mission of the organization prevail over the privileges of employees/ clients? To what extent can large donors influence the mission of the organization? What is an appropriate social return on investment? This course will introduce the factors that influence moral conduct, the ethical issues that arise when pursuing social goals, and discuss the best ways to promote ethical conduct within such organizations. The course will use specific case studies, real and hypothetical, to analyze a variety of ethical issues that arise (including finance, governance, accountability, fundraising, labor (paid and unpaid), client groups, and service provision) among the multiple stakeholders. This course is offered in the fall semester and will conclude by discussing ways that organizations can prevent and correct misconduct, develop a spirit of ethical behavior and institutionalize ethical values in the organization’s culture.

Taught by: Handy
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Section 002 open only to students in the hybrid NPLD program

NPLD 590 Social Finance
Economic analysis and financial accounting are like languages: fluency comes with practice. In-class review of case studies (including in-person discussions with the representatives of diverse agencies and organizations featured in the case studies) will enable students to test and develop their capacity for applying conceptual tools and analytical methods to sometimes messy and always complicated, real-life situations. The course objective is to develop theoretical understanding, critical judgment, and practical skills for sensitive and effective engagement with financial and economic matters of significance. Students will learn: (a) different ways of thinking about the economic foundations of social policy, (b) the basic terminology, tools, and methods for analyzing the financial statements of a wide range of organizations, and (c) accounting procedures for evaluating business, government, and organizational operations, policies, and practices.

Taught by: Lamas
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: The course is open to students across the University. All graduate students who take this course must register under NPLD790. All undergraduate students must register under NPLD590.

NPLD 591 Change Making: Personal Traits and Professional Skills
Over the past decade, researchers have identified some of the key skills that people need to succeed in their work and in their lives. These are skills that anyone can develop with practice. In this class, we will teach three of the key skills: resilience (the ability to thrive in difficult times); creativity (the ability to come up with innovative solutions to problems); and productivity (the ability to make the best use of your time and find life balance). This summer session will take place through dynamic, interactive workshops. During the first session we will learn the key skills. Over the course of the next three weeks, we will practice these skills to see significant improvement in important areas of our daily lives. By the final day of class, we will talk about how to sustain these gains in our personal and professional lives long after the course has ended. This course is not a traditional lecture course. While we will review the best scientific research on the skills for effective change makers, the main part of the course is devoted to practicing these skills. In other words, this is a highly experiential, interactive, and dynamic course!

Taught by: Sherman
Course usually offered summer term only
Activity: Lecture
1 Course Unit

NPLD 593 Design Thinking for Social Impact
Thinking like a designer can transform the way people and organizations develop products, services, processes, and strategy. This approach, called design thinking, brings together what is desirable from a human point of view with what is technologically feasible and economically viable. It also allows people who aren’t trained as designers to use creative tools to address a vast range of challenges. Design thinking is a deeply human process that taps into abilities we all have but get overlooked by more conventional problem-solving practices. It relies on our ability to be intuitive, to recognize patterns, to construct ideas that are emotionally meaningful as well as functional, and to express ourselves through means beyond words or symbols.

Course usually offered summer term only
Activity: Lecture
1 Course Unit
Notes: fall section open only to students in the hybrid NPLD program
NPLD 595 Effective Communication and Storytelling
Great leaders are storytellers. They are able to engage and entertain their communities, and tell a compelling narrative about how the world works. They use language powerfully and communicate in ways that uplift and inspire others. In this class, we will explore the power of telling great stories, and learn how to do it most effectively when promoting your campaigns to make the world a better place. We will also look at the skills of framing language in ways that will win over an audience. Finally, we will look at other key skills of effective communication, including the best strategies for persuasion, negotiation, and conflict resolution.
Taught by: Sherman
Course usually offered summer term only
Activity: Lecture
1 Course Unit

NPLD 596 Design and Incorporation of High Impact Nonprofits
Design and Incorporation of High Impact Not-For-Profits is designed for those who have a practitioner’s interest in the design, governance, leadership, and management of high impact not-for-profit organizations. This course is taught through learning best practice theory, applying this theory to a simulation experience, and providing students the opportunity to apply their new knowledge and experience in an interview with a current not-for-profit leader. Students, through the combination of theory and practice, are provided with the essential competencies and tools to design and incorporate a not-for-profit, conduct in-depth analysis of a not-for-profit’s effectiveness including, but not limited to, governance, leadership, social impact, financial sustainability, and systems and policy influence. Through the mock simulation process of designing, incorporating, and governing, students will leave with a “best practice” for not-for-profit manual that includes articles of incorporation, bylaws, governance deliverables, strategic business plan, organizational scorecard, 3-5 year budget, development plan and public policy strategy.
Activity: Lecture
1 Course Unit

NPLD 720 Data Analysis for Social Impact
Practitioners, leaders, and researchers need to engage with the latest cutting-edge research findings in their field. In this class you will develop an understanding of the quantitative methods that underpin social impact research, in an applied lab-based context. Theoretically, we will focus on developing your working statistical knowledge, and practically we will develop your data analysis skills by introducing you to a range of approaches for analyzing and handling large-scale secondary quantitative data that capture social impact. The substantive focus of the course will be on individual-level participation in the Non-Profit Sector in activities such as volunteering and charitable giving. This applied course covers the fundamental elements and approaches to handling and analyzing quantitative survey data. The emphasis is on developing an adequate understanding of basic theoretical statistical principles, descriptive and exploratory methods of analysis, graphical representation, operational procedures and interpretation of statistical results using STATA. The course will cover a wide range of statistical techniques from basic descriptive statistics to more advanced multivariate statistical techniques, such as OLS regression and logistic regression. You will also be introduced to a number of important topics, including theory testing and development; philosophy of science and research judgement; and replication in social impact research.
Taught by: Bennett
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: fall section open only to students in the hybrid NPLD program

NPLD 730 Difficult Art of Listening
The art of listening ethnographically has many benefits. Using a generally anthropological framework to organize sessions, this course attempts to make a case for the productive force (for scholars, policy makers, non-profit leaders and others) of hearing in proactive and nuanced ways. Highlighting the value of acoustemological ways of understanding the world (knowing through hearing), the course asks students to listen in newfangled ways to many of the things they’ve heard before - while also listening out for things that they’ve never previously taken note of. Thinking about how listening carefully greases the wheels for successful interpersonal communication and overall cultural understanding, students will be asked to observe themselves listening in ways that might allow for innovative translations of observable/empirical data into knowledge that can be deployed in service to personal, institutional, and structural change.
Course usually offered in fall term
Activity: Online Course
0.5 Course Units
Notes: Open only to students in the hybrid NPLD program

NPLD 750 Corporate Social Responsibility (CSR): Partnerships and Practices
Businesses performing philanthropic activity often use their platform of CSR activities to engage with society, directly, via a corporate foundation, or through partnerships with nonprofit organizations. Although such philanthropic activities are not directly related to profit-making ventures, they may boost their reputation, be used in marketing their products, talent recruitment, increase employee engagement and commitment, and thus contribute to the profit indirectly. Many businesses undertake their CSR related philanthropic activities using strategic partnerships with nonprofits or public sector organizations to meet their goals. This provides opportunities to nonprofit and public sector leaders in achieving social and sustainable change.
Taught by: Handy
Activity: Lecture
1 Course Unit
Notes: Course takes place in the Netherlands Pre-travel meeting dates TBA; Application required: www.sp2.upenn.edu/global/courses
NPLD 751 Widening the Aperture: Assessing Global Social Impact Interventions
Part of being a working professional in social impact is assessing the effectiveness of intervention models. This is true whether you work in service delivery, consulting, evaluation or philanthropy. This course offers students a unique, experience-based opportunity to assess an organization's work from afar, then on the ground in Malawi. The expectation is that several assumptions established in the beginning of the course will hold through to the end. Importantly, others will not. Students will understand how we build a knowledge base about an organization's work, what assertions we come to, and then how we test those assumptions. This process represents a vital skill set including research, perspective-taking, and direct engagement with the communities served and the people doing the work. The course will provide students with a practical framework for analyzing social impact interventions through three important and complementary lenses: sector practice, environmental factors and organizational implementation. Students will use the immersive, travel experience in Malawi to engage directly with one of three service organizations to apply the framework. They will also use data collected about these organizations through the Lipman Family Prize selection process, a University of Pennsylvania-based social impact prize, combined with their own research, both primary and secondary, to better understand the organizations, staff, and forces influencing the intervention. Students will use ethnographic tools to collect and analyze primary data regarding staff attitudes and perceptions at these organizations. Students will present their findings to the organizational leadership while still in the country. The course will include significant team-based project work.
Course usually offered summer term only
Activity: Lecture
1 Course Unit

NPLD 782 Small Group Processes
Studying the behavior of groups and the actions/inactions of people within groups provides a doorway to deeper understanding of our selves, our families, our friends, our colleagues, our organizations, and our communities. This half credit course is designed for Penn Graduate students eager to generate constructive group processes when chairing a committee, managing a work group, teaching in a classroom, serving on a jury, conducting a support/therapy group or facilitating strategy formulation. It is easy to see what is going well or poorly when observing what others are doing. But tuning into and gaining a comprehensive grasp of these processes when they are happening in the groups we belong to and learning how to take constructive actions in the here and now when it can have a meaningful impact requires a high level of cognitive capability combined with a special form of relational artistry. This course is an amalgam of experiential activities and energizing ways to internalize the rich concepts developed during many decades of applied-academic research. Participants are required to be fully present and fully engaged for the whole weekend, read the major book and a number of articles, and write a paper. This course occupies a full weekend and runs from 6pm Fri. to 6pm Sun. This is a 48-hour intensive weekend; you go home to sleep. Participants applying for this course are required to take a Primer, which provides potential participants with a common conceptual base for engaging in the essential learning and lays out the intellectual foundations of the course. Permits will be issued soon after participants have taken the Primer. Contact the NPLD program for more information on primer and course dates.
One-term course offered either term
Prerequisite: Attendance at course Primer (see course description)
Activity: Seminar
0.5 Course Units
Notes: Fall 2018 Class Schedule: Option 1: Friday 9/14 6-11pm; Saturday 9/15 9am-11pm; Sunday 9/16 9am-6pm. Option 2: Friday 9/21 6-11pm; Saturday 9/22 9am-11pm; Sunday 9/23 9am-6pm.

NPLD 783 Field Exercise in Social Impact Measurement
The twofold purpose of social impact measurement is to assess and improve the impact of nonprofit programs, and to inform grantmaking practice and effectiveness. In addition to accounting for funds spent and reporting on the actual work carried out, social impact measurement is an essential learning opportunity for grantmaker and grantee. However, choosing an appropriate methodology of measurement is critical. This course will offer an overview of leading social impact measurement methodologies and tools, and an impact measurement field exercise. During the field exercise, student teams will develop an evaluation plan and associated instruments for a local nonprofit using one or more of the methodologies. Teams will present their evaluation plans and offer recommendations for implementation. Lectures will be complemented by class time devoted to field exercise team meetings and off-site field work.
Taught by: Hargro
Course usually offered in fall term
Activity: Lecture
1 Course Unit
NPLD 784 The Nonprofit Sector: Concepts and Theories
Can you imagine a world without the vitality and diversity of the nonprofit sector? What would it be like? Everything from health care to education, from serving the disadvantaged to protecting and restoring the environment, nonprofit organizations seem to have become an inseparable part of every aspect of our lives. So often they are taken for granted that we seldom pause and reflect on the roles and functions of these vital organizations in our community. This course will introduce you to the various roles that voluntary, philanthropic and nonprofit organizations play in American society. It will cover the theory, size, scope and functions of the sector from multiple disciplinary perspectives including historical, political, economic, and social views. The course also has a “hidden agenda.” Take this class to see and discover what this agenda is!
Taught by: Guo
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NPLD 785 Group Dynamics and Organizational Politics
This is one of the courses referred to as “The Power Lab at Penn.” This intensely experiential course is designed for those providing group and institutional leadership at any level of a human enterprise, managing work groups, chairing committees, serving on special task forces, conducting support groups, offering legal services, teaching in classrooms, facilitating groups in clinical settings, etc. Participants will focus on two topics: (1) an in-depth understanding of group dynamics while they are in action, and (2) the organizational relationships between groups that are in a powerful position, groups locked in a powerless state and those caught in the middle between the powerful and the powerless.
Course Structure: This course has six components: (1) A pre-course discerning process, which consists of a one evening plus one full day Primer workshop; (2) Module 1 which is focused on group dynamics; (3) reading an assigned book and writing a paper based on Module 1 experiences; (4) Module 2 which addresses power relationships among groups with differential resources; (5) reading two assigned books and writing a paper based on Module 2 experiences; and (6) a post-course debriefing. The Primer provides all potential participants with a common conceptual base for engaging in the essential learning and lays out the intellectual foundations of the course.
Taught by: Smith
Course usually offered in fall term
Prerequisites: Permit required; all potential participants are required to attend a Primer class which consists of one evening session AND an all day session. Permits are granted only after students have completed the primer classes.
Activity: Lecture
1 Course Unit
Notes: Students from all graduate programs at Penn are welcome to apply. Contact the NPLD program for more information.

NPLD 786 Strategic Management and Leadership of Nonprofits
This course is about doing good and doing well. It is designed to introduce you to the fundamental issues in accountability and governance and the administration and management in nonprofit organizations. Through research and analysis, you will understand multiple structures of accountability and the various stakeholders in nonprofits, understand the duties and dynamics of boards of directors in conjunction with other mechanisms of governance (e.g. chief executive officers, advisory boards, etc.), and develop an understanding of management techniques and leadership skills for enhancing the effectiveness of nonprofit organizations. You will be asked to think about the challenges of running nonprofit organizations in a comparative context, with cases drawn from both the U.S. and abroad. The emphasis of this course is on acquiring operational skills. The course is designed for those who may have had years of experience managing other people and programs in the nonprofit sector but who want to develop a more systematic mastery of this challenge, as well as students from other sectors who aspire to a nonprofit leadership role.
Taught by: Guo
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NPLD 790 Social Finance
Economic analysis and financial accounting are like languages: fluency comes with practice. In-class review of case studies (including, on occasion, in-person discussions with the representatives of diverse agencies and organizations featured in the case studies) will enable students to test and develop their capacity for applying conceptual tools and analytical methods to sometimes messy and always complicated, real-life situations. The course objective is to develop theoretical understanding, critical judgment, and practical skills for sensitive and effective engagement with financial and economic matters of significance. Students will learn: (a) different ways of thinking about the economic foundations of social policy, (b) the basic terminology, tools, and methods for analyzing the financial statements of a wide range of organizations, and (c) accounting procedures for evaluating business, government, and organizational operations, policies, and practices.
Taught by: Lamas
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: The course is open to students across the University. All graduate students who take this course must register under NPLD790. All undergraduate students must register under NPLD590. SECTION 002 is open only to students in the hybrid NPLD program.
NPLD 791 Leadership: Designing the Future
This is one of the two courses referred to as The Power Lab at Penn. The other is NPLD 785/SWRK 766. This experiential, highly interactive seminar is for those eager to serve in managerial/leadership positions of human systems that create/maintain the organizational and fiscal viability of public, non-profit or private enterprises, including their partnerships. Candidates in all Penn graduate programs are welcome, whether one’s ambition is to generate sustainable livelihoods, renewable energy, wealth, clean water, viable environments, robotics, or quality services in fields such as education, health care, AI, communication, the arts, or criminal justice, or security. Course participants are members of decision-making groups that run a computer-based, data-driven, future-creating, socio-economic simulation while synchronously studying the intra and inter-group dynamics inherent in all leadership actions. The educational methodology of this course is based on discovery-learning processes about the critical inter-dependencies among several phenomena, such as: strategy formulation-execution and organizational practices that unleash latent possibilities; wealth creation and the dynamics of competition/collaboration within and among groups; robust economic metrics and intra/inter-group decision-making and sophistication; leadership of market-financial-political ecosystems and quality group-based followership; the efficacy of work-based activities and system conflict management capabilities; building new forms of private, public, non-profit ventures and developing human capital. This course combines intellectual and experiential learning about the business of organizing and an organization's businesses. It is based on cutting-edge sociological, economic, psychological, managerial and anthropological thinking about wealth-creation/circulation, the power of combining left-brain and right-brain reasoning, the harnessing of energies trapped by classic organizational conflicts and accessing the abundance located in contexts of seeming scarcity.
Taught by: Smith
One-term course offered either term
Prerequisites: Permit required; all potential participants are required to attend a Primer class which consists of one evening session AND an all day session. Permits are granted only after students have completed the primer classes.
Activity: Lecture
1 Course Unit
Notes: Students from all graduate programs at Penn are welcome to apply. This course meets on two Wednesday evenings and two consecutive weekends. It is a distinct advantage to have previously taken NPLD 782. Contact the NPLD program for course dates and more information.

NPLD 792 Social Entrepreneurship
Social entrepreneurs are individuals with innovative vision seeking to accomplish important public purposes through the creative and aggressive mobilization of people and resources. Using academic theory and research on social entrepreneurship as a framework, student innovators learn to design, develop, and lead social change organizations of their own invention. Students turn their passion for changing the world into concrete plans for launching a venture. Over the course of the semester, we will cover a broad array of topics associated with social innovation and entrepreneurship, including defining the problem/opportunity, refining the mission/vision, developing market research and industry analysis, defining a financial and operating structure, assessing results and progress, and scaling an enterprise. This course is neutral on sector. Graduate students in any of Penn's graduate and professional schools who want to create social value through either nonprofit or for-profit ventures are invited to take the class and develop their ideas. The class will expose students to the process of getting an organization - regardless of sector - off the ground and running. While this is a class on innovation and entrepreneurship, students do not need to be committed to starting a venture upon graduation. The skills and tools contained in the course have wide applicability in the workplace. Being able to develop a coherent venture plan is great training for anyone who wants to work in government, philanthropy, or the business sector funding or managing existing organizations. The course attempts to convey a picture of what a well-considered and well-executed venture plan looks like with the goal of developing in students an appreciation for clear thinking in the pursuit of the creation of public value.
Taught by: Frumkin
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Fall class open only to student in the hybrid NPLD program

NPLD 796 Philanthropy and Fundraising Tools for Managers
This course will review the everyday tools that nonprofit managers and development officers need to raise funds from individuals and other sources of private philanthropy. Last year, Americans gave approximately $300 million and 83% of it was from individuals. The fundraising profession has created a body of knowledge in the past twenty years that can guide effective fundraising programs so that charitable organizations can support their mission. The sessions will review the theory and practical techniques that development professionals use every day in large and small organizations including annual giving, major gifts, planned giving, cultivation of donors, making your case for support, the Seven Faces of Philanthropy, special events, and prospect research. There will also be discussions of philanthropic trends and current giving patterns. For those who are interested in nonprofit administration, these will be critical tools to understand.
Taught by Heisman
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Undergraduates need permission
NPLD 797 Philanthropy and the City
This course will focus on how urban communities are shaped by the nonprofit sector and the billions of philanthropic dollars that fuel their work. By bridging theory and practice, the class explores what dynamics are at play to deliver vital services or programs in healthcare, education, the arts, community development, and other issues. The course will also focus on these important questions: (1) Whose responsibility is the public good? How is that responsibility shared by the public, private, and nonprofit sectors? and (2) Given that responsibility for the public good, which individuals and groups make the decisions about how to serve the public good? How are these decisions made, and who benefits from these decisions? Students will consider these questions in an interdisciplinary context that will bring a historical and philosophical perspective to the examination of the values and institutions that characterize the contemporary philanthropy and the nonprofit sector.
Taught by: Bauer/Goldman
Course usually offered in spring term
Activity: Seminar
1 Course Unit

NPLD 799 Independent Study
Independent studies provide a flexible opportunity for students and NPL faculty or part-time instructors to work together in pursuing a topic of special interest that is not sufficiently covered by other courses in the curriculum. The content of independent studies is highly specialized and, as such, requires a plan of study developed jointly by the student(s) and the supervising professor. Independent studies require the academic advisor’s approval.
Activity: Independent Study
1 Course Unit
NURSING (NURS)

NURS 061 Biologically-Based Chemistry
A contextual approach will be used in studying the concepts in General, Organic and Biological Chemistry that are foundational to an understanding of normal cellular processes. Topics that will be covered include measurements, atomic structure, bonding, chemical reactions, properties of gases and liquids, solutions, equilibrium, acids and bases, pH, buffers, nuclear chemistry, nomenclature and properties of the main organic functional groups, and the structures and function of carbohydrates, proteins and lipids.
Taught by: Lafferty-Della Valle
Course usually offered in fall term
Prerequisite: One year of high school general chemistry or its equivalent
Activity: Lecture
0.5 Course Units
Notes: 0.5 course units

NURS 065 Fundamentals of Nutrition
Essentials of normal nutrition and their relationships to the health of individuals and families. These concepts serve as a basis for the development of an understanding of the therapeutic application of dietary principles and the nurse’s role and responsibility in this facet of patient care.
Taught by: Compher; Dolan; Caspar-Clark
Course usually offered in spring term
Prerequisite: NURS 061; NURS 062 (or equivalent Science Sequence Courses)
Activity: Lecture
1 Course Unit

NURS 068 Integrated Cell Biology and Microbiology
This course will include the major topics of cell biology and microbiology that are foundational for an understanding of normal and pathological cellular processes. Topics will include the brief study of prokaryotic and eukaryotic cell structures and functions; the main biological molecules; membrane transport; cellular communications; the flow of genetic information; cell division; and cellular metabolism. The course will also examine the role of cells and microbes in human health and infectious diseases. It will include a description of the main types of microbes, how they are identified, their growth requirements, and the role of the immune system in controlling infections, the control of microbes, host-microbe interactions. The context for this course will be the application of cell biology and microbiology for understanding the cellular basis of cancer and infectious human infection disease processes. This course will include special sessions from a clinical perspective in the various fields of medicine, microbiology, and immunology.
Taught by: Johnson, Ross
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 101 The Nature of Nursing Practice
This course facilitates students’ ability to conceptualize the experiences of individuals, families, communities, and populations living with health and illness. It emphasizes the integration of knowledge from other disciplines and of nursing science as the basis for practice. The course introduces the four core themes of the undergraduate nursing program: engagement, inquiry, judgment, and voice and examines how the themes are used to characterize the nature of nursing practice.
Taught by: Kutney-Lee; Brooks-Carthon; Wiltse Nicely
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: 0.5 course units

NURS 102 Situating the Practice of Nursing
This course emphasizes not only how nursing is practiced, but also where it is practiced. The course further explores the four core themes of engagement, inquiry, judgment, and voice as it provides guided observational experiences in a wide variety of settings. These experiences help the student to discover what is not known and what is subsequently necessary to know. These experiences also explore the place of the natural and social sciences and the arts and humanities in nursing practice. This course also will highlight the relationships between and among members of the interprofessional team and families and patients. NURS 102 fosters development of the professional role and sets the stage for life-long learning.
Taught by: Kutney-Lee; Brooks-Carthon; Kaufman; Brewer
Course usually offered in spring term
Prerequisite: NURS 101
Activity: Lecture
0.5 Course Units
Notes: 0.5 course units

NURS 103 Psychological and Social Diversity in Health and Wellness
This course explores and integrates the intersection of psychological, cognitive, and social development with the lived experiences of individuals, families, and communities across the lifespan in order to conduct socially contextualized health assessments and health teaching. Extant theories will be critically analyzed and examined with respect to issues of health care access, health history, health promotion, and issues of equity and diversity from a life-course perspective. This knowledge will be synthesized and integrated with the development of the student’s communication skills and interviewing processes necessary to develop socially attuned health history and teaching that promote psychological well being and healthy lifestyles. Simulated and observational experiences provide students with opportunities to acquire and apply knowledge necessary for conducting a comprehensive health history of an individual situated within a diverse community. They also provide opportunities to develop prioritized health teaching plans in partnership with that individual.
Taught by: Connolly; Lewis, L.
Course usually offered in fall term
Prerequisite: NURS 101
Activity: Lecture
1 Course Unit
Notes: Offered in Summer for Accelerated BSN Program
NURS 112 Nutrition: Science & Applications
An overview of the scientific foundations of nutrition. The focus is on the functions, food sources and metabolism of carbohydrate, fat, protein, vitamins and minerals. Effects of deficiency and excess are discussed and dietary recommendations for disease prevention are emphasized. Current issues and controversies are highlighted. Students will analyze their own dietary intakes and develop plans for future actions.
Taught by: DeJonghe; Hayes
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: For Non-Nursing Majors

NURS 131 Human Anatomy and Physiology - Part A
The structural and functional organization of the human organism is presented, along with the fundamentals of developmental anatomy and embryology. Histologic and gross anatomical features of selected organ systems are related to the physiologic and biochemical mechanisms which enable the human body to maintain homeostasis in an ever-changing environment.
Taught by: Scanga
Course usually offered in spring term
Prerequisites: NURS 61 and NURS 62 (or equivalent College Level Chemistry and Biology)
Activity: Lecture
1.5 Course Unit
Notes: 4 h. lec. 2 h. lab. $100 lab fee

NURS 132 Human Anatomy and Physiology - Part B
The structural and functional organization of the human organism is presented, along with the fundamentals of developmental anatomy and embryology. Histologic and gross anatomical features of each organ system are related to the physiologic and biochemical mechanisms which enable the human body to maintain homeostasis in an ever-changing environment. Basic concepts of pathophysiology are introduced and applied to certain clinical disorders.
Taught by: Scanga
Course usually offered in fall term
Prerequisite: NURS 131
Activity: Lecture
1.5 Course Unit
Notes: 4 h. lec. 2 h. lab. $100 lab fee.

NURS 159 Pathways To Practice
Activity: Lecture
1 Course Unit

NURS 160 Physical Assessment
This is a laboratory course designed to help beginning nursing students to develop competence in the process of physical assessment. Students engage in actual practice of physical assessment with fellow students as their ‘patient’ subject. A blending of instructor demonstration and supervision of physical examination practice sessions is used in the learning laboratory setting. Students prepare via self-learning activities with a variety of supplied resources (readings, videotapes, computer programs) and have the opportunity to refine their skill through faculty-supervised practice sessions. Procedural skills that correlate with the presentations of physiologic system assessment are included.
Course usually offered summer term only
Prerequisite: Matriculation in the Accelerated BSN Nursing Program
Activity: Lecture
1 Course Unit
Notes: For Students in Accelerated BSN Nursing Program Only

NURS 163 Integrated Anatomy, Physiology, and Physical Assessment I
This is the first part of a two-semester course designed to provide a comprehensive study of the structure and function of the human body along with essential embryology and maturational physiology. Histologic and gross anatomical features of selected organ systems are related to the physiologic and biochemical mechanisms that enable the human body to maintain homeostasis. Within each system, deviations from normal are considered to situate the student’s understanding of health problems and to foster an appreciation for the complexity of the human organism. Integrated into each topic are the correlated physical assessment parameters and related procedural skills. Laboratories exercises and case study analysis provide a contextual base to acquire and use domain-specific knowledge of concern to the practice of nursing.
Taught by: Scanga; Quigley
Course usually offered in spring term
Prerequisite: NURS 061; NURS 062; NURS 063; (or equivalent Science Sequence Courses)
Activity: Lecture
2 Course Units
Notes: 2.0 course units

NURS 164 Integrated Human Anatomy, Physiology & Physical Assessment II
This is the second part of a two semester course designed to provide a comprehensive study of the structure and function of the human body along with essential embryology and maturational physiology. Histologic and gross anatomical features of selected organ systems are related to the physiologic and biochemical mechanisms that enable the human body to maintain homeostasis. Within each system, deviations from normal are considered to situate the student’s understanding of health problems and to foster an appreciation for the complexity of the human organism. Integrated laboratories and case studies provide a contextual base to acquire and use domain-specific knowledge that includes physical assessment, and procedural.
Taught by: Scanga; Quigley
Course usually offered in fall term
Prerequisite: NURS 163
Activity: Lecture
2 Course Units
Notes: 2.0 course units

NURS 165 Integrated Pathophysiology, Pharmacology, and Therapeutics
Pathophysiologic concepts and processes are introduced with major emphasis on commonly occurring acute and chronic illnesses and their therapeutic interventions. Major classes of drugs that are used to support organ function are explored. The physiological and pathophysiologic rationale for each drug indication, mechanisms of drug action, individualized dosing implications, and adverse drug events will be explored for prototypical agents used in the selected cases. The course will enhance the student’s comprehension of the scientific complexity of therapeutic interventions in various conditions and will build upon the foundational sciences. Additionally the course will provide the student with sufficient scientific knowledge and skills to prepare administer and monitor drugs and therapies in a safe and effective manner.
Taught by: Boullata
Course usually offered in spring term
Prerequisite: NURS 164 (or Equivalent)
Activity: Lecture
2 Course Units
Notes: 2.0 course units
NURS 215 Nursing of Women and Infants
This course emphasizes the child-bearing cycle, and the related issues of maternal and infant mortality and morbidity. It also explores women and infant’s health care and health promotion needs across the lifespan. It provides a global perspective, and uses the United Nations’ Pillars of Safe Motherhood and World Health Organization’s Millennium Development Goals as the vehicles to enable students to understand the interrelationships among issues of health and health promotion; social, economic, political and environmental contexts; and the care of women across the lifespan. Clinical experiences provide opportunities for students to understand the connections between the local and the global; to use their developing knowledge base to affect the health of women and their infants. Students will have opportunities for hospital-based care of child-bearing women and their infants. In addition, community-based experiences with individual women and with groups of women across the life cycle will be provided in order to enhance teaching, interviewing and assessment skills.
Taught by: Guidera; O’Hare; Hill-O’Neill
Course usually offered in spring term
Prerequisite: NURS 101; NURS 102; NURS 103; NURS 164 (Traditional) or NURS 106 (Accelerated)
Activity: Lecture
1.5 Course Unit

NURS 225 Pediatric Nursing
This course considers how nursing influences the health and healing capacities of infants, children, adolescents and their families. It focuses on the knowledge and skill acquisition needed to care for these patients at particular moments, across the continuum of care, and through transitional phases of a child’s illness experience. It addresses pediatric nursing phenomena of concern and major final common pathways of pediatric illness from infancy through adolescence using a using a developmental and systems approach. Emphasis is placed on family-centered care through transitions in the illness and recovery phases. The course emphasizes clinical reasoning; family centered strategies for optimizing health and maintaining individuality; promoting optimal developmental, physiological, and psychological functioning; and enhancing strengths within the context of family. Clinical experiences at various children’s hospitals and simulation experiences provide sufficient opportunities for clinical reasoning, clinical care and knowledge integration.
Taught by: Hickerson
One-term course offered either term
Prerequisite: NURS 215
Corequisite: NURS 235
Activity: Lecture
1.5 Course Unit
Notes: Clinical 12 hours weekly and 2 hours Simulated Laboratory Weekly

NURS 230 Statistics for Research and Measurement
This course examines statistical methods used by scientists in the analysis of research data. The fundamental theorem for this course is the “square root law” (central limit theorem). Students become literate in statistical terminology and symbols and knowledgeable of assumptions for statistical tests. Fundamental statistics include basic theorems and principles, sample, population and data distributions, measures of central tendency, correlational techniques, and commonly used parametric and nonparametric statistical tests. Parameters for inferential and descriptive statistics are examined as the basis for explaining the results from research studies. Students apply chance models in estimating confidence intervals of percentages and means, and in hypothesis testing. This content is taught in the context of nursing research and measurement of nursing phenomena. Examination of research publications enable students to apply their knowledge to reading and understanding data analyses used in studies. Students evaluate tables and graphs as ways to summarize research findings. Course content prepares students to examine statistical and clinical significance of research findings.
Taught by: Kim
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 235 Psychiatric Nursing
This course examines how nursing influences the health and healing capacities of individuals and families experiencing severe psychiatric distress. It focuses on the knowledge and skill acquisition needed to care for these patients at particular moments, across the continuum of care, and through transitions in an illness experience. The course addresses nursing phenomena of concern related the meanings of an illness experience, the development of healing relationships with or within individuals, families, and groups, and on the advanced communication strategies needed to engage individual and families in mental health promotion strategies. It also provides the tools to enable students to construct effective treatment groups with patients; work groups with disciplinary and inter-professional colleagues; and to understand the healing dimensions of environments. Clinical and simulation experiences provide sufficient opportunities for clinical reasoning, clinical care and clinically situated knowledge integration.
One-term course offered either term
Prerequisite: NURS 215
Corequisite: NURS 225
Activity: Lecture
1.5 Course Unit
Notes: Clinical 12 hours weekly and 2 hours Simulated Laboratory Weekly
**NURS 245 Nursing of Young and Middle Aged Adults**
This course considers how nursing influences the health and healing capacities of young and middle aged adults who experience functional status impairments as a result of serious illness or injury. It focuses on the knowledge and skill acquisition needed to care for these patients at particular moments, across the continuum of care, and through transitions in an illness experience. It addresses nursing phenomena of concern, including risk factors for illness or injury, strategies to overcome barriers and support personal health resources, alleviate suffering and reduce the impact of illness or injury on the functioning of the person. Content and clinical experiences integrate developmental and role issues; policy, cultural and ethical considerations. Clinical experiences in acute care hospital units and simulation experiences provide opportunities for clinical reasoning, clinical care, and knowledge integration.

Taught by: Walsh-Brennan
One-term course offered either term
Prerequisite: NURS 215
Corequisite: NURS 255
Activity: Lecture
1.5 Course Unit
Notes: Clinical 12 hours weekly and 2 hours Simulated Laboratory Weekly

**NURS 255 Nursing of Older Adults**
This course considers how nursing influences the health and healing capacities of older adults. It focuses on the knowledge and skill acquisition needed to care for these patients at particular moments, across the continuum of care, and through transitions in an illness experience. It addresses nursing phenomena of concern including the unique set of principles and body of knowledge and skills necessary to the practice of nursing with older adults. Students are provided with the theoretical background necessary to understand health system issues affecting older adults. Students will attain the knowledge necessary to complete a comprehensive assessment of the older adult’s physical, functional, psychosocial, and cognitive capacities. Common problems associated with cardiovascular, respiratory, neurological, musculoskeletal, sensory, and genitourinary systems that affect older adults will be discussed. In addition, principles of continuity of care, rehabilitation, nutritional and pharmacodynamic changes, cultural diversity and ethics will be integrated throughout the course. Clinical experiences in acute care hospitals and simulation experiences provide sufficient opportunities for clinical reasoning, clinical care, and knowledge integration. Special emphasis is placed on transitional care for older adults across the health care continuum.

Taught by: Matura
One-term course offered either term
Prerequisite: NURS 215
Corequisite: NURS 245
Activity: Lecture
1.5 Course Unit
Notes: Clinical 12 hours weekly and 2 hours Simulated Laboratory Weekly

**NURS 299 Independent Study in Nursing**
An opportunity to develop and implement an individual plan of study under faculty guidance.
One-term course offered either term
Prerequisite: Permission of instructor and NURS 106
Activity: Independent Study
1 Course Unit

**NURS 303 Contemporary Issues in Human Sexuality and Health**
Course content emphasizes theories of sexual development and factors influencing sexual behavior within the continuum of health and illness. Common sexual practices of people are studied within the context of lifestyle and situational life crises. Concepts of normal sexual function and dysfunction are examined. Contemporary sexual issues are explored.

Taught by: Stevens
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**NURS 304 Contemporary Issues in Global Women’s Health**
This undergraduate elective course will provide an introduction to contemporary issues in global women’s health and multiple theoretical perspectives related to global women’s health. This course will examine and analyze various women’s health issues across the globe within historical, social, cultural, economic, political and environmental contexts. This course will have particular emphasis on intensive analyses of gender equity and cultural sensitivity issues in providing appropriate and adequate care for women across the globe.

Taught by: Im
Course usually offered in spring term
Prerequisite: Nursing Students must have completed NURS 215
Activity: Lecture
1 Course Unit
Notes: Freshmen and Sophomores need Instructor Permission

**NURS 305 Narrative Matters in Health and Illness Experiences**
This course emphasizes the uses of narrative and memoir to consider major themes and events related to the experience of health and illness in the United States as well as the caretaker role, as either family member or health professional and crafting policy.

Taught by: Connolly, C
Activity: Seminar
1 Course Unit
Notes: Foundational Course for History, Health, and Humanities Minor

**NURS 306 Opioids: From Receptors to Epidemics**
Taught by: Compton; Schmidt
Prerequisites: Biology 101 or Biology 121 or with permission of instructors. For BSNs: N165 Integrated Pathophysiology, Pharmacology and Therapeutics
Activity: Lecture
1 Course Unit
Notes: This survey course reviews the neuropharmacology of opioids including central and peripheral sites of opioid actions. Opioid receptor pharmacology as well as cellular and molecular neuroadaptations to opioids are discussed in relation to addiction, physical dependence, tolerance, hyperalgesia and withdrawal. Genetic and pharmacogenomic effects on variation of opioid response are also presented. Opioid addiction and the actions of opioids on pain systems are reviewed with an emphasis on their pre-clinical and clinical expression. The effects of regulatory, pharmaceutical and criminal justice justice forces on opioid prescription in the US are considered vis-?-vis pain management and opioid addiction. Finally, the causes and consequences of the of the current “opioid epidemic” are reviewed, as well as federal, healthcare and community efforts to address it.
NURS 312 Nutritional Aspects of Disease
This course provides an advanced understanding of the role of nutrition in integrated biological systems. Students will develop a rigorous comprehension of major clinical disorders, including the underlying pathophysiology and conditions that are affected by nutrition and how optimization of nutritional variables may modulate these processes. A critical overview of the role of nutrition in disease prevention, management and treatment, and in health maintenance will be emphasized throughout the course.
Taught by: Hayes, M
Course usually offered in spring term
Prerequisite: NURS 112
Activity: Lecture
1 Course Unit

NURS 313 Obesity and Society
This course will examine obesity from scientific, cultural, psychological, and economic perspectives. The complex matrix of factors that contribute to obesity and established treatment options will be explored. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Compher
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 315 Sociocultural Influences on Health
This course is intended for students interested in U.S/Global Healthcare. It includes lectures, discussions, readings, and written assignments focused on various social, cultural, and economic factors that impact the health and illness perceptions and behaviors of various ethnic and minority groups. In particular, it focuses on how culture affects health and disease, and how health and disease affect culture. This course takes a critical approach to knowledge development by scrutinizing values, theories, assumptions, and practices cross culturally. It relies upon a range of interdisciplinary approaches to analyze how disease is diagnosed, treated, and experienced differently in various cultural contexts. At the same time, students will have the opportunity to examine and critique cultural assumptions and theories, the shifting nature of cultures, the situational use of cultural traditions, and the ethnocentrism of contemporary Western health care. Special attention is given to the influence of race, class, gender, religious, and spiritual ideas about health and illness.
Taught by: Wall
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Foundational Course for Minor in Multicultural/Global Health Care

NURS 316 International Nutrition: Political Economy of World Hunger
A detailed consideration of the nature, consequences, and causes of hunger and undernutrition internationally. Approaches are explored to bringing about change, and to formulating and implementing policies and programs at international, national, and local levels, designed to alleviate hunger and under-nutrition.
Taught by: Chrzan
Course usually offered in spring term
Prerequisites: Junior-year or higher; at least one background course in nutrition, anthropology, sociology or economics
Activity: Lecture
1 Course Unit

NURS 318 Race, Gender, Class and the History of American Health Care
This multidisciplinary course surveys the history of American health care through the multiple perspectives of race, gender, and class, and grounds the discussions in contemporary health issues. It emphasizes the links between the past and present, using not only primary documents but materials from disciplines such as literature, art, sociology, and feminist studies that relate both closely and tangentially to the health professions and health care issues. Discussions will surround gender, class-based, ethnic, and racial ideas about the construction of disease, health and illness; the development of health care institutions; the interplay between religion and science; the experiences of patients and providers; and the response to disasters and epidemics. Skills for document analysis and critique are built into the course as is the contextual foundation for understanding the history of health care. This course satisfies both the Society & Social Structures and the Histories & Traditions sectors for the Nursing Class of 2012 and beyond.
Taught by: Fairman
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: For Benjamin Franklin Scholars Nursing Honors Students.

NURS 319 Etiology and Treatment of Contemporary Chronic Diseases in America: Focus on Obesity and Cancer
This course will focus on two of the major public health problems in the United States—obesity and cancer. These diseases will be considered from a variety of perspectives: epidemiological, environmental, physiological and behavioral. In addition, the course will focus on the range of interventions being developed to treat as well as prevent both diseases.
Taught by: Glanz; Jacobs, L.; Sarwer
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 324 Children's Health in the United States, 1800-2000
This course explores the impact of historical ideas, events, and actors pertaining to the history of children's health care in the United States. Emphasis is placed on tracing the origins and evolution of issues that have salience for twenty-first century children's health care policy and the delivery of care. This course satisfies the History & Traditions Sector for Nursing Class of 2012 and Beyond.
Taught by: Connolly
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: For Benjamin Franklin Scholars Nursing Honors Students

NURS 330 Theoretical Foundations of Health Care Ethics
The theoretical foundations of health care ethics including definitions of ethics, history of bioethics and nursing ethics, and the influence of religion, psychology of moral development and philosophy in the development of ethical theory. Nursing code of ethics, changing ideas in ethics, and discussion of the developing profession of nursing are included.
Taught by: Perlman; Ulrich
One-term course offered either term
Activity: Lecture
1 Course Unit
NURS 331 Forensic Mental Health

Forensic mental health is the interface between the law and mental health. This course examines the components of human behavior that bring people into a judicial setting. Content will cover: criminal personalities, forensic interview, and the role of forensic psychiatry. Domestic violence offenders, sex offenders, stalkers, gang members, and offenders who commit homicide will be discussed. Definitions and dynamics of criminal motherhood and the psychodynamics of violent juvenile offenders will be presented. Use of the internet by offenders will also be discussed. This course also offers a field experience in which student’s interview incarcerated individuals. As of Spring 2016, students in the College of Arts and Sciences are not permitted to enroll in this course.

Taught by: Brown, K.; Sabella
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 332 Forensic Science I

This course discusses the interface of law and science. Forensic science is the application of scientific principles in the legal arena. This course examines the contribution of forensic science to criminal and civil investigation. Crime scene analysis is accomplished via disciplines within forensic science. The role of the medical examiner, the structure and function of crime laboratories, death investigation and the role of health care personnel in forensic cases is discussed. As of Spring 2016, students in the College of Arts and Sciences are not permitted to enroll in this course.

Taught by: Cronin, G.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 333 Victimology

This course examines the wide range of victimization experiences from the perspective of the victim, their families and society. Crimes to be studied include workplace violence, corporate crime, robbery, burglary, assault, rape, stalking, domestic violence, homicide, suicide, elderly abuse and child sexual abuse and exploitation. The role of the medical examiner, health care providers and the FBI as they relate to victims of crime will be discussed. Emphasis will be given to exploring the elements of each crime and response patterns to victimizations. Services available to victims of crime will be discussed. As of Spring 2016, students in the College of Arts and Sciences are not permitted to enroll in this course.

Taught by: Cronin G
One-term course offered either term
Activity: Lecture
1 Course Unit

NURS 334 Public Policy and the Nation's Health

This course examines health care and social policy from domestic and international perspectives. It is designed to engage undergraduate students in critical thinking about health policy issues as they affect our health care, employment, taxes, and social investments. The current national debate on health care reform is used as a frame of reference for examining the strengths and weaknesses of health care services in the U.S. from the perspectives of patients/families, health professionals, health services providers, insurers, employers, and public policy makers, and the pros and cons of a range of prescriptions for system improvement from across the political spectrum. About a third of the course focuses more specifically on global public health challenges and the policy strategies for reducing health disparities worldwide. Please note, the online version of this course has a synchronous component (live online class sessions). The day/time will be listed in the course register.

Taught by: Sochalski
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 335 Global Food Security for Ten Billion

This is an interdisciplinary course on the problems of food demand and consumption, production and supply in our increasingly globalized and urbanizing world. Special attention will be given to the intersections of current technologies of food production, current nutritional problems, environmental change and resource degradation, and the changing quality of human social life under globalization. Where and how will sufficient nutritious food be produced sustainably and how can the politics and economics of equitable distribution in such large urban populations be achieved?

Taught by: Spooner; Compher; Muecke; Chrzan
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Cross Currents Course

NURS 343 Global Engagement Seminar Environmental Health Issues

Cross Listed with NURS 543 All students must apply through the Penn Global Seminar Webiste for permission to register for this course. Those who are accepted will receive a permit to register for this course.

Prerequisites: General college-level chemistry and biology knowledge (e.g. CHEM/ BIOL 101, 102) to understand the science underlying environmental health topics or special permission
Activity: Seminar
1 Course Unit
Notes: This course will be a broad overview on current environmental health issues that contribute to significant global morbidity and mortality due to increased urbanization and growth in the economy. The course will cover basic principles of environmental epidemiology, toxicology, health effects of environmental exposures, risk assessment, as well as environmental policy and ethics. The class will have two portions. The first part of the class will be taught lectures, case studies, discussions on campus and a local field trip in the Philadelphia area. The second part of the course will involve a field trip to China during the early summer to help students gain a global perspective on environmental health concerns.
NURS 344 Etiology and Treatment of Contemporary Chronic Diseases in America: Focus on Obesity and Cancer
This course will focus on two of the major public health problems in the United States - obesity and cancer. These diseases will be considered from a variety of perspectives: epidemiological, environmental, physiological and behavioral. In addition, the course will focus on the range of interventions being developed to treat as well as prevent both diseases.
Taught by: Glanz; Sarwer; Jacobs, L.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 353 Health Comm Digital Age: Health Communication in the Digital Age
Activity: Lecture
1 Course Unit

NURS 354 Case Study - Addressing the Social Determinants of Health: Community Engagement Immersion
Prerequisite: Completion of sophomore year nursing requirements
Activity: Lecture
1 Course Unit
Notes: This case study offers students experiential learning to develop an in-depth understanding of social determinants of health in vulnerable, underserved populations and to collaboratively design and refine existing health promotion programs based on the needs of the community site. Grounded on an approach that builds upon the strengths of communities, this course emphasizes the development of techniques to lead effective, collaborative, health-focused interventions for underserved populations. Students are required to draw on skills and knowledge obtained from previous classes related to social determinants of health and community engagement and will engage in specific creative, innovative community-based programs developed for populations across the life span. These culturally relevant programs, which have been shown to positively impact communities, create opportunities for students to address the social determinants of health, build engagement and leadership skills and increase program success and sustainability.

NURS 355 Case Study: Self-Care of Chronic Illness
Self-care is done by lay people to prevent or manage chronic illness. In this case study, we will discuss the history, definitions, predictors, and outcomes of self-care in various chronically ill populations. A focus of discussion will be an in-depth exploration of the factors that influence self-care. Understanding these factors will prepare nurses for their role in promoting self-care. Fieldwork experiences are designed to provide practical experience in engaging well individuals in preventing illness and helping chronically ill perform self-care.
Taught by: Riegel
Course usually offered in spring term
Prerequisite: NURS 215
Activity: Lecture
1 Course Unit
Notes: 2 hour seminar; 1 hour fieldwork / week

NURS 356 Case Study: Culture of Birth
This course will explore the cultural context of birth and the activities of women and professionals and/or attendants in meeting the health care needs of pregnant women. The history of caring for women at birth, international health care, cultural mores/societal values, place of birth, psychosocial factors, ethical decision-making and the role of technology are content areas that will be discussed.
Taught by: McCool
Course usually offered in spring term
Prerequisites: NURS 215, 225 or Permission of Instructor
Activity: Lecture
1 Course Unit

NURS 358 Case Study: Nurses and the Child Welfare System
Building on knowledge and skill acquired through undergraduate nursing courses, this case study offers nursing majors an in depth and interprofessional opportunity to study research, policy, and practice-based issues in children and families involved with the child welfare system. Special emphasis is placed on the role of the nurse in the child welfare system. Fieldwork experiences will enable students to gain practical experience regarding the needs of children and families with an emphasis on a consideration of how to achieve partnership and create alliances with parents and youngsters.
Taught by: Connolly
Course usually offered in fall term
Prerequisite: NURS 165; NURS 215
Activity: Lecture
1 Course Unit

NURS 359 Case Study: Quality Care Challenges in an Evolving Health Care Market
Quality care is an issue for consumers, providers, purchasers, and policy makers. This case study examines the multiple challenges that surround the quality of health care in the evolving United States health care marketplace. Through classroom discussion and special project experience, the student will become familiar with the concept of health care quality and approaches to the measurement and management of quality. Using Donabedian’s construct of structure, process and outcomes, strategies to improve quality while containing or reducing costs are reviewed, including the contributions of clinical practice guidelines. The evolving dominant structures for providing health care services, managed care and integrated delivery systems, and their approaches to quality management and reporting will be explored.
Taught by: Pinola, Sparrow
Course usually offered in spring term
Prerequisites: NURS 104, 106
Activity: Lecture
1 Course Unit

NURS 360 Case Study: Nursing Practice with HIV+ Patients
This course is directed at the need to increase nursing majors knowledge and clinical expertise in the care of persons with HIV/AIDS. Hands-on clinical practice with nurses who are AIDS experts will be combined with seminars that provide epidemiologic, clinical assessment, infection control, symptom management, patient teaching, psychosocial, ethical, cultural, political, and policy information.
Taught by: Vincent
Course usually offered in fall term
Prerequisites: NURS 104, 106
Activity: Lecture
1 Course Unit
**NURS 361 Case Study: Breast Feeding & Human Lactation**

Human milk is recognized universally as the optimal diet for newborn infants. The health benefits of breastfeeding are so significant that a National Health Objective set forth by the Surgeon General of the United States for the year 2010 is to increase the proportion of mothers who breastfeed their babies in the postpartum period. Through classroom and clinical experiences, this course will provide an in depth examination of the anatomy and physiology of lactation, essential aspects of establishing and maintaining lactation, and the nurses’ role in counseling the breastfeeding family. Emphasis will be placed on current research findings in the content area.

Taught by: Spatz
Course usually offered in fall term
Prerequisites: NURS 104, 106
Activity: Lecture
1 Course Unit

**NURS 362 Case Study: Aggressive Behavior in Healthcare: Assessment Prevention and Treatment**

The escalating incidence and prevalence of aggression in the health care setting requires that providers acquire a new set of pragmatic competencies for managing its complex sequelae. This course presents theoretical frameworks for understanding, predicting, preventing and responding to aggressive behaviors across the life span. Historical, bio-behavioral, social, and cultural explanations for aggression will be synthesized and analyzed within the context of multiple points of entry into the health care system across clinical settings. Personal self-awareness, debriefing, and stress management techniques exemplify techniques to prevent untoward consequences in providers. This course also uses exemplars and a range of experiential learning strategies, including skill development, situation analysis, concept mapping, unfolding case studies and cooperative learning, to examine the assessment, prevention, treatment, and response to aggressive behavior in patients and management of its consequences in self and others.

Taught by: Coleman
Course usually offered in spring term
Prerequisites: NURS 104, 106
Activity: Lecture
1 Course Unit

**NURS 363 Case Study: Cancer**

This elective case study offers students the opportunity to learn about the etiology, diagnosis, and management of cancer across the lifespan. Building on existing clinical knowledge and skills, students will explore cancer care from the perspectives of prevention, early detection, treatment, survivorship, and death. Observational clinical experiences and selected case studies will enhance students’ understanding of patients’ and families’ cancer experience.

Taught by: Hollis
Course usually offered in spring term
Prerequisites: NURS 104, 106
Activity: Lecture
1 Course Unit

**NURS 364 Case Study: Breast Feeding & Human Lactation**

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Taught by: Spatz
Course usually offered in fall term
Prerequisites: NURS 104, 106
Activity: Lecture
1 Course Unit

**NURS 365 Case Study: Case Analysis in Clinical Nutrition**

This course is designed for present and future nurse professionals who wish to increase their knowledge of nutrition and expertise and application of knowledge to achieve optimal health of clients and themselves. Principles of medical nutrition therapy in health care delivery are emphasized in periods of physiologic stress and metabolic alterations. Individual nutrient requirements are considered from pathophysiologic and iatrogenic influences on nutritional status. Nutritional considerations for disease states will be explored through epidemiological, prevalence, incidence, treatment and research data. Understanding application of medical nutrition therapy are included through case analysis and field experiences

Taught by: Dolan
Course usually offered in spring term
Prerequisite: NURS 065 or 112
Activity: Lecture
1 Course Unit

**NURS 366 Case Study: Principles of Palliative Care**

This course prepares students to collaborate effectively with an interdisciplinary team in assessing patients and families, and planning and evaluating palliative and end of life care for diverse populations with progressive illness in multiple health care settings. Course content and assignments focus on the nurse's role in addressing the complex assessment and responses to the psychosocial and spiritual concerns of patients and caregivers across the trajectory of advanced illness.

Taught by: Ersek
Course usually offered in fall term
Prerequisites: NURS 104, 106
Activity: Lecture
1 Course Unit

**NURS 367 Case Study: Home Health Care**

This course examines the major aspects of home-based care across patients' life spans from acute to long term care. New trends, advances, and issues in home management of complex conditions, innovative delivery systems and legal, ethical and policy consideration will be explored.

Taught by: Doyle
Course usually offered in fall term
Prerequisites: NURS 104, 106
Activity: Lecture
1 Course Unit

**NURS 368 Case Study: Nutrition Throughout The Life Cycle**

Understanding and meeting nutritional needs from conception through adulthood will be addressed. Nutrition-related concerns at each stage of the lifecycle, including impact of lifestyle, education, economics and food behavior will be explored.

Taught by: Berman-Levine
Course offered fall; odd-numbered years
Prerequisites: NURS 54, or NURS 112, comparable nutrition course, or approved introductory course
Activity: Lecture
1 Course Unit
**NURS 376 Issues in Nutrition, Exercise, and Fitness**
An examination of the scientific basis for the relationship between nutrition, exercise and fitness. The principles of exercise science and their interaction with nutrition are explored in depth. The physiological and biochemical effects of training are examined in relation to sports performance and prevention of the chronic diseases prevalent in developed countries.

Taught by: Compher; Dougherty
Course usually offered in spring term
Activity: Lecture
1 Course Unit

**NURS 377 Weight Management: Principles and Practices of Obesity Treatment**
This course focuses on the principles and theories guiding the clinical care and treatment of people with obesity across the lifespan. We will discuss the effectiveness and evidence-base supporting a variety of obesity treatments diet, physical activity, behavioral therapy, pharmacological, surgical, and combined approaches. Emphasis will be placed on the practical aspects of providing obesity education and counseling to assist individuals and families in attaining and maintaining a healthy weight.

Course usually offered in spring term
Prerequisite: NURS065 or NURS112
Activity: Seminar
1 Course Unit

**NURS 380 Nursing in the Community**
This course considers how nursing influences the health and healing capacities of both communities as a whole (populations) and of groups, families, and individuals living within particular communities locally and globally. It addresses the complexity of nursing practice using a public health paradigm. It requires students to draw from prior class and clinical knowledge and skills and apply this practice base to communities across care settings, ages, and cultures with different experiences of equity and access to care. It provides the tools needed to engage in collaborative community work and to give voice to the community's strengths, needs, and goals. It also moves students from an individual and family focus to a population focus for health assessment and intervention. Students consider the science, policies, and resources that support public health, and community-based and community-oriented care. Clinical and simulated experiences in community settings provide sufficient opportunities for clinical reasoning, clinical care and knowledge integration in community settings. Students will have opportunities to care for patients and populations within selected communities.

Course usually offered in fall term
Prerequisite: NURS 225; NURS 235; NURS 245; NURS 255
Activity: Lecture
2 Course Units
Notes: Clinical 16 hours Weekly and 2 hours Simulated Laboratory Weekly
Also Offered Summer Session (12 Weeks)

**NURS 386 Nursing Honors Research Project**
This course is an advanced seminar for research and scholarship to be taken by honors students in nursing. Enrollment is concurrent with implementation of the individual student's honors project. Practical considerations in carrying out such a project, including scholarly approach and scientific integrity as well as scholarly writing and dissemination will be discussed and illustrated, using exemplars and student projects. The various phases of students' projects will be used as launching points for discussions and to complement students' work with their faculty supervisors. Paths and planning for careers in nursing and related disciplines and the idea of scholarship and research trajectories will be developed throughout the course.

Taught by: Kagan, McCauley, K
Course not offered every year
Prerequisites: NURS 260 or NURS 637, NURS 385H
Activity: Seminar
1 Course Unit
Notes: Enrollment in Nursing Undergraduate Honors Program Required

**NURS 389 Research/Inquiry-Based Service Residency**
This course is designed to facilitate students' intellectual curiosity and independence in exploring the research process relevant to an area of interest. Students expand their research knowledge base provided in NURS 230 and NURS 547 through a structured individualized faculty mentored experience based on specific learning objectives. Students identify a faculty advisor and, in collaboration with the advisor, define learning objectives to guide a plan of study. All research or inquiry residencies are under the guidance of a faculty member in the School of Nursing, but students may also interact with affiliated investigators and clinicians who contribute to and enrich the course. The residency offers students opportunities to experience at any level systematic methods for research, or service-based clinical inquiry or quality improvement. This mentored residency can be fulfilled by one of the following options:
* Research-based practicum in basic science, clinical research, nursing history, healthcare policy, ethics, or informatics.
* Inquiry-based Service practicum such as conducting quality improvement procedures or program evaluations in an affiliated healthcare institution.
* Taking one of the University's Academically Based Community Service (ABCS) courses with prior approval by the Steering Committee.
* Individualized study abroad experience with prior approval by the Steering Committee.

Taught by: Curley, Leary, M.
One-term course offered either term
Prerequisite: NURS 547
Activity: Lecture
0.5 Course Units
Notes: 0.5 course units
NURS 390 Leadership in the Complex Healthcare System
This two-part course provides the didactic and clinical experiences in increasingly complex nursing care situations and environments which facilitate the students’ transition to independent practice. In the lecture component, the focus is on the integration of knowledge and skill for nursing practice and develops the ability of students to see nursing practice as part of a complex system. It examines systems thinking and complexity, development of a leadership role and skills, inter-professional communication and teamwork, and leading change in healthcare organizations. This course also examines the nurse’s role in improvement science and patient care delivery, focusing on quality improvement processes, patient safety, nurse sensitive process and outcome metrics with micro-systems. This course also allows students to develop the capacity for clinical expertise, leadership, and for translating the science of the profession into practice. Students also are assigned to a seminar component that is correlated with their selected site for the specialty clinical practicum. This aspect of the course allows the student to develop additional expertise in a specialty area of practice and to develop competences specific to that population of patients. These seminar components are adult health and illness; adult critical care, obstetrics/labor & delivery, psychiatric/mental health, and pediatrics. Advanced simulation experiences and extensive clinical practice in an area of the students’ choice provide multiple opportunities to synthesize the multidimensional aspects of nursing, and provide the environment which facilitates transition to professional nursing practice. Students select from a variety of settings in which to refine their practice skills. Principles of leadership, accountability and change will be applied to clinical practice as the student begins to operationalize the professional nursing role. Emphasis is placed on the nurse as a knowledgeable provider of health care who is both a change agent and advocate.
One-term course offered either term
Prerequisite: NURS 380
Activity: Lecture
3 Course Units
Notes: Clinical 16 hours Weekly and 2 hours Simulated Laboratory Weekly

NURS 400 Advances In Health Systems Research And Analysis
Capstone Course for NURS/WH Joint Degree Students.
Taught by: Sochalski; McHugh, M
Course offered spring; odd-numbered years
Activity: Seminar
1 Course Unit
Notes: by Permission Only

NURS 500 Introduction to Principles and Methods of Epidemiology
This course provides an introduction to epidemiologic methods and overview of the role of epidemiology in studies of disease etiology and in the planning, delivery and evaluation of health services. The population-based approach to the collection and analysis of health data will be emphasized throughout the course. Through textbook reading, problems sets, class discussion and review of the recent literature, students will become acquainted with the basic designs of epidemiologic studies in theory and in practice. Students will develop the basic skills necessary to use epidemiologic knowledge and methods as the basis for scientific public health practice. Please note, the online version of this course has a synchronous component (live online class sessions). The day/time will be listed in the course register.
Taught by: Schmitz
Course usually offered in spring term
Prerequisite: Elementary statistics
Activity: Lecture
1 Course Unit

NURS 503 Contemporary Issues in Human Sexuality and Health
Emphasizes the theories of sexual development and sexual behavior within the continuum of health and disease. Common sexual practices of people are studied in relation to life-style and/or situational life crisis. Contemporary issues in sexuality and health will be examined. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Guidera; Villari
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Junior and Senior undergraduates. Open to all graduate students

NURS 509 The Medically Fragile Child
This course is designed to assist prospective practitioners develop advanced skills in identifying the needs and interventions for medically fragile neonates, children and their families.
Taught by: Deatrick
Course usually offered summer term only
Activity: Lecture
1 Course Unit
Notes: Summer Session II

NURS 511 Loss, Grief and Bereavement
Loss, grief and bereavement are pervasive aspects of the human experience. The content of this course provides a basis both for personal development and professional growth. Through a series of seminars, key issues surrounding loss, death, dying, grief and bereavement will be examined.
Taught by: Sabella
Course usually offered summer term only
Activity: Lecture
1 Course Unit
Notes: Summer Session II

NURS 513 Obesity and Society
This course will examine obesity from scientific, cultural, psychological, and economic perspectives. The complex matrix of factors that contribute to obesity and established treatment options will be explored. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Compher
Course usually offered in fall term
Prerequisite: Undergraduates by permission of instructor
Activity: Lecture
1 Course Unit
NURS 515 Sociocultural Influences on Health
This course is intended for students interested in U.S/Global Healthcare. It includes lectures, discussions, readings, and written assignments focused on various social, cultural, and economic factors that impact the health and illness perceptions and behaviors of various ethnic and minority groups. In particular, it focuses on how culture affects health and disease, and how health and disease affect culture. This course takes a critical approach to knowledge development by scrutinizing values, theories, assumptions, and practices cross culturally. It relies upon a range of interdisciplinary approaches to analyze how disease is diagnosed, treated, and experienced differently in various cultural contexts. At the same time, students will have the opportunity to examine and critique cultural assumptions and theories, the shifting nature of cultures, the situational use of cultural traditions, and the ethnocentrism of contemporary Western health care. Special attention is given to the influence of race, class, gender, religious, and spiritual ideas about health and illness.
Taught by: Wall
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 516 International Nutrition: Political Economy of World Hunger
A detailed consideration of the nature, consequences, and causes of hunger and undernutrition internationally. Approaches are explored to bringing about change, and to formulating and implementing policies and programs at international, national, and local levels, designed to alleviate hunger and undernutrition. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Chrzan
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Graduate Students Only

NURS 517 Advanced Nutrition and Metabolism
Essentials of nutritional biochemistry from the molecular level to the level of the whole human organism. Nutrient functions and inter-relationships are explored with attention to the association between nutrients and disease risk. Topics include energy metabolism and regulation of fat storage, new functions of vitamins and minerals, gene nutrient interactions and current research topics.
Taught by: Compher
Course usually offered in spring term
Prerequisite: NURS 54 or NURS 112 (Students with extensive background in life sciences by permission of faculty)
Activity: Lecture
1 Course Unit

NURS 518 Nursing and the Gendering of Health Care in the United States and Internationally, 1860-2000
This course examines changing ideas about the nature of health and illness; changing forms of health care delivery; changing experiences of women as providers and patients; changing role expectations and realities for nurses; changing midwifery practice; and changing segmentation of the health care labor market by gender, class and race. It takes a gender perspective on all topics considered in the course. A comparative approach is used as national and international literature is considered. This focus is presented as one way of understanding the complex interrelationships among gender, class, and race in health care systems of the United States and countries abroad.
Taught by: Connolly
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 519 Etiology and Treatment of Contemporary Chronic Diseases in America: Focus on Obesity and Cancer
This course will focus on two of the major public health problems in the United States—obesity and cancer. These diseases will be considered from a variety of perspectives: epidemiological, environmental, physiological and behavioral. In addition, the course will focus on the range of interventions being developed to treat as well as prevent both diseases.
Taught by: Glanz; Jacobs, L.; Sarwer
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 521 Current Topics in Nutrition
The objective of the course is to integrate the nutrition knowledge obtained from previous course work in nutrition and provide the student the opportunity to explore, analyze and formulate implications of the research and related literature on a self-selected topic under the guidance of the faculty coordinator. Current topics and controversies in nutrition will be discussed weekly. Readings will be assigned in coordination with each discussion topic and students will be required to seek out other sources of information to add to the class discussion. Topics will change from year to year to reflect the most recent interests and issues.
Taught by: Compher
Course not offered every year
Activity: Seminar
0.5 Course Units

NURS 523 Advanced Nutrition: Molecular Basis of Nutrition
Prerequisite: NURS 065 or 112
Activity: Lecture
1 Course Unit
Notes: Essentials of nutritional biochemistry of macronutrient (protein, carbohydrate, lipid) metabolism from the molecular level to the level of the whole human organism. Linkages between energy and nitrogen balance and states of health and disease are examined. Topics include energy metabolic pathways, nutrient transportation, nutrient catabolism, nutrient anabolism, body composition, and biomarkers.
NURS 524 Advanced Human Nutrition and Micronutrient Metabolism
Prerequisite: NURS 605 or NURS 112 or Special Permission
Activity: Lecture
1 Course Unit
Notes: Essentials of vitamin and mineral digestion, absorption, metabolism, and function in humans during states of health and disease are examined. Linkages between key vitamins and their function in biological systems, such as bone health, energy metabolism, hematopoietic function, and immune function, are explored in depth. Topics include pertinent research methodologies, biomarkers, deficiency and toxicity states, and requirements across the life cycle.

NURS 525 Ethical Aspects of Health and Technology
Interdisciplinary approach to the study of the interface between ethics and law in the provision of health and illness care. This course draws upon the disciplines of philosophy, law, biomedical engineering and nursing in examining such concepts as the use/nonuse of biomedical technology, who and how one decides what shall be done for a given "patient," and the "rights" and responsibilities (accountability) of all persons involved in health/illness care decisions. The interplay of ethical theory, personal value systems, law and technology will be stressed throughout. Lectures, seminars and case studies will be used. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Ulrich
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 526 Child and Adolescent Mental Health
This course is designed to prepare advanced practice registered nurses to address mental health concerns of children, adolescents and their families from a bio-psycho-socio-cultural perspective. Prevention, assessment, and treatment of psychiatric disorders affecting children and adolescents in a variety of settings will be presented in the context of mental health, school and primary health care delivery systems. Students will explore both pharmacologic and nonpharmacologic treatment strategies, as well as methods to identify and implement evidence-based practice in child and adolescent populations. Mental health policy, as well as the unique needs of special populations (e.g., youth in the juvenile justice system) will also be discussed.
Taught by: Brawner
Course usually offered in fall term
Prerequisite: Matriculation in a MSN Program or permission of instructors
Activity: Lecture
1 Course Unit
Notes: Priority will be given to Psychiatric Mental Health NP students

NURS 531 Forensic Mental Health
Forensic mental health is the interface between the law and mental health. This course examines the components of human behavior that bring people into a judicial setting. Content will cover: criminal personalities, forensic interview, and the role of forensic psychiatry.
Domestic violence offenders, sex offenders, stalkers, gang members, and offenders who commit homicide will be discussed. Definitions and dynamics of criminal motherhood and the psychodynamics of violent juvenile offenders will be presented. Use of the internet by offenders will also be discussed. This course also offers a field experience in which student's interview incarcerated individuals. As of Spring 2016, students in the College of Arts and Sciences are not permitted to enroll in this course.
Taught by: Brown, K.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 532 Cognitive Behavior Strategies in Health Care
Cognitive therapy will be studied as it has been adapted to treat a broad spectrum of clinical disorders including depression, anxiety, phobias, substance, obesity, marital problems, sexual dysfunction, and psychosomatic disorders. Students will have an opportunity to study and observe the crucial link between thoughts and emotions and the sense of competency patients can develop through self-help techniques. The course utilizes didactic, experiential and observational techniques.
Taught by: Kuehlwein
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 533 Victimology
This course examines the wide range of victimization experiences from the perspective of the victim, their families and society. Crimes to be studied include workplace violence, corporate crime, robbery, burglary, assault, rape, stalking, domestic violence, homicide, suicide, elderly abuse and child sexual abuse and exploitation. The role of the medical examiner, health care providers and the FBI as they relate to victims of crime will be discussed. Emphasis will be given to exploring the elements of each crime and response patterns to victimizations. Services available to victims of crime will be discussed. As of Spring 2016, students in the College of Arts and Sciences are not permitted to enroll in this course.
Taught by: Cronin, G.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Offered Fall, Spring Summer I

NURS 534 Forensic Science I
This course discusses the interface of law and science. Forensic science is the application of scientific principles in the legal arena. This course examines the contribution of forensic science to criminal and civil investigation. Crime scene analysis is accomplished via disciplines within forensic science. The role of the medical examiner, the structure and function of crime laboratories, death investigation and the role of health care personnel in forensic cases is discussed. As of Spring 2016, students in the College of Arts and Sciences are not permitted to enroll in this course.
Taught by: Cronin, G.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
NURS 535 Comparing Health Care Systems in an Intercultural Context: Study Abroad
This course offers students an opportunity to: 1) expand their knowledge base in health care systems; 2) develop intercultural competency skills and 3) shape a conceptual framework for improving the quality of health care for the individual, the family, the community and society at large. Emphasizes the relational, contextual nature of health care and the inseparability of the notions of the health of individuals and the health of family, society, and culture. Includes field experience.
Taught by: Kagan; Stringer; Muecke
Course usually offered in spring term
Prerequisite: Permission of instructor
Activity: Lecture
1 Course Unit
Notes: Seminar held in Spring, study abroad field experience held intra-session

NURS 540 Current Issues In Health and Social Policy
Analysis of key contemporary issues in health and social policy that will provide students with a deeper understanding of the design and structure of the U.S. health care system, the policy initiatives that have shaped it, and the roles of the government, the private sector, and consumers and advocacy groups in setting the policy agenda. Seminars will examine the origins of each issue, the policies enacted and their effects, both intended and unintended, and will propose and debate the merits of alternative policy solutions. The role of health services and policy research in informing the policy debate and directions will be highlighted. Please note, the online version of this course has a synchronous component (live online class sessions). The day/time will be listed in the course register.
This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Sochalski; McHugh, M
Course usually offered summer term only
Activity: Lecture
1 Course Unit

NURS 543 Global Engagement Seminar Environmental Health Issues
Cross Listed with NURS 343
Prerequisites: General college-level chemistry and biology knowledge (e.g. CHEM/ BIOL 101, 102) to understand the science underlying environmental health topics or special permission
Activity: Seminar
1 Course Unit
Notes: This course will be a broad overview on current environmental health issues that contribute to significant global morbidity and mortality due to increased urbanization and growth in the economy. The course will cover basic principles of environmental epidemiology, toxicology, health effects of environmental exposures, risk assessment, as well as environmental policy and ethics. The class will have two portions. The first part of the class will be taught lectures, case studies, discussions on campus and a local field trip in the Philadelphia area. The second part of the course will involve a field trip to China during the early summer to help students gain a global perspective on environmental health concerns.

NURS 544 Etiology and Treatment of Contemporary Chronic Diseases in America: Focus on Obesity and Cancer
This course will focus on two of the major public health problems in the United States - obesity and cancer. These diseases will be considered from a variety of perspectives: epidemiological, environmental, physiological and behavioral. In addition, the course will focus on the range of interventions being developed to treat as well as prevent both diseases.
Taught by: Glanz; Sarwer; Jacobs, L.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 545 Maternal and Infant Care in the Americas
This clinical elective will provide an intensive historical, sociopolitical, and cultural perspective of health and health care delivery in the Americas with a special emphasis on Latin America and the Caribbean. Classroom, direct clinical care and field experiences are designed to provide students with a broad view of the history and culture system of the country of focus. The delivery of health care to women and children will be explored from a sociopolitical, cultural and historical context. Service learning experiences are an integral component of this course. The course includes 5 seminars on campus and 10-14 days on site in the country of focus. The country of focus may vary each semester.
Taught by: Guidera; Durain
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Registration By Permission of Instructor

NURS 547 Scientific Inquiry for Evidence-based Practice
This course is designed to advance students' understanding of the research process, methods of scientific inquiry, and analytical techniques. Students acquire knowledge of systematic approaches used by scientists to design and conduct studies. Course content prepares students to appraise quantitative and qualitative research, and evaluate the scientific merit and clinical significance of research for translation into practice. Evidence-based guidelines are examined and rated for strength of evidence and expert consensus using evidence grading systems and defined criteria. Students engage in variety of creative learning experiences to facilitate appreciative inquiry, clinical reasoning, and evidence-based practice. Quality improvement, comparative effectiveness analyses, information science, and electronic health systems technology demonstrate the capacity for measurement and surveillance of nursing-sensitive and other outcomes used to evaluate quality nursing care and test interventions. Ethical, legal and health policy implications for research are explored. This course serves as the basis for scientific inquiry about human experiences to address important problems that require solutions and to expand the research and the evidence base for professional nursing practice.
Taught by: Spatz; Kutney-Lee; Polomano
One-term course offered either term
Prerequisite: NURS 230
Activity: Lecture
1 Course Unit
NURS 548 Negotiations in Healthcare
This course examines the process that leads to change in health care settings and situations. Students will develop skills that lead to effective negotiations in interpersonal and organizational settings. Included in the discussion are: concepts of organizational structure and power, negotiating in difficult situations, and the role of the health care professional in negotiation and change. The course also examines techniques leading to successful implementation of negotiated change in the practice setting. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Aiken
Course usually offered in fall term
Prerequisite: Undergraduates must have permission of instructor
Activity: Lecture
1 Course Unit

NURS 550 Home Health Care Concepts: Mgmt. & Delivery of Community-Based Care
This course examines the major aspects of home-based care across patients' life spans from acute to long term care. New trends, advances, and issues in home management of complex conditions, innovative delivery systems and legal, ethical and policy consideration will be explored.
Taught by: Doyle
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 551 Applied Health Informatics
Catalogue Description: This course is designed to address issues related to the impact of information technology on health care practitioners and consumers of all ages. Students will learn about and gain experience with practical applications of information technology (Access, handheld devices, telehealth, Internet resources) that improve the quality of health care communication and delivery and facilitate health care research. Class projects include working with clinical databases and evidence-based information sources.
Taught by: Bowles
Course offered fall; even-numbered years
Prerequisites: Experience in using the Internet to retrieve information. Basic knowledge of Microsoft Access is expected.
Activity: Lecture
1 Course Unit

NURS 552 Health Care and Social Policy
This course is an area study or survey of social policy issues in contemporary health care. Topics include social contexts of health care and health policy; the organization and financing of health services; the health professions; health and illness over the life cycle; achieving equitable access to health services; the interface between health and social services. Health problems of national significance will be addressed including infant mortality, teenage pregnancy, AIDS, the chronically mentally ill and homeless, health impaired elderly.
Taught by: Aiken
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

NURS 553 Innovation & Applied Technology in Health Care II
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

NURS 555 Women and Incarceration
This elective course will afford students the opportunity to develop and implement health education workshops for incarcerated women in the Philadelphia jail system. Students will explore the social and historical framework and trends in the incarceration of women, as well as the needs of this population, and will identify specific areas that need to be addressed by particular disciplines or professions. Students will have direct contact with the jail system, its staff, and female inmates.
Taught by: Brown, K.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 556 Men and Incarceration
Students in this course will develop and implement health and wellbeing education programming for incarcerated men in the Philadelphia Department of Prisons. Evidence suggests improved self-regulation may enhance other therapeutic methodologies consequently reducing the frequency of reoffending. Students will explore the social and legal trends driving the incarceration of urban men and the resulting health and wellbeing needs of this population. Students will have direct contact with the jail system, its staff, and male inmates.
Taught by: Cronin
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Enrollment by Permission of Instructor

NURS 557 Principles of Palliative Care
This course examines national and global perspectives and clinical issues in the delivery of palliative care with diverse populations in multiple health care settings. Students focus on the care of persons with life-threatening, progressive illness, emphasizing respect for patients' and families' beliefs, values, and choices. Students also explore psychosocial and spiritual dimensions of palliative care. Historical, sociocultural, economic, legal, and ethical trends in palliative care are discussed. Factors affecting health care systems and societal attitudes are considered in evaluating the delivery of care during advanced illness and at the end of life. Students engage in the critical analysis of literature, research, and observational experiences concerning biopsychosocial needs of patients and families. Students acquire competencies in patient/family assessment, communication, decision-making, and interdisciplinary collaboration in palliative care. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Ersek
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Enrollment by Permission of Instructor

NURS 565 Health Comm Digital Age: Health Communication in the Digital Age
Activity: Lecture
1 Course Unit
NURS 567 An Evidence-based Approach to Managing Symptoms in Advanced Illness
This course uses an evidence-based approach towards systematic assessment and management of common symptoms and symptom clusters accompanying progressive, life-limiting illnesses within a framework of nationally recognized standards and guidelines for palliative and end-of-life care. Students are prepared to apply principles of palliative management to diverse patient populations across clinical settings including acute, primary, long-term, and community care. Refer to course syllabus or email course faculty for respective requirements.
Taught by: Leary
Prerequisites: Completed freshman & sophomore level courses or graduate student status.
Activity: Lecture
1 Course Unit

NURS 570 Introduction to Public Health
This course will provide a foundational overview of the field of public health and grounding in the public health paradigm. Content will include the history of public health, an introduction to the basic public health sciences including behavioral and social sciences, biostatistics, epidemiology, environmental public health, policy and management and prevention of chronic and infectious diseases and injuries, future directions for public health and an introduction to issues in international health, ethics, context analysis (specifically the notion of urban health), health promotion and disease prevention paradigms.
Taught by: Buttenheim; Nguyen
Course usually offered in fall term
Prerequisite: Undegraduates Need Permission
Activity: Lecture
1 Course Unit

NURS 573 Innovation in Health: Foundations of Design Thinking
Innovation, defined as a hypothesis-driven, testable, and disciplined strategy, is important to improve health & healthcare. Employing new ways of thinking, such as with design thinking, will help open up possibilities of ways to improve health & the process of healthcare. Incorporating current & emerging social & digital technologies such as mobile apps, wearables, remote sensing, and 3D printing, affords new opportunities for innovation. This course provides foundational content & a disciplined approach to innovation as it applies to health & healthcare. A flipped classroom approach with the in-class component focusing on group learning through design thinking activities. The course is open to undergraduate nursing students as a case study & upper-level undergraduates and graduate students from across the Penn campus.
The course provides a theoretical foundation in design thinking & may provide an overview of innovation technology & digital strategies as well as social & process change strategies. To enhance the didactic component, students will actively participate in a design case study. Students will be matched by interest and skill level with teams & will work with community-based organizations, healthcare providers and/or innovation partners. Student teams will meet their partners to identify & refine a health or healthcare problem to tackle. Students will work throughout the semester to create an innovative solution that will be pitched to their community-based organization, healthcare provider, and/or innovation partner at the end of the semester.
Taught by: Leary
Prerequisites: Completed freshman & sophomore level courses or graduate student status.
Activity: Lecture
1 Course Unit

NURS 575 Health, Sustain & Design: Health, Sustainability & Built Environment Design
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: This foundational course is for students in nursing, public health, medicine, environmental policy, planning and design to be prepared for increasingly prevalent intersectoral professional work. Students will learn about design and planning theory that intersects with diseases, sustainability and climate action’s action’s impact on health. Through case studies seminars and tours, students will be prepared to articulate the essential role of design and development processes to increase health professionals’ effectiveness. Rather than just combating diseases, health promotion through placemaking can be essential for healthy communities.

NURS 577 Advanced Practice Issues for Palliative Care Nurses
This course provides an in-depth examination of 1) key practice, policy, and ethical issues affecting the delivery of palliative care and 2) the responsibilities of advanced practice nurses (APRN) providing care to patients with progressive, life-limiting illness and their families. Learning experiences will focus on conducting patient/family conferences; examining selected ethical issues in palliative care; analyzing organizational, economic and health policy issues that affect the delivery of hospice and palliative care; exploring current and emerging models of palliative care delivery; and creating approaches to enhancing continuity of palliative care across settings. Students will choose assignments to meet their professional goals.
Taught by: Ersek; Meghani; Polomano
Course usually offered summer term only
Prerequisite: NURS 557
Activity: Lecture
1 Course Unit

NURS 579 Pharmacology of Anesthesia and Accessory Drugs I
This course explores the various routes of anesthetic administration addressing the potential benefits and risk of each. Special emphasis is placed on specific anesthetic agents and their appropriate use. The responses and common complications associated with these agents are discussed.
Taught by: Magro; Lynn
Course usually offered in fall term
Prerequisite: NURS 617
Activity: Lecture
1 Course Unit

NURS 580 Pharmacology of Anesthesia and Accessory Drugs II
NURS 587 Advanced Leadership Skills in Community Health
Grounded in a social justice perspective, this course aims to provide the student with a foundational overview of the field of community health and leadership skills in public health advocacy. The course encourages critical thinking about health outcomes framed by the broad context of the political and social environment. This course analyzes the range of roles and functions carried out by leaders in healthcare advocacy for marginalized communities; integrates knowledge of health policy and the key influence of government and financing on health outcomes; explores community-based participatory research and interventions as tools for change; and discuss ways to develop respectful partnerships with community organizations. An assets-based approach that draws upon the strengths of communities and their leaders provides a foundation for community-engagement skill building. The course emphasizes the development of skills and techniques to lead effective, collaborative, health-focused interventions for disenfranchised groups, including residents of urban neighborhoods.
Taught by: Margo; Klusaritz; Lipman
Course usually offered in spring term
Prerequisite: Enrollment in a Masters or Doctoral program
Activity: Lecture
1 Course Unit
Notes: Undergraduates with permission of the instructor

NURS 588 The Politics of Women's Health Care
This course will utilize a multidisciplinary approach to address the field of women's health care. The constructs of women's health care will be examined from a clinical, as well as sociological, anthropological and political point of view. Topics will reflect the historical movement of women's health care from an an obstetrical/gynecological view to one that encompasses the entire life span and life needs of women. The emphasis of the course will be to undertake a critical exploration of the diversity diversity of women's health care needs and the past and current approaches to this care. Issues will be addressed from both a national and global perspective, with a particular focus on the relationship between women's equality/inequality status and state of health. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: McCool; Durain; Lewis, L.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 589 Principles and Practice of Transformative Nursing Education
This course is designed to provide expert nurses with a theoretical foundation to promote excellence in teaching in both faculty and professional development roles. Principles of adult learning theory, learning styles and preferences are explored with a focus on impact for educational design. Students will review various learning domains and approaches for curriculum development including writing measureable learning objectives. Content also includes an examination of numerous didactic teaching strategies, general tactics for the use of simulation, approaches for inter-professional collaboration, and methods for evaluating learner competence.
Taught by: Keim; Wildenberg
Course usually offered in fall term
Prerequisites: Baccalaureate in Nursing plus a Master's Degree in Nursing or in a Health Related Area. Current Master or Doctoral Students with permission of the Program Director and the Course Director.
Activity: Lecture
1 Course Unit

NURS 590 Advanced Physiology and Pathophysiology
This course will integrate advanced physiology with pathophysiology and clinical implications across the lifespan for advanced nursing practice. Organ systems function and dysfunction from the level of the cell through integrated organ levels will be presented, and the genetic basis of disease will be discussed. Recent scientific advances will be discussed with application to new approaches to disease and symptom management. The interrelationships between basic physiology, clinical pathophysiology, and genetics are emphasized through lecture and case studies.
Taught by: Libonati
Course usually offered in fall term
Prerequisites: Completion of undergraduate courses that include Biochemistry, Nutrition, Anatomy and Physiology or permission of the instructor.
Activity: Lecture
1 Course Unit

NURS 601 Teaching Nursing in an Academic Environment
This course provides students with the fundamental knowledge and skills in preparation for teaching in a faculty role in an academic environment. Specific focus will be placed on program design, development of teaching skills in the didactic, simulation, clinical, and online learning environments, management of didactic and clinical course offerings including effective use of learning management systems, and methods for evaluation of student performance including various test constructions and paper grading rubrics. This course also reviews approaches and resources for working with students who have learning challenges or performance issues.
Taught by: Keim; Wildenberg
Course usually offered in spring term
Prerequisite: NURS 600
Activity: Lecture
1 Course Unit

NURS 604 Chronic Illness in the Community: Lifespan Approach
This course focuses on theory and research from the behavioral and nursing sciences on the psychological and social consequences of ongoing illness. In addition, the health policy issues engendered by these problems will be addressed.
Taught by: Shaughnessy, Buzzby, Murphy
Course usually offered in spring term
Prerequisite: Primary Care Majors or instructor permission
Activity: Lecture
1 Course Unit

NURS 605 Biochemical and Physiological Aspects of Metabolism and Human Disease
Selected aspects of genetics, biochemistry, physiology and pharmacology are presented and applied to nursing care. Embryonic, histologic, and gross anatomical features of certain organ systems are functionally related to biochemical and physiological mechanisms essential for the maintenance of a stable internal environment. Special emphasis is placed upon integrating functions of the nervous and endocrine systems. Certain deviations from normal metabolism, structure and function are detailed.
Taught by: Lafferty; Malseed, Z.; Tkacs
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Summer I

NURS 607 Advanced Physiology and Pathophysiology
This course will integrate advanced physiology with pathophysiology and clinical implications across the lifespan for advanced nursing practice. Organ systems function and dysfunction from the level of the cell through integrated organ levels will be presented, and the genetic basis of disease will be discussed. Recent scientific advances will be discussed with application to new approaches to disease and symptom management. The interrelationships between basic physiology, clinical pathophysiology, and genetics are emphasized through lecture and case studies.
Taught by: Libonati
Course usually offered in fall term
Prerequisites: Completion of undergraduate courses that include Biochemistry, Nutrition, Anatomy and Physiology or permission of the instructor.
Activity: Lecture
1 Course Unit
NURS 608 Advanced Pharmacology and Therapeutics for Nursing Practice
Advanced principles of clinical pharmacology and therapeutics are applied to the nursing care of individuals across the life-stage spectrum. It focuses on the content and knowledge employed by the advanced practice registered nurse in the management of various conditions and disease states. The course builds on the pharmacology knowledge base acquired in the baccalaureate nursing program. The advanced pharmacology and therapeutics of several common diseases or conditions found in the acute care and primary care setting is presented. This is supplemented with pharmacotherapy modules to meet program specific needs.
Taught by: Boulatta; Carey; Manning
One-term course offered either term
Prerequisite: NURS 607 or NURS 685
Activity: Lecture
1 Course Unit

NURS 609 Advanced Pathophysiology
Integrates basic physiology and clinical pathophysiology for graduate nursing students. Whenever possible basic physiologic concepts will be used to illustrate specific pathophysiological problems. The interrelationships between clinical pathophysiology and basic physiology are emphasized.
Taught by: Tkacs; Staff
Course usually offered in spring term
Prerequisites: NURS 605, or 684, or 695
Activity: Lecture
1 Course Unit

Notes: Summer Session II

NURS 610 Concepts in Healthcare Economics
This course examines health care from an economic perspective tailored for the nurse manager and executive. Emphasis is on the allocation of health care resource policies in the United States with examination of different health care programs. Within the health care industry, focus is on public and private health care funding in addition to the role of managed care systems with relation to financing and delivery of health services. This course satisfies the Society & Social Structures Sector for Nursing Class of 2012 and Beyond.
Taught by: Piper, A
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

NURS 611 Advanced Principles of Nurse Anesthesia Practice: Problem-Based Learning
Course usually offered in fall term
Prerequisite: NURS 609; NURS 858
Activity: Lecture
1 Course Unit

NURS 612 Principles and Practice of Healthcare Quality Improvement
Healthcare delivery is complex and constantly changing. A primary mission of leading healthcare organizations is to advance the quality of patient care by striving to deliver care that is safe, effective, efficient, timely, cost-effective, and patient-centered (Institute of Medicine).
The goal of this interprofessional course is to provide students with a broad overview of the principles and tools of quality improvement and patient safety in healthcare as well address the knowledge, skills and attitudes as defined by the Quality and Safety Education for Nurses (QSEN) guidelines. It will provide a foundation for students or practicing clinicians who are interested in quality improvement and patient safety research, administration, or clinical applications. Content will address the history of the quality improvement process in healthcare, quality databases and improvement process tools and programs. Through the use of case studies and exercises students will be become familiar with the use of several quality improvement programs and tools. For example, the Plan-Do-Study-Act (PDSA) cycle, Six Sigma and the Toyota Production System known as Lean Production processes will be addressed. Students can use this course to identify the tools and design the methods that they plan to employ in a quality improvement or patient safety project in their area of interest.
Taught by: Myers, J.; Burke, K.
Course usually offered in fall term
Also Offered As: HPR 504
Activity: Lecture
1 Course Unit

NURS 613 Behavioral Economics and Health
An introduction to the application of behavioral economics to health & health care. Behavioral economics, a field at the intersection of psychology & economics, help us understand how bounded rationality, common cognitive biases, and inconsistent time preferences lead us to act against our best interest (& sometimes against the interests of the patients, family members, or communities that we care for). The course provides a pragmatic, hands-on orientation to using behavioral economics in the diagnosis of behavioral bottlenecks & the design & testing of behaviorally-informed interventions.
Taught by: Buttenheim
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 621 Principles of Nurse Anesthesia Practice V
This course provides a systems approach to examining specialty surgical procedures and the anesthesia requirements for each. Analysis of the pre-anesthesia assessment, the intraoperative monitoring and the post-anesthesia care required for patients undergoing the surgical procedure will be presented. Population specific considerations will be emphasized.
Taught by: Magro; Lynn
Course usually offered in spring term
Prerequisite: NURS 620
Activity: Lecture
1 Course Unit

NURS 625 Clinical Modalities Across the Life Cycle in Advanced Practice Psychiatric Mental Health Nursing
Crisis intervention, brief psycho-therapy, group processes and practices, milieu therapy, and intervention with families are examined as they relate to nursing practice in mental health.
Taught by: Coleman, C.
Course usually offered summer term only
Activity: Lecture
1 Course Unit
NURS 626 Family and Organizational Systems Across the Life Span
This course presents Bowen Family Systems Theory as it applies to families over the life and organizations over time. This is a theoretical course whose purpose is to provide the student with a broad, systemic perspective on human functioning. The course begins with a detailed presentation of Systems Theory, from both a family and organizational perspective. As presented there is a continual compare and contrast to other dominant theories of human functioning. It then applies the concepts of Systems Theory to the understanding and assessment of the stages of the normal family life cycle from a multi-generational, multi-cultural perspective. This is followed by discussions of the theory’s application to the emotional problems of children, adolescents, adults and their families. Likewise, application to organizational behavior is made, including health care organizations. Relevant research is discussed throughout.
Taught by: Polomano; Hatfield; Matura
Course usually offered in spring term only
Activity: Lecture
1 Course Unit
Notes: Also offered in 6 week Summer Session I

NURS 628 Mental Health and Aging
An examination of the psycho-socio-cultural processes which influence the behavior patterns, coping, and adaptation of older adults. The course emphasizes strategies to promote mental health as well as assessment, presentation, and intervention in the major acute and chronic psychiatric disorders affecting the older adult.
Taught by: Cacchione; Evans
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 629 Basic Principles of Nurse Anesthesia Practice
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 637 Introduction to Research Methods and Design
The relationships among nursing theory, research and practice will be examined. An emphasis will be placed on research competencies for advanced practice nurses (APNs), including understanding nursing research methods and strategies in order to evaluate research results for applicability to practice and to design projects for evaluating outcomes of practice. An understanding of statistical techniques will be integrated into the course and build on the required undergraduate statistics course. Published nursing research studies will be evaluated for scientific merit and clinical feasibility, with a focus on evidence-based practice. Please note, the online version of this course has a synchronous component (live online class sessions). The day/time will be listed in the course register.
Taught by: Polomano; Hatfield; Matura
One-term course offered either term
Prerequisites: Undergraduate Statistics Class. Must hold an RN license.
Activity: Lecture
1 Course Unit
Notes: Also offered in 6 week Summer Session I

NURS 640 Global Health and Health Policy
This participatory interdisciplinary seminar course examines contemporary issues in public health policy and global health. The organizing framework is social determinants of health. We consider evidence that inequalities in education, income, and occupation influence health status, and the policy dilemma that broad interventions to improve population health may increase health disparities. We critically examine whether prevention is always better than cure, and what modern medicine has to offer in terms of health. We explore the public policy process in health using the “tobacco wars” as a case example, of how politics, policy, law, commercial interests, and research intersect to affect the public’s health. We examine whether global health is in a state of decline, and the extent to which failures in public health, public policy, and foreign policy have contributed to increasing threats to world health. Likewise we will examine the potential for greater integration of health into foreign policy to create global infrastructure upon which to advance health. We will examine the global health workforce and the impact of widespread global migration of health professionals on receiving and sending countries. There are no prerequisites. The course is designed for graduate students in the social and behavioral sciences, health professions, public health, business and law. Advanced undergraduate students will be admitted with permission.
Taught by: Aiken; Voet; McLaughlin
Course not offered every year
Activity: Lecture
1 Course Unit

NURS 641 Autism Spectrum Disorder: Prevalence, Etiology, Screening and Assessment
Through classroom and clinical experiences, this course provides an overview of the public health problem of autism spectrum disorder (ASD). Content addresses the natural history, etiology, rising prevalence, risk factors, and core features. Changes in prevalence statistics and possible causes are outlined. These subjects are described in general terms for an overall picture of the disorder. Taking a developmental approach, students begin case management and follow a family through screening, diagnosis and treatment planning. Key information is elaborated through case studies. The course highlights the important and evolving role of nurses in the care of people with ASD. Content is supported by the scientific literature. Students’ clinical experiences start the identification and collaborative work with a family that has a young child with ASD. The student follows that family and the child through diagnosis, treatments and long term planning. This case approach allows the student to work with the same family over the entire post-masters program to learn the value of interdisciplinary, contiguous care.
Taught by: Pinto-Martin; Souders
Course usually offered in fall term
Prerequisites: Post-BSN students only.
Activity: Lecture
1 Course Unit
Notes: Junior and senior undergraduate students may be admitted with course faculty permission.
NURS 642 Health and Behavioral Care Planning and Intervention for Autism Spectrum Disorder
Through classroom and clinical experiences, this course focuses on the application of various treatment approaches to the management of acute and chronic problems of autism spectrum disorder. Approaches to behavioral, psychological and medical co-morbidities are explored, practiced and evaluated. Students’ clinical experiences build on the previous semester and continue with the application of class instruction to patient and family care. The student works closely with behaviorists, psychologists and occupational therapists to integrate nursing care planning with other services. This case approach continues, and exposure to a second family is added to expand learning opportunities and develop nursing services.
Taught by: Pinto-Martin; Souders
Course usually offered in spring term
Prerequisite: NURS 641
Activity: Lecture
1 Course Unit

NURS 643 Leadership, Advocacy, and the Practice of Integrated Nursing Care of ASD
Emphasis is on the synthesis of course content practice. Through classroom and clinical experiences, students critically examine the role of nursing in the life-long care of people with ASD, and identify ways to expand the scope of nursing care for this vulnerable population. Students explore the availability of services in the community and discuss approaches to patient advocacy. Students have opportunities to select an area of specialization to develop specific practice expertise. Such areas are Diagnosis and Referral Practices (e.g. ADOS Training), Behavioral Therapy Training (e.g. Applied Behavioral Analysis), and clinical research. Practical issues of collaboration and reimbursement for services are explored. Students’ clinical experiences are designed to facilitate scholarship, independence and advanced specialization in a chosen component of ASD care, for example, behavioral analysis, screening and/or diagnosis, or an agenda for research. Students identify and implement an independent project.
Taught by: Pinto-Martin; Souders
Course usually offered summer term only
Prerequisite: NURS 641
Activity: Lecture
1 Course Unit
Notes: Spring and/or Summer Offering

NURS 644 Health Care in an Aging Society
Individual and societal influences on the care of older adults are examined in detail within the context of an emerging health care system. Normal changes in physical and psychological health are explored in depth. Significant issues affecting care of older adults and their families at the global and national level are discussed.
Taught by: Bradway;
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 646 Primary Care: Diagnosis and Management of Adults Across the Lifespan
This course focuses on development of critical thinking skills to address health care problems of adults across the lifespan, with an emphasis on middle-aged and older adults, develop differential problem solving skills and determine appropriate management interventions. The management of common acute and chronic health conditions will include evidence based primary preventions, drug and treatment therapeutics, and referral to other health care providers. Students have the opportunity to build on previously acquired skills and to apply concepts of primary care to manage the health problems of adults across the lifespan.
Taught by: Bradway; Cotter
Course usually offered in fall term
Prerequisite: NURS 657
Activity: Lecture
1 Course Unit

NURS 647 Primary Care Clinical Practicum: Diagnosis and Management of Adults across the Lifespan
Management and evaluation of primary care problems of middle-aged and older adults in a variety of ambulatory and occupational settings. Opportunity to implement the role of the nurse practitioner with middle-aged and older adults and their families in the community. Interdisciplinary experiences will be pursued & collaborative practice emphasized. Students are expected to assess and begin to manage common chronic health problems in consultation with the appropriate provider of care. The initiation of health promotion & health maintenance activities with individuals and groups is stressed. Includes 16 hours a week of clinical experience with a preceptor.
Taught by: Cross; O’Sullivan
Course usually offered in fall term
Prerequisite: NURS 657
Corequisite: NURS 646
Activity: Clinic
1 Course Unit

NURS 648 Primary Care: Complex Diagnosis and Management of Adults across the Lifespan
This course will build on concepts presented in the Diagnosis and Management of Adults across the Lifespan (NURS 646) course. The focus is on refining health assessment skills, interpreting findings, developing and implementing appropriate plans of care to meet common health maintenance needs of adults and to promote the health of adults with more complex health problems with an emphasis on the frail adult. The student will gain increased expertise in communication skills, health assessment skills, interpreting findings, epidemiological concepts and developing and implementing plans of care. The emphasis will be placed upon managing an aging population with complex, chronic healthcare needs and promoting healthy behaviors across the lifespan.
Taught by: Cotter
Course usually offered in spring term
Prerequisites: NURS 646, 647
Activity: Lecture
1 Course Unit
NURS 649 Primary Care Clinical Practicum: Complex Diagnosis and Management of Adults across the Lifespan
The focus of this course is the application of concepts presented in the Complex Diagnosis and Management of Adults Across the Lifespan (NURS 648) including initial workups of new patients, and the evaluation and management of patients with self-limiting acute problems, or stable chronic illnesses. Students will gain increased clinical expertise in a variety of community-based clinical settings including but not limited to health maintenance organizations, community clinics, long term care, assisted living, continuing care retirement communities, occupational health settings, and private practice. The student will gain increased expertise in communication skills, health assessment skills, interpreting findings, applying epidemiological concepts and developing and implementing plans of care for adults across the lifespan with health maintenance needs, and/or common acute and chronic health problems.
Taught by: Cotter; Taylor
Course usually offered in spring term
Prerequisites: NURS 646, 647
Corequisite: NURS 648
Activity: Clinic
1 Course Unit

NURS 650 Systems Thinking in Patient Safety
This blended online/in-classroom graduate level course integrates principles of systems thinking with foundational concepts in patient safety. Utilizing complexity theories, students assess healthcare practices and identify factors that contribute to medical errors and impact patient safety. Using a clinical microsystem framework, learners assess a potential patient safety issue and create preventive systems. Lessons learned from the science of safety are utilized in developing strategies to enhance safe system redesign. Core competencies for all healthcare professionals are emphasized, content is applicable for all healthcare providers including, but not limited to, nurses, pharmacists, physicians, social workers and healthcare administrators, and may be taken as an elective by non-majors.
Course usually offered in spring term
Also Offered As: HPR 650
Activity: Lecture
1 Course Unit

NURS 652 Applied Healthcare Accounting and Business Planning
This course focuses on the management of financial resources in the healthcare industry particularly in inpatient and ambulatory care settings. Specific emphasis is on applied accounting, budgeting, capital planning, nursing staffing/scheduling and variance analysis. Additionally, students will apply concepts in developing a business/program plan including completion of an environmental scan, cost-benefit analysis and marketing plan. Students will engage in strategic planning, stakeholder analysis and benchmarking efforts.
Taught by: Keim; Fuir
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 655 Nursing Administration Practicum
This administrative practicum will be individually tailored to meet each student’s career goals. Students will be placed with an expert role model who in most instances will be a practicing nurse executive. The setting may vary according to the student’s interests and objectives. Examples include acute care, home care, long term care, occupational health, community based clinics, consulting groups and political/legislative experiences.
Taught by: Keim, DiMichele
One-term course offered either term
Prerequisite: NURS 699
Activity: Clinic
1 Course Unit

NURS 656 Professional Role Issues for Nurse Practitioners
This course is intended for students planning a career that involves primary health care delivery. It includes lectures, discussions, readings, and projects focused on health, social, economic and professional factors influencing health care delivery in the community.
Taught by: O’Sullivan; Bryan
Course usually offered in fall term
Corequisite: NURS 657
Activity: Lecture
1 Course Unit

NURS 657 Advanced Physical Assessment and Clinical Decision Making
This is a laboratory/clinical course designed to help prospective nurse practitioners develop advanced clinical assessment skills. Provider-patient interaction, data collection, and hypothesis formulation are emphasized. All participants engage in actual practice with fellow students, and/or models, and consenting patients.
Taught by: Buzby; Reger; Sherry
Course usually offered in fall term
Activity: Laboratory
1 Course Unit
NURS 658 Clinical Management of Primary Care with Young Families
Assessment and treatment of the young child in ambulatory care settings is the focus of this developmentally organized course. This course provides the nurse practitioner student with the necessary knowledge and experience to assist individuals with most common health problems, including acute episodic illness as well as stable chronic disease. The concepts of health promotion and health maintenance are integrated throughout the curriculum. Using a developmental framework, the maturational tasks and problems of children and their families in relation to illness and health are explored.
Taught by: O'Sullivan
One-term course offered either term
Prerequisites: NURS 656, 657
Corequisite: NURS 659
Activity: Lecture
1 Course Unit

NURS 659 Clinical Practicum: Primary Care with Young Families
Management and evaluation of primary care problems of children in a variety of ambulatory settings. Opportunity to implement the role of nurse practitioner with children and their families in the community occurs under the guidance of faculty and experienced preceptors. The initiation of health promotion and health maintenance activities with individuals and groups is stressed. Collaborative, interdisciplinary practice is emphasized as students assess and manage common problems in consultation with an appropriate provider of care. 20 hours a week of clinical experience with a preceptor is arranged.
Taught by: O'Sullivan
One-term course offered either term
Prerequisites: NURS 656, 657
Corequisite: NURS 659
Activity: Clinic
1 Course Unit

NURS 660 Clinical Practice with Select Populations: Adolescents
Focus on assessment and treatment of adolescents in a variety of settings. Didactic emphasis is on the special needs encountered among adolescents. This course adds to the student's previous knowledge and skill in the delivery of primary care. Working with this specific population the student gains necessary knowledge and experience in assisting individuals with most common health problems, including acute episodic illness and stable chronic disease, as well as health promotion needs.
Taught by: O'Sullivan
Course usually offered summer term only
Prerequisites: NURS 656, 657, 658, 659
Activity: Clinic
1 Course Unit
Notes: Summer Session I

NURS 661 Clinical Management of Primary Care with Adults
Assessment and treatment of younger adults in ambulatory care settings is the focus of this clinical course. The course provides the nurse practitioner student with the necessary knowledge and experience to assist individuals with most common health problems, including acute episodic illness. The concepts of health promotion and health maintenance are integrated throughout the curriculum. Using a developmental framework, maturational tasks and problems of the adult and family in relation to illness and health are explored.
Taught by: O'Sullivan
Course usually offered summer term only
Prerequisites: NURS 646, 647 or NURS 658, 659
Activity: Clinic
0 Course Units
Notes: Summer Session I

NURS 663 Advanced Concepts in Primary Care
In conjunction with the development of advanced clinical skills, students focus on advanced practice role development and the study of issues in health service delivery related to the practice of primary health care. Economics, case management and cultural/ethical aspects of care are discussed.
Taught by: O'Sullivan
Course usually offered summer term only
Prerequisite: NURS 660 or NURS 661
Activity: Clinic
1 Course Unit
Notes: Summer Session II

NURS 664 Advanced Practice Nursing for Oncology Care
Students are introduced to cancer epidemiology and pathophysiology, cancer genetics, prevention, risk assessment and reduction for specific cancers, screening techniques, diagnostic procedures and criteria, and local and systemic therapies used to treat cancer. The influence of individual characteristics on health promotion, health behaviors, population cancer risk, and cancer detection are explored in the context of biological, psychological, socioeconomic and sociocultural factors across age groups from adolescents to older adults. Evidence-based practice guidelines and research are applied to promote healthy lifestyles, monitor cancer risk, address psychosocial issues, facilitate access to care, and reduce health care disparities for populations at risk and diagnosed with cancer, and cancer survivors.
Taught by: Hollis, Polomano
Course usually offered in fall term
Prerequisite: NURS 607; NURS 637
Activity: Online Course
1 Course Unit
Notes: Summer 12 Week Session; Permission to take this course as an elective must be approved by the course faculty.

NURS 666 Effects of Cancer and Cancer Therapy
Principles of cancer treatment, associated responses and symptom management are presented. Emphasis is on the development of advanced clinical decision making skills in identifying multiple alterations resulting from cancer and cancer therapy.
Taught by: Walker, Prechel-Dunphy
Course usually offered in spring term
Prerequisites: NURS 646, 664
Corequisite: NURS 667
Activity: Online Course
1 Course Unit
NURS 667 Oncology Nursing: Assessment, Diagnosis, & Cancer Management
Emphasis is on the application of critical thinking and diagnostic reasoning skills in advanced clinical decision making. Students access, diagnose, and manage the care of oncology patients with a variety of cancers. The delivery of care and evaluation of role effectiveness within the health care system are examined.
Taught by: Polomano; Walker; Prechtel-Dunphy
Course usually offered in spring term
Prerequisites: NURS 664, NURS 666
Corequisite: NURS 666
Activity: Online Course
1 Course Unit
Notes: $60 Lab Fee

NURS 670 Principles of Adult Gerontology Acute Care I
This didactic course examines the epidemiologic, assessment, diagnostic, management and evaluation of acutely or critically ill adults across the adult-older adult age spectrum. Students explore the dynamic interplay between the pathophysiologic basis of disease and the psychosocial and socio-cultural responses to acute and critical illness and injury as they develop clinical decision-making skills. An evidence-based approach to nursing and medical management including pharmacologic and non-pharmacologic modalities is emphasized. Cardiovascular and pulmonary systems, infectious and prevention issues commonly encountered by adults are covered. Particular focus is placed on specific issues related to the older adult such as frailty, dehydration, loss of functional mobility, falls, and other geriatric syndromes.
Taught by: Pawlow; Elgart; Becker; Doherty
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 671 Principles of Adult Gerontology Acute Care II
In this didactic course, students learn to integrate their advanced pharmacology and pathophysiology background with their understanding of acute illness and injury. The focus is on the evidence-based management of patients with neurologic, gastrointestinal, renal, oncologic, and metabolic health problems. Students develop skills to create a differential diagnosis when an adult/older-adult presents with a constellation of symptoms. Common and atypical presentations of illness and disease are explored. Focus is placed on holistic care including the psychosocial, cultural, and spiritual aspects of patients’ response to their illness or injury. Epidemiology, assessment, diagnosis, management, and advanced clinical decision making based on current clinical research are emphasized.
Taught by: Pawlow; Elgart; Becker; Doherty
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 672 Principles of Adult Gerontology Acute Care III
This didactic course examines issues related to the epidemiology, assessment, diagnosis, management and evaluation of acute, critical and complex chronically ill adults across the adult-older adult age continuum. Students explore the dynamic interplay between the pathophysiologic basis of disease and the psychosocial and socio-cultural responses to illness and injury across the adult age continuum as they develop clinical decision-making skills. An evidence-based approach to nursing and medical management including pharmacologic and non-pharmacologic modalities is emphasized. Content focuses on special adult and older adult patient populations with commonly encountered health problems.
Taught by: Pawlow; Elgart; Becker; Doherty
Course usually offered summer term only
Activity: Lecture
1 Course Unit

NURS 673 Advanced Clinical Decisions in Adult Gerontology Acute Care
This didactic and fieldwork course focuses on development of a systematic approach to advanced physical assessment, the use and interpretation of diagnostic technologies and development of diagnostic reasoning as it applies to patient management of the adult-older adult acutely ill or injured patient. Emphasis is placed on development of competence to perform a comprehensive history and physical examination, incorporating the analysis of biotechnological data trends. Building fundamental skills in developing differential diagnoses and clinical decision making for acutely ill patients across the adult age continuum is a focus of this course.
Taught by: Pawlow; Griffith; Becker
Course usually offered in fall term
Prerequisites: NURS 607, 657
Corequisite: NURS 670
Activity: Seminar
1 Course Unit

NURS 674 Adult Gerontology Acute Care NP: Professional Role and Clinical Practicum I
This didactic and clinical fieldwork course explores issues relevant to the role of the Adult Gerontology Acute Care Nurse Practitioner within the complex U.S. health care system. Role development, reimbursement issues, provision of quality and ethical care and evidence-based nursing and medical interventions are introduced and discussed in the classroom. Clinical fieldwork focuses on assessment of complex acute, critical and chronically-ill patients for urgent and emergent conditions, using both physiologically and technologically derived data, to evaluate for physiologic instability and potential life-threatening conditions, development of differential diagnoses, application of diagnostic reasoning and formulation, implementation, evaluation and modification of individualized plans of care including pharmacological and non-pharmacological modalities. Development of advanced clinical competencies and clinical decision making abilities about adults across the age continuum is emphasized.
Taught by: Becker; Griffith
Course usually offered in spring term
Prerequisite: NURS 673
Activity: Lecture
1 Course Unit
NURS 675 Adult Gerontology Acute Care NP: Professional Role and Clinical Practicum II
This didactic and fieldwork course focuses on the role of the Adult Gerontology Acute Care Nurse Practitioner and the expansion of advanced clinical competencies and clinical decision making abilities. Clinical experiences in acute care settings provide the student with opportunities to refine history and physical examination techniques, diagnostic reasoning, formulation, implementation, evaluation and modification of individualized management plans. Specific attention is given to the unique presentation of syndromes and constellation of symptoms that may be typical or atypical presentation of complex acute, critical and chronic illness in adults and older adults. Facilitating transition of patients at varying life stages through the complex health care system is encouraged exploring the multiple governmental, social and personal resources available to acutely ill adults across the age continuum. The application of advanced nursing, medical and biopsychosocial knowledge in the management of patients and the collaboration between the nurse practitioner and the patient, family and interprofessional healthcare team are emphasized.
Taught by: Becker; Griffith; Doherty
Course usually offered summer term only
Prerequisites: NURS 670, 671, 672, 673, 674
Activity: Lecture
1 Course Unit
Notes: Summer I II - 12 Week Course

NURS 677 Environmental Toxicology: Risk Assessment and Health Effects
This course presents general principals of toxicology and the disposition of toxins in the body. Case studies of the effects of environmental and occupational toxins on individuals will be analyzed. This course is designed for students who desire a strong foundation in toxicological concepts and principals and provides an overview of major toxins in our environment and their association with human health.
Taught by: Liu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Undergraduates Need Permission

NURS 681 Applied Physiology for Nurse Anesthetists I
This course provides an in-depth analysis of the anatomy, physiology and patho-physiology of the respiratory and cardiovascular systems and related anesthesia implications. The concepts of ventilation and perfusion as they relate to oxygen and anesthetic delivery and metabolism are examined. The effects of compromised cardiac and pulmonary function and their implications for the patient and anesthesia plan are reviewed. The impact of anesthesia on the structure and function of the heart as a pump as well as the characteristics of systemic circulation will be explored. The effect of surgery and anesthesia on the respiratory and cardiovascular systems will be emphasized.
Taught by: Magro; Lynn; Tkacs
Course usually offered summer term only
Activity: Lecture
1 Course Unit
Notes: 12 Week Summer Session

NURS 682 Applied Physiology for Nurse Anesthetists II
This course provides an in-depth analysis of the anatomy, physiology and pathophysiology of the hepatic, renal, nervous, hormonal, immunologic and hematological systems and related anesthesia implications. The focus of discussion will be on the special considerations when delivering anesthetc agents to patients. Emphasis will be placed on the assessment of the patient with common disorders of these systems.
Nurse anesthesia care related to patients undergoing surgeries involving each system will be discussed.
Taught by: Magro; Lynn; Libonati
Course usually offered in fall term
Prerequisite: NURS 681
Corequisite: NURS 607
Activity: Lecture
1 Course Unit

NURS 683 Applied Science Related to Anesthesia
This course is an in-depth analysis of the chemical and physical principles as they apply to nurse anesthesia practice. Aspects of organic and biochemistry including the chemical structures of compounds and its significance in pharmacology will be explored. Applications of the laws of physics as they pertain to nurse anesthesia practice will be reviewed with specific examples. Emphasis on the dynamics of the anesthesia delivery system and related equipment will be presented.
Taught by: Magro; Lynn; Scanga
Course usually offered in spring term
Prerequisites: NURS 607, 681, 682
Activity: Lecture
1 Course Unit

NURS 685 Advanced Developmental Physiology and Pathophysiology
This course will address advanced human embryology, physiology and pathophysiology. Biochemical genetics and the genetic basis of disease will be discussed. Normal fetal development and physiology of organ systems will be used as the foundation for understanding the pathophysiology of disease across the lifespan.
Taught by: Trimarchi; Marino
Course usually offered in fall term
Prerequisite: Undergraduate course in Anatomy & Physiology
Activity: Lecture
1 Course Unit

NURS 686 Well Woman Health Care
This course focuses on the management and evaluation of physical, emotional, socio-cultural and educational needs of gynecologic primary health care of women from adolescence through post-menopausal years. The content is directed at expanding the expertise of the student in meeting the primary women's health care needs in contemporary society. Social influences that have an impact on women's lives are also explored.
Taught by: Durain; Grube; Nagtalon-Ramos
Course usually offered in fall term
Prerequisite: NURS 657
Activity: Lecture
1 Course Unit
NURS 688 Complementary/Alternative Therapies in Women’s Health
The dramatic rise in the use of complementary and alternative medicine (CAM) by the American public requires that the contemporary health care practitioner have an awareness of CAM therapies and modalities currently available. The end result of this course will not be proficiency in the practice of any of these modalities in particular, but rather a basic understanding of each approach to common conditions and their potential contribution to health and well-being. The focus of the CAM modalities discussed in this course will center on their use in women’s health care provision.
Taught by: Grube
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 690 Family Focused Primary Care of the Middle-Aged and Older Adult
This course focuses on primary care problems encountered by middle-aged and older adults and their families. Students have the opportunity to build on previously acquired skills and to apply concepts of primary care to manage the complex health problems of middle-aged and older adults.
Taught by: O’Sullivan
Course usually offered in spring term
Prerequisites: NURS 656, 657
Corequisite: NURS 691
Activity: Lecture
1 Course Unit

NURS 691 Clinical Practicum: Family Focused Primary Care of the Middle-Aged and Older Adult
The focus of this course is the evaluation and management of primary care problems in middle-aged and older adults. Students will have an opportunity to implement the role of the nurse practitioner in the clinical setting. Interdisciplinary collaborative experiences will be essential to the clinical practicum. The initiation of health promotion and health maintenance activities with individuals, groups and families is stressed. Students are expected to assess and manage common chronic health problems in the clinical setting.
Taught by: O’Sullivan
Course usually offered in spring term
Prerequisites: NURS 656, 657
Corequisite: NURS 690
Activity: Clinic
1 Course Unit

NURS 693 Professional Issues in Midwifery
In-depth discussion of current issues facing the profession of nurse-midwifery which impact on professional education, certification, and practice. Includes ethical, legal, and political aspects of nurse-midwifery practice.
Taught by: McCool; Reale; Guidera
Course usually offered in fall term
Prerequisites: NURS 787, 788
Corequisite: NURS 786
Activity: Lecture
1 Course Unit

NURS 697 Leadership in Advanced Oncology Nursing Practice
Students explore the diagnosis and treatment of common cancers in a multidisciplinary approach. The broad array of bio-medical and psychosocial issues that result from the disease itself across the illness continuum are studied. Quality of life, rehabilitation and palliative care issues related to cancer care are addressed. Additionally, students complete an administrative practicum with a nursing leader in an oncology specialty area within a healthcare organization.
Taught by: Keim; Prechtl Dunphy; Sherry; Walker
Course usually offered summer term only
Prerequisites: NURS666 and all requisite nursing courses in the Nursing & Healthcare Administration (NADM) program. May be taken concomitantly with NURS699 or at the discretion of the NADM Program Director.
Activity: Field Work
1 Course Unit

NURS 698 Practicum: Quality Improvement in Healthcare
Building on coursework that provided a broad overview of the principles and tools of quality improvement and patient safety in healthcare, students will apply this knowledge through completion of a mentored quality improvement project in a healthcare organization. In collaboration with faculty and health organization preceptors, students will identify a quality improvement opportunity and develop specific project objectives including, but not limited to, the use of appropriate tools, identification of measurable aims and evaluation methods, sustainable recommendations for process improvement and a comprehensive report of findings and recommendations. This course is part of the Quality Improvement and Safety Processes in Healthcare Minor and should be completed by the student as the capstone course in that minor; students engage in 192 hours of on-site project work.
Taught by: Piper; Keim
Course usually offered in spring term
Prerequisites: NURS 650, NURS 537, NURS 612
Activity: Field Work
1 Course Unit
Notes: Summer and Fall Placement

NURS 699 Advanced Roles in Administrative Nursing Practice
Offered at the end of the Nursing and Health Care Administration or Health Care Leadership programs, this course prepares the graduate for entry into a myriad of administrative or leadership roles. Students will explore role responsibilities for various levels of management positions; health care consultants; health policy advocates; global health leaders; staff development directors; and administrators in non-traditional settings i.e., journal editors, professional associations etc.
Taught by: Rich ; Keim
Course usually offered summer term only
Prerequisites: NURS666 and all requisite nursing courses in the Nursing & Healthcare Administration (NADM) program. May be taken concomitantly with NURS699 or at the discretion of the NADM Program Director.
Activity: Lecture
1 Course Unit
NURS 705 Advanced Practice Nursing Practice: Psychiatric Mental Health NP I
Supervised advanced psychiatric mental health nursing practice with children, adolescents and their families, or adults and/or older adults and their families in a variety of settings, depending on the subspecialty option selected. This course is designed to help prospective advanced practice nurses develop advanced skills in physical and developmental assessment of children in a variety of well-child, clinic and hospital settings. Data collection, data interpretation, and hypothesis formulations are emphasized for the purpose of clinical decision making. The role of the advanced practice nurse in assessment of primary health care issues and health promotion is incorporated throughout the course. Collaboration as an integral part of assessment will be an ongoing focus.

Taught by: Lipman; Reilly, L.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 720 Nursing of Children Theory I: Child and Family Development
This clinical course is designed with emphasis on continued development of advanced clinical decision-making skills in the care of critically ill children. Emphasis is placed on knowledge and skills that allow the advanced practitioner to efficiently and effectively manage children who are dependent upon or assisted by technological devices to carry out life processes.

Taught by: Deatrick; Murphy, K
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 714 Management of Critically Ill Children with Acute and Chronic Conditions: Pediatric Oncology
This course examines the unique contribution made by nurses with advanced clinical skills in the care of children with oncologic and hematologic disorders, and their families, from the time of diagnosis throughout the treatment period and beyond. The course provides the student with the most recent advances in knowledge about cancer in childhood. While the focus is on oncology, hematologic disorders as well as AIDS will be discussed. Recent methods of treatment and the nursing management of children and their families will be addressed.

Taught by: Verger; Bartke
Course usually offered summer term only
Prerequisites: NURS 712, 713
Activity: Lecture
1 Course Unit

Notes: Summer Session II

NURS 715 Common Management Issues of Children with Acute and Chronic Conditions: Nursing of Critically Ill Children Advanced Clinical
This course is designed to help prospective advanced practice nurses develop advanced skills in physical and developmental assessment of children in a variety of well-child, clinic and hospital settings. Data collection, data interpretation, and hypothesis formulations are emphasized for the purpose of clinical decision making. The role of the advanced practice nurse in assessment of primary health care issues and health promotion is incorporated throughout the course. Collaboration as an integral part of assessment will be an ongoing focus.

Taught by: Hobbie
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 721 Nursing of Children Theory I: Child and Family Development
This clinical course is designed with emphasis on continued development of advanced clinical decision-making skills in the care of critically ill children. Emphasis is placed on knowledge and skills that allow the advanced practitioner to efficiently and effectively manage children who are dependent upon or assisted by technological devices to carry out life processes.

Taught by: Deatrick; Murphy, K
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 722 Advanced Physical Assessment and Clinical Decision Making: Nursing of Children Clinical I
This clinical course is designed to help prospective advanced practice nurses develop advanced skills in physical and developmental assessment of children in a variety of well-child, clinic and hospital settings. Data collection, data interpretation, and hypothesis formulations are emphasized for the purpose of clinical decision making. The role of the advanced practice nurse in assessment of primary health care issues and health promotion is incorporated throughout the course. Collaboration as an integral part of assessment will be an ongoing focus.

Taught by: Lipman; Reilly, L.
Course usually offered in fall term
Corequisite: NURS 685
Activity: Lecture
1 Course Unit
NURS 731 High-Risk Neonate, Theory
This course focuses on the care of high-risk neonates within the context of the family unit. The biological and psychosocial aspects are studied as a basis for nursing practice. Emphasis is placed on the role of the Advanced Practice nurse in improving services to high-risk neonates with the purpose of decreasing mortality and morbidity rates and improving the quality of life of high-risk newborns and infants.
Taught by: Verger; Steele
Course usually offered in spring term
Prerequisites: NURS 684, 720, 721
Corequisite: NURS 733
Activity: Lecture
1 Course Unit
Notes: Summer Session I

NURS 733 Clinical Practicum for the High Risk Neonate
This clinical course focuses on the care of the high risk infant within the context of the family unit. Clinical experiences provide students with opportunities to expand their skills in managing the care of infants, both acutely ill and growing neonates. Students continue their experiences with neonatal nurse practitioners to examine role issues of these individuals.
Taught by: Verger; Steele
Course usually offered in spring term
Prerequisites: NURS 684, 720, 721
Corequisite: NURS 731
Activity: Lecture
1 Course Unit

NURS 734 Intermediate Principles of Pediatric Acute Care
This course focuses on evidenced based care for infants, children, and adolescents with complex acute and chronic health conditions. Emphasis is placed on developing a framework for practice based on a synthesis of knowledge from biological, behavioral, and nursing sciences through the process of advanced clinical decision making. The student gains the necessary clinical management skills to provide specialized patient centered care across the entire pediatric age spectrum from complex chronic illness to physiologic deterioration and life threatening instability with emphasis on the patient and family as a full partner in decision making.
Taught by: Murphy, K.; Verger
Course usually offered in spring term
Prerequisites: NURS 720; NURS 721; NURS 685 or NURS 607
Corequisite: NURS 735
Activity: Lecture
1 Course Unit

NURS 735 Pediatric Acute Care Nurse Practitioner: Professional Role and Intermediate Clinical Practice
This course focuses on the implementation of the professional role of the Pediatric Acute Care Nurse Practitioner (PNP-AC). Particular emphasis is placed on the role components of the nurse practitioner in pediatric acute care. Applications of nursing, biological and behavioral science are emphasized in the advanced clinical assessment, clinical decision making and management skills needed to care for complex, unstable acutely and chronically ill children and their families. The role of the advanced practice nurse in promoting optimal child/family outcomes is emphasized.
Taught by: Verger; Lipman; Schucker; Campisciano
Course usually offered in spring term
Prerequisite: NURS 720; NURS 721; NURS 685 or NURS 607
Corequisite: NURS 734
Activity: Lecture
1 Course Unit

NURS 736 Advanced Principles of Pediatric Acute Care
This course expands the student's understanding evidenced based care for infants, children, and adolescents with complex acute and chronic health conditions. Emphasis is placed on advancing a framework for practice based on a synthesis of knowledge from biological, behavioral, and nursing sciences through clinical decision making. The student continues to gain the necessary clinical management skills to provide specialized patient centered care across the entire pediatric age spectrum from complex chronic illness to physiologic deterioration and life threatening instability with emphasis on the patient and family as a full partner in decision making.
Taught by: Murphy, K; Verger; Lipman
Course usually offered summer term only
Prerequisite: NURS 734; NURS 735
Corequisite: NURS 737
Activity: Lecture
1 Course Unit

NURS 737 Pediatric Acute Care Nurse Practitioner: Professional Role and Advanced Clinical Practice
This course focuses on the implementation of the professional role of the Pediatric Acute Care Nurse Practitioner (PNP-AC). This course adds to the students' previous knowledge and skills and prepares them to deliver care to children of any age who require frequent monitoring and intervention. Applications of nursing, biological and behavioral science are emphasized in the advanced clinical assessment, clinical decision making and management skills needed to care for complex, unstable acutely and chronically ill children and their families.
Taught by: Verger; Lipman; Schucker; Campisciano
Course usually offered summer term only
Prerequisite: NURS 734; NURS 735
Corequisite: NURS 736
Activity: Lecture
1 Course Unit

NURS 740 Advanced Practice Concepts for the Childbearing Family
The seminar will provide students with the skills necessary to provide primary health care to high risk infants in ambulatory settings. Course material will include detailed physical assessment skills of the infant through the first year of life. The clinical component will include home visits and experience in the ambulatory and long term care settings.
Taught by: Steele
Course usually offered in fall term
Activity: Lecture
1 Course Unit
NURS 741 Management of Children with Acute and Chronic Conditions: Nursing of Children in the Community Advanced Clinical
This clinical course focuses on the implementation of the role of the advanced practice nurse with particular emphasis on providing continuity of care for children with specialized health needs across their transitions in sites of care delivery and throughout phases in the cycle of their illnesses. Application of nursing, biological and behavioral science is emphasized in the community aspects of clinical assessment and management of children with health care needs and their families.
Taught by: Deatrick; Lipman; Murphy, K.
Course usually offered summer term only
Prerequisites: NURS 724, 725
Activity: Lecture
1 Course Unit
Notes: Summer Session II

NURS 743 Fetal Evaluation
This course focuses on identifying at risk and high risk maternal fetal dyads, developing knowledge relating to assessment of fetal well being, and understanding the implications of obstetric, non obstetric, and fetal complications on the management of the high risk pregnancy. Additionally the course provides an understanding of the scientific basis for new technologies used to evaluate at risk and high risk populations. Information about the physics of ultrasound, pulse echo imaging, and doppler techniques will be provided. Students must be able to practice ultrasound skills while in this course.
Taught by: Stringer
Course usually offered in spring term
Prerequisite: NURS 607
Activity: Lecture
1 Course Unit

NURS 745 Data Analytics
Activity: Lecture
1 Course Unit

NURS 748 Leadership Development in Healthcare
This course will provide the conceptual and theoretical framework for examining the concept of leadership within the contexts of health systems, health professionals and health policy. It will focus on characteristics of personal and professional leadership, change theory, and the application of critical thinking to the analysis of work environments, systems and the politics of health.
Taught by: Fidyk
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 749 History, Health and Social Policy
This course explores the impact of historical ideas, events, and actors on current issues in health and illness care. Topics include the movement from hospitals to health care systems; the changing definitions of professionalism and professional practice patterns; and the ways historical context shapes definitions of leadership roles and theoretical knowledge.
Taught by: D’Antonio
Course usually offered in spring term
Activity: Lecture
1 Course Unit

NURS 750 Inquiry and Nursing
This course introduces students to the process of intellectual inquiry. It explores the intellectual foundations of scholarly disciplines in general and the discipline of nursing in particular. Emphasis is placed on the process of knowledge development, with particular emphasis on historical, philosophical, positivist, and gendered and phenomenological ways of knowing. Emphasis is also placed on having students develop their particular intellectual approach to disciplinary inquiry and on formulating ideas for publications and presentations.
Taught by: Richmond
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: For doctoral students in nursing

NURS 752 Clinical Fieldwork for Nurse Anesthesia Practice II
This course provides the opportunity for students to integrate theoretical knowledge and research findings into practice within the clinical setting. The clinical progression allows students to provide anesthesia care to patient with complex, multisystem problems. Selected surgical specialty rotations begin, introducing the student to the particular requirements for these special. Techniques for managing the acute pain of clients are also emphasized. The student grows in the ability to individualize a plan of care specific to the patients needs and surgical requirements. The student also now possesses the ability to combine theories and skills in selected clinical situations. The guidance of CRNA faculty preceptors contributes to the development of the students critical thinking.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 753 Evolving Nursing Science
A consideration of contemporary nursing research as it pertains to the current state of the art and directions for future study. Advanced analysis of methodology, assumptions, and theoretical structures that underpin the work.
Taught by: Sommers; Riegel
Course usually offered in spring term
Prerequisite: NURS 750
Activity: Lecture
1 Course Unit
Notes: For doctoral students in nursing

NURS 754 Quantitative Research Design and Methods
This one semester survey course provides an overview of quantitative clinical research design and methods. Ethical and legal considerations in human subjects research, access to patient populations, sampling designs and power analysis, experimental and non-experimental designs, measurement of variables, data collection techniques, and data management are included. This course is intended for doctoral students in the health sciences.
Taught by: Pinto-Martin; Meghani
Course usually offered in spring term
Prerequisites: Students must have completed at least one doctoral-level statistics course. The current doctoral recommendations include: SOCI 535; SOCI 536; STAT 500; STAT 501; PUBH 501; EPID 524; EPID 525.
Please contact course faculty for permission for courses taken outside of the above recommendations
Activity: Lecture
1 Course Unit
Notes: For doctoral students in nursing.
NURS 755 Application of Statistics to Nursing Research II
Integration of non-experimental quantitative research designs and methodologies, including common statistical techniques for analyzing resulting data. Statistical techniques examined include: factor analysis, multiple regression, canonical correlation, causal modeling, and logistic regression. Power analysis of statistical tests to estimate sample size discussed. Data analysis practice using computer software integrated throughout course.
Taught by: Tulman
Course usually offered in fall term
Prerequisite: NURS 754
Activity: Lecture
1 Course Unit
Notes: For doctoral students in nursing

NURS 756 Nurse Anesthesia Res I: Nurse Anesthesia Residency I
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 757 Nurse Anesthesia Res II: Nurse Anesthesia Residency II
Activity: Lecture
1 Course Unit

NURS 758 Nurse Anesthesia Residency III
This course is the third of four residencies that provide the nurse anesthetist student the opportunity to attain competencies within the Certified Registered Nurse Anesthesia (CRNA) scope of practice. Throughout the residency, the nurse anesthesia resident will utilize appropriate clinical judgment to manage the complex medical, physical and psychosocial needs of clients in the perioperative phases. Further refinement of the patient assessment, anesthesia administration, and critical thinking skills will be emphasized. Students’ progress by providing anesthesia care for patients throughout the continuum of health care services. The guidance of CRNA faculty preceptors contributes to the development of the independence of the CRNA student. Collaborative practice within a care team model is emphasized and the student assumes more overall responsibility for the quality of care for the patients throughout the perioperative experience, with clinical support as required.
Taught by: Winner; Bent
Prerequisite: NURS 757
Activity: Lecture
1 Course Unit

NURS 759 Nurse Anesthesia Residency IV
Course usually offered in fall term
Prerequisite: NURS 758
Corequisite: NURS 611
Activity: Lecture
1 Course Unit

NURS 764 Advanced Technologies & Clinical Decisions in Acute Care
This fieldwork course focuses on development of a systematic approach to advanced physical assessment, the use of diagnostic technologies and the development of a diagnostic reasoning as it applies to patient management of the acutely ill and injured. Emphasis is placed on development of competence to perform a comprehensive history and decision making for the management of acutely ill patients.
Taught by: Becker; Griffith; Bartke
Course usually offered in fall term
Prerequisites: NURS 607, 657
Activity: Lecture
1 Course Unit

NURS 768 Role of the Clinical Nurse Specialist
This clinical course provides students the opportunity to apply CNS theory to practice and enables students to develop strategies to overcome barriers to safe, quality healthcare delivery. Students acquire knowledge and skills characteristic of CNS practice particularly as it relates to clinical judgment, facilitation of learning, advocacy and moral agency, caring practice and response to diversity.
Taught by: Becker, Pawlow; Fisher
Course usually offered in fall term
Activity: Lecture
1 Course Unit

NURS 769 Clinical Nurse Specialist Clinical I
This clinical course provides students the opportunity to apply CNS theory to practice and enables students to develop strategies to overcome barriers to safe, quality healthcare delivery. Students acquire knowledge and skills characteristic of CNS practice particularly as it relates to clinical judgment, facilitation of learning, advocacy and moral agency, caring practice and response to diversity.
Taught by: Becker, Dubendorf; Muller
One-term course offered either term
Prerequisite: NURS 657
Corequisite: NURS 768
Activity: Lecture
1 Course Unit

NURS 770 Clinical Nurse Specialist Clinical II
This clinical course focuses on the application of CNS theory to practice. Students focus on furthering the development of the knowledge and skills related to the core competencies of the CNS. Strategies to improve provider and system issues related to the provision of care to the population of interest are developed, implemented and evaluated. Developing leadership in the development of system-wide or healthcare policy is promoted. Advocating for the individual, family, caregiver and population of interest needs within the context of clinical practice and policy making is encouraged.
Taught by: Becker; Dubendorf; Muller
Course usually offered summer term only
Prerequisites: NURS 657, NURS 768, NURS 769
Activity: Lecture
1 Course Unit
Notes: Also Offered in Summer 12 Week Session
**NURS 775 Post-Masters Psychiatric Mental Health NP Clinical Practicum & Seminar**

This clinical course prepares individuals who have completed a Psychiatric Mental Health Clinical Nurse Specialist or an Adult Psychiatric Mental Health Nurse Practitioner program to meet the clinical requirements for certification as a Family Psychiatric Mental Health Nurse Practitioner. This clinical practicum and seminar will complement previous education in advanced practice Psychiatric Mental Health nursing. The focus of the course is on skill development in therapeutic relationships with clients, interviewing, assessing client strengths and needs for mental health services, selecting and implementing interventions including psychopharmacologic agents, and maintaining a role in a mental health setting which allows active collaboration with other health professionals. A minimum of 16 precepted practicum hours per week is required in a selected community or institutional setting and a minimum of 250 total precepted clinical hours during the semester is required. In addition, there will be on-campus seminars and individual and group supervision conference calls throughout the semester.

Taught by: Cacchione; Josey; Mulligan; Leahy

Course usually offered summer term only

Prerequisites: Masters degree in Psychiatric Mental Health Advanced Practice Nursing and approval of Program Director

Activity: Seminar

1 Course Unit

Notes: By Permission Only

**NURS 776 High Risk Neonate Theory II**

This course examines specific pathophysiological mechanisms which may result in body system failure. Strategies for clinical management are examined based on a synthesis of biological, behavioral, medical, pharmacological, and nursing knowledge. Theoretical analysis of the roles of the advanced practitioner with critically ill patients is emphasized.

Taught by: Verger; Steele

Course usually offered summer term only

Prerequisites: NURS 731, 733

Corequisite: NURS 777

Activity: Lecture

1 Course Unit

**NURS 777 High Risk Neonatal Clinical II**

This clinical course is designed with emphasis on continued development of advanced clinical skills in the care of critically ill children. Emphasis is placed on integration of the roles of the advanced practitioner. This course adds to the student’s previous knowledge and skills in advanced practice and prepares them to manage care of critically ill children.

Taught by: Verger; Steele

Course usually offered summer term only

Prerequisites: NURS 731, 733

Corequisite: NURS 776

Activity: Lecture

1 Course Unit

**NURS 778 High Risk Neonatal Clinical III**

This clinical course is designed with emphasis on continued development of advanced clinical decision-making skills in the care of critically ill children. Emphasis is placed on knowledge and skills that allow the advanced practitioner to efficiently and effectively manage children who are dependent upon or assisted by technological devices to carry out life processes.

Taught by: Verger; Steele

Course usually offered summer term only

Prerequisites: NURS 776, 777

Activity: Lecture

1 Course Unit

**NURS 780 Health Care of Women and Primary Care**

The focus of this course is a clinical approach to primary care problems commonly encountered by women in an ambulatory setting. This course provides the women's health care nurse practitioner and midwifery student with the knowledge and problem solving approach to assist individuals with the most common health problems, including acute episodic illness as well as stable chronic disease. The concepts of health promotion and health maintenance are integrated throughout the curriculum.

Taught by: Grube; Nagtalon-Ramos

Course usually offered summer term only

Corequisite: NURS 657

Activity: Lecture

1 Course Unit

**NURS 781 Well Women Health Care, Theory**

This course focuses on the management and evaluation of physical, emotional, socio-cultural and educational needs of gynecologic primary health care of women from adolescence through post-menopausal years. The content is directed at expanding the expertise of the student in meeting the primary women's health care needs in contemporary society. Social influences that have an impact on women's lives are also explored.

Taught by: Durain; Grube; Nagtalon-Ramos

Course usually offered in fall term

Prerequisites: NURS 607, 657, 780

Corequisite: NURS 782

Activity: Lecture

1 Course Unit

**NURS 782 Well Women Health Care, Clinical**

This clinical course further prepares students in understanding and developing the Women's Health Care Nurse Practitioner and Nurse-Midwifery roles. This clinical course focuses on the management and evaluation of physical, emotional, socio-cultural and educational needs of gynecologic primary health care needs of women from adolescence through post-menopausal years. Emphasis is placed on promoting and maintaining wellness, clinical decision making, systematic health interview, physical assessment, interpretation of laboratory findings, and diagnosis and treatment of gynecological problems.

Taught by: Durain; Grube; Nagtalon-Ramos

Course usually offered in fall term

Prerequisites: NURS 607, 657, 780

Corequisite: NURS 781

Activity: Lecture

1 Course Unit
NURS 783 Health Care of Childbearing Women, Theory
The antepartum course builds upon the well-woman health care course. The focus is management of prenatal care for the childbearing family. Conceptual threads of public policy and ethics are integrated within the content to help students to identify broader implications for prenatal care. Content includes theory and practice related to nurse-midwifery/nurse practitioner management of the normal pregnant woman, and nurse-midwifery/nurse practitioner management and strategies to reduce selected obstetric complications.
Taught by: Trout; Lewis, J.; Grube
Course usually offered in spring term
Prerequisites: NURS 781, 782
Corequisite: NURS 784
Activity: Lecture
1 Course Unit

NURS 784 Health Care of Childbearing Women, Clinical
This course focuses on the management and evaluation of the childbearing women and their families in primary care settings. The course presents the opportunity to implement the role of the Nurse Practitioner with the childbearing woman and her family. The focus is on comprehensive physical, psychosocial and educational management of women and their families during pregnancy and postpartum.
Taught by: Trout; Lewis, J.; Grube
Course usually offered in spring term
Prerequisites: NURS 781, 782
Corequisite: NURS 783
Activity: Lecture
1 Course Unit

NURS 785 Integration I
Intensive integration of theory and clinical practice in women's health care with emphasis on ambulatory care. Clinical practice in all areas of ambulatory women's health care, teaching rounds, case presentations, and seminars with professional colleagues.
Taught by: Stringer; McCool; Reale; Nagtalon-Ramos
Course usually offered summer term only
Prerequisites: NURS 783, 784
Activity: Clinic
1 Course Unit

NURS 786 Integration II: Midwifery Integration
Intensive integration of theory and clinical practice in women's health care with emphasis on intrapartum, postpartum, and newborn care. Clinical practice during the intrapartum and postpartum, teaching rounds, case presentations, and seminars with professional colleagues.
Taught by: McCool; Reale
Course usually offered in fall term
Prerequisites: NURS 783, 784
Corequisite: NURS 785
Activity: Clinic
1 Course Unit

NURS 787 Intrapartum / Postpartum / Newborn Care, Theory
Anatomy and physiology relevant to the care of the women and their families during the intrapartum, postpartum and newborn periods. Includes management of selected obstetrical emergencies and medical complications.
Taught by: McCool; Reale; Stringer
Course usually offered summer term only
Prerequisites: NURS 783, 784
Corequisite: NURS 788
Activity: Lecture
1 Course Unit

NURS 788 Intrapartum / Postpartum / Newborn Care, Clinical
Clinical care and management of women, newborns and their families during the intrapartum, postpartum and newborn periods. Includes management of selected obstetrical emergencies and medical complications. Clinical assignments related to module objectives.
Taught by: McCool; Reale
Course usually offered summer term only
Activity: Lecture
1 Course Unit

NURS 789 Principles of Patient Safety & Quality Improvement in Healthcare
Taught by: Gleason Scott
Activity: Lecture
1 Course Unit

NURS 790 Health Care Economics and Business Planning
Course usually offered in fall term
Activity: Online Course
1 Course Unit

NURS 792 Clinical Fieldwork in Nurse Anesthesia Practice II
This course provides the opportunity for students to integrate theoretical knowledge and research finding into practice within the clinical setting. Students progress by providing anesthesia care for patients with more complex health problems. Techniques for managing the acute pain of clients are emphasized. Anesthetic requirements as dictated by patient assessment including the surgical procedure are studied in greater depth. The student now possesses the ability to combine theories and skills in selected clinical situations. The guidance of CRNA faculty preceptors contributes to the development of the student's critical thinking.
Taught by: Magro; Lynn; Briel
Course usually offered in spring term
Prerequisite: NURS 791
Activity: Seminar
2 Course Units

NURS 795 Nurse Anesthesia Residency II
This course is the second of two residencies that provide the nurse anesthetist student the opportunity to attain competencies within the Certified Registered Nurse Anesthesia (CRNA) scope of practice. Throughout the residency, the nurse anesthesia resident will utilize appropriate clinical judgment to manage the complex medical, physical and psychosocial needs of clients in the perioperative phases. Further refinement of the patient assessment, anesthesia administration, and critical thinking skills is emphasized. Students progress by providing anesthesia care for patients throughout the continuum of health care services. The guidance of CRNA faculty preceptors contributes to the development of the independence of the CRNA student. Collaborative practice within a care team model is emphasized and the student assumes more overall responsibility for the quality of care for the patients throughout the perioperative experience, with clinical support as required.
Taught by: Magro; Lynn; Briel
Course usually offered in spring term
Prerequisite: NURS 794
Activity: Seminar
2 Course Units
NURS 796 Diagnosis and Management of Adult Gerontology Acute Care Patients I
This on-line, didactic course is designed for the practicing nurse practitioner or clinical nurse specialist who seeks to gain additional knowledge and skills related to the care of adult gerontology acutely ill patients with a specific focus on cardiovascular and pulmonary systems, thoracic issues, infectious processes, wound healing and diabetes. Particular focus is placed on specific issues related to the older adult such as frailty, dehydration, loss of functional mobility, falls, and other geriatric syndromes. The basics of ECG, CXR and PFT interpretation, ABG analysis and ventilator modes are highlighted. This course examines the epidemiologic, assessment, diagnostic, management and evaluation of acutely or critically ill adults across the adult-older adult age spectrum. An evidence-based approach to nursing and medical management including pharmacologic and non-pharmacologic modalities is emphasized.
Taught by: Becker
Course usually offered in fall term
Activity: Online Course
1 Course Unit
Notes: For Streamlined Adult Gero Program Students Only

NURS 797 Diagnosis and Management of Adult Gerontology Acute Care Patients II
This online didactic course, designed for the practicing nurse practitioners or clinical nurse specialists seeking to gain knowledge and skills relative to care of adult gerontology acute care patients, focuses on the medical and surgical issues of the neurological, renal, gastrointestinal, hematological, oncologic and orthopedic systems. This course examines the epidemiologic, assessment, diagnosis, management and evaluation of acutely or critically ill adults across the adult-older adult age spectrum. An evidence-based, interprofessional team approach to the nursing and medical management of patients is emphasized.
Taught by: Becker
Course usually offered in spring term
Activity: Online Course
1 Course Unit
Notes: For Streamlined Adult Gero Program Students Only

NURS 798 Adult Gerontology Acute Care NP: Professional Role & Clinical Practicum for Primary Care Prepared Providers
This online didactic course and accompanying clinical fieldwork focuses on issues essential to the implementation of the role of the Adult Gerontology Acute Care Nurse Practitioner. Clinical fieldwork focuses on the unique assessment, diagnosis, management and evaluation of acutely, critically and complex chronically-ill adults, across the adult age continuum, experiencing acute, urgent and emergent conditions, using both physiologically and technologically derived data. Evaluating for physiologic instability and potential life-threatening conditions is emphasized. Attention is given to the typical and atypical presentation of syndromes and constellation of symptoms exhibited by adults and older adults experiencing complex acute, critical and complex chronic illness. Issues related to the transition of patients through the health care system are explored. Collaboration between the nurse practitioner, patient, family and interprofessional healthcare team are encouraged.
Taught by: Becker
One-term course offered either term
Prerequisite: NURS 796 completion
Activity: Online Course
1 Course Unit
Notes: For Streamlined Adult Gero Program Students Only

NURS 799 MSN Clinical Remediation
Students whose clinical performance would benefit from additional clinical exposure in order to demonstrate the expected competencies are, with course faculty and faculty advisor approval, eligible to register for NURS 799. This experience will be allotted no more than one credit unit and must be completed in a time frame not to exceed one academic semester. A course may be remediated only one time.
Course not offered every year
Activity: Clinic
1 Course Unit

NURS 800 Dissertation Seminar I
Advanced study and research in nursing leading to the completion of the dissertation proposal.
Taught by: Bowles, K.; Lake
Course usually offered in fall term
Prerequisites: NURS 750, 753, 754, 813, 2 semesters of Statistics, plus six concentration courses
Activity: Seminar
1 Course Unit
Notes: For doctoral students in nursing

NURS 803 Clinical Scholars in the Discipline of Nursing
This 2-semester course is designed to enhance the understanding of the practice of nursing as an intellectual discipline for doctoral students who have limited clinical practice experience prior to pursuing the PhD. It consists of individualized clinical experiences that are integrally related to the student’s area of research interest and which are facilitated by clinician guides in a variety of settings. Students actively participate in seminars that focus on examining the health needs of individuals and vulnerable patients, the praxis of nursing and its place within the complex health care delivery system, health policy and society at large. Research informing practice and practice informing research are highlighted using the clinical practice experiences as case exemplars. NURS 803 is a course designed specifically for two groups of PhD students: the Hillman Scholars in Nursing Innovation and post-baccalaureate students completing an MS in passing who have limited clinical experience as a professional nurse. This course is designed to expose students to carefully selected clinical experiences that provide opportunities to build a clinical appreciation of the practice of nursing as an intellectual discipline, to gain an enhanced understanding of the health care delivery system, and to examine the intersection of research, policy, and practice at the frontlines of nursing practice. To this end, this course combines the clinical experiences with a weekly seminar facilitated to dissect common issues experienced by vulnerable patients and families across care settings and specialties, to critically examine the contributions of nursing science to that care, and to examine how the health care system contributes or detracts from optimal care.
Taught by: Clinician Educators from the Standing Faculty
Two terms. student must enter first term.
Prerequisite: Selection as a Hillman Scholar in Nursing Innovation or at the recommendation of the student’s PhD academic advisor
Activity: Seminar
2 Course Units
Notes: First Fall-Spring post-BSN semesters in the PhD program for Hillman Scholars
NURS 811 Historical Thought in Nursing
A seminar open to enrolled doctoral students who plan to conduct historical research as some aspect of their program. Meets for one semester on a schedule determined by participants and faculty.
Taught by: Fairman
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: For doctoral students in nursing

NURS 813 Qualitative Paradigm Empirical Nursing Research
Study of selected qualitative paradigm empirical research approaches, including design and methodology. Critique of selected qualitative research reports from the literature of nursing and related disciplines. Fieldwork exercise and research proposal required.
Taught by: Deatrick
Course usually offered in fall term
Prerequisite: NURS 750
Activity: Seminar
1 Course Unit
Notes: For doctoral students in nursing

NURS 814 Doctoral Seminar: Ethics and Nursing
A critical review of the theoretical and empirical literature dealing with bioethics, nursing ethics, moral development, women's ethics and specific ethical concerns in health and illness care. Students will study topics related to their own interests/needs, guided by the instructor in relation to the discipline of ethics.
Taught by: Deatrick
Course offered spring; odd-numbered years
Activity: Seminar
1 Course Unit
Notes: For doctoral students in nursing

NURS 817 Theoretical Perspectives of Growth and Development: A Health Care Perspective
This seminar will explore issues related to the theoretical perspectives of growth and development during childhood. Areas of emphasis will include: methodological issues related to research of childhood growth and development, the analysis of developmental data, and measurement issues common to research of development. Included in the discussion will be an analysis of theories in relationship to research of childhood development. The seminar will conclude with an agenda for future directions of research of growth and development.
Taught by: Medoff-Cooper; Deatrick; Lipman; O'Sullivan
Course usually offered in fall term
Activity: Seminar
1 Course Unit

NURS 818 Families and Research
This seminar will explore issues related to research of families. Included in the ongoing discussion will be an analysis of nursing and other theories in relationship to research of families. Methodological issues related to research of families will be discussed, as will the analysis of family data and measurement issues common to research of families.
The seminar will conclude with an agenda for future directions to research of families.
Taught by: Deatrick
Course offered spring; even-numbered years
Activity: Seminar
1 Course Unit
Notes: For doctoral students in nursing

NURS 819 Seminar on the Social History of Nursing
This course will involve a guided review of the pertinent literature relating to the history of technology in 20th century America. The focus will include a critical examination and review of the social origins and implications of technological development and diffusion in healthcare. Various theoretical frameworks in the history of technology will be closely examined in attempt to assist the student in the development of their own framework.
Taught by: Fairman
Activity: Seminar
1 Course Unit
Notes: For doctoral students in nursing

NURS 821 Proseminar in Health Outcomes Research
This the first of a two-course sequence designed for doctoral students interested in conducting health outcomes research. The first course (821) focuses on conceptual, methodological, statistical, feasibility and data issues central to the conduct of health outcomes research; the second course (822) focuses on applying health outcomes research through the development and implementation of a research project. In the first course Penn faculty researchers will use their ongoing studies to illustrate how study design, sampling, measurement, and advanced statistical techniques can be employed to address the various challenges inherent in health outcomes research. In the second course, students will design and implement a health outcomes research project.
Taught by: Lake; Aiken
Course offered spring; odd-numbered years
Prerequisites: Prior coursework at undergraduate or masters level in statistics and quantitative methods.
Activity: Seminar
1 Course Unit
NURS 823 Designing Interventions to Promote Health and Reduce Health Disparities
Advanced analysis, design and evaluation of interventions to promote health and reduce health disparities with a focus on underserved vulnerable minority or ethnic populations, through culturally competent research, education and clinical practice. Areas to be evaluated include:
- Health disparities as it relates to health promotion and disease prevention behavioral intervention research in vulnerable communities
- Concepts of marginalization, race, ethnicity, class, gender and culture as it relates to health disparities
- Social-psychological theoretical and research approaches related to developing culturally congruent health promotion interventions to reduce health disparities for vulnerable populations
- The use of elicitation, focus groups and ethnographic techniques to tailor health behavior theory to meet the needs of the population
- Culturally competent research methodologies, involving education and/or clinical practice, e.g. culturally competent measures, recruitment, retention, and informed consent in hard to reach populations
- Community participatory research as a strategy for working with the community to build research partnership and build capacity for sustained health promotion initiatives
- Health promotion intervention strategies for reducing health disparities in vulnerable communities
- Strategies to evaluate the effectiveness of interventions using randomized controlled trials (RCTs) in community and clinical settings
- Strategies for tailoring successful evidenced-based health promotion interventions to a variety of different populations for use in clinical trials and community settings
- Examine approaches for the translating and disseminating evidenced-based intervention research

Taught by: Jemmott; Teitelman
Course offered spring; odd-numbered years
Activity: Seminar
1 Course Unit
Notes: Doctoral Students Only

NURS 824 Health Equity: Conceptual, Linguistic, Methodological, and Ethical Issues
The course focuses on advanced analysis and evaluation of theories, concepts, and methods related to health equity. Topic areas include models and frameworks of health equity; linguistic choices related to equity, disparity, and vulnerability; role of economics, class, gender, sex, sexuality, race, and ethnicity; health equity in special populations; and issues in health policy, research ethics, and research methods. Emphasis is on advanced discourse and analysis of health equity theory and research.

Taught by: Sommers
Course offered fall; odd-numbered years
Activity: Seminar
1 Course Unit
Notes: Doctoral Students Only

NURS 825 Seminar on Integrative Science in Aging
This fall semester interprofessional seminar will prepare students and fellows to identify appropriate measurement tools for use in aging research. We will specifically focus on analysis of selected concepts, models and measures central to the integrative science in aging. Topics include measurement of geriatric syndromes, models commonly used in integrative science of aging, outcomes of evidence-based care in older adults, regulatory and ethical issues specific to the conduct of research with older adults.

Taught by: Cacchione; Ersek
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: For Doctoral Students Only

NURS 826 Advanced Qualitative Research Methods
The course extends beginning qualitative research methods skills to a more advanced level. Students planning a dissertation or career focus in qualitative or mixed methods may use the course to refine interest and skill. The focus of the course centers on interactionist perspectives and collective analysis though methods tangential to these perspectives. Standpoint and participatory methods and analysis may be considered given sufficient student interest. Students are actively involved in selection and critique of seminal and critical readings. Students must have at their disposal a suitable dataset with commensurate permissions or have plans to collect qualitative data amenable to analysis during the course term. This data base can be from previous research proposals and fieldwork can be used as the building blocks for the course assignment(s). The course will focus on data collection, analyses, interpretation, and presentation of results. Skill building will center on collection and management of data; analytic technique including comparative, narrative, and text analysis; development and management of coding schemas; abstraction and development of situation specific theory; and dissemination and diffusion of findings, theories, and relevance to similar phenomena and use in practice.

Taught by: Kagan
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: For Doctoral Students Only

NURS 827 Self-Care of Chronic Illness
This course introduces the history, definitions, predictors, measurement, and outcomes of self-care in chronic illness. Historical, classic and current literature from various disciplines will be studied to give students a broadened perspective of the self-care construct and the issues that patients face when dealing with chronic illness.

Taught by: Riegel
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: For PhD Students Only
NURS 828 Response to Chronic Illness: Theory and Research
Millions of people of all ages live with chronic illness(es). A diagnosis of a chronic illness is a life-changing event, causing disruption and a sense of loss for many. Common early responses are stress, anxiety, depression, fear, and anger. Over time, with support and experience with the illness, many adjust. But, others report persistent feelings of loss due to physical, emotional, spiritual/existential, social, occupational, and/or financial influences of chronic illness. Those who adjust the best typically find a way to return a sense of normalcy to their lives. Loved ones and caregivers are equally affected by chronic illness and much has been written in recent years about caregiver burden. However, some individuals (caregivers and patients) report positive responses to illness, including a deepened purpose for living and a reordering of life priorities. The focus of this course is on individual responses to chronic illness-the person diagnosed and his/her loved ones. This course is intended to complement N818, which focuses on families and dyads dealing with chronic illness. In this course we will explore the major theoretical perspectives that underlie this field. The literature describing common responses of both those diagnosed and their loved ones as well as the social and cultural context that helps explain the responses of individuals facing chronic illness will be examined. Methods used to study chronic illness will be explored in depth.
Taught by: Riegel
Course usually offered in fall term
Prerequisite: Permission of faculty
Activity: Seminar
1 Course Unit

NURS 829 Measurement of Physiologic Variables Related to Health Outcome Disparity
This graduate course is an advanced exploration of biometric methods (branch of science that includes the measurement of physiological variables and parameters) and their use in quantitative research. A particular focus will be on biological measures that can be used as outcome variables to evaluate interventions to promote health and health equity, and reduce health outcome disparities in vulnerable or marginalized populations. Areas to be evaluated include: * Measurement theory and instrument science as they relate to biological signals; role of biometrics in health outcomes disparity research * Ethical considerations of biometric technology; mitigating perceived threats (profiling, stereotyping); the role of human subjects considerations; the responsible conduct of research * Derivation and types of biologic signals; time-based characteristics * Accuracy and precision of biologic measures; random and non-random error; application and exemplars of strategies to determine accuracy and precision * Role of biological rhythms in biometric measurement; analysis of multiple data points and repeated measures of biological variables * Methods relative to vulnerable women, children, and families: genetics; environmental contaminants; digital image analysis; hormones, metabolites; drugs and alcohol
Taught by: Sommers
Course offered fall; even-numbered years
Activity: Seminar
1 Course Unit
Notes: For Pre-Doctoral and Post-Doctoral students interested in describing health disparities and developing and testing interventions in vulnerable women, children, and families.

NURS 830 Conducting Research in Global Women's Health
An introduction to theoretical and methodological issues as they relate to conducting research in global women's health. Advanced analysis of historical, social, cultural, economic, political, technological and geographical contexts as they influence the health of girls and women across the lifespan and their relation to health care systems as both clients and providers. This includes contextual issues that constrain the provision & receipt of adequate healthcare. A critical examination of theoretical and methodological issues pertaining to research on women and girls conducted around the world across disciplines. A focused and intensive exploration of place as it pertains to women and girls formal and informal strucuturs of health care delivery as those needing and/or seeking health care, and as those providing health care to others. Students will examine the multiple dimensions and qualities of these endeavors (e.g. activity, power, control, visibility, value, and remuneration) and the intersection of gender and health - locally, globally and across borders. Students will focus thier examination on the implications of seeking and providing health care for women's and girls’ health and well-being. By examining issues in local and global contexts and across geographical boundaries, students will have the opportunity to challenge gendered, class, political, and cultural assumptions related to women's health.
Taught by: Teitelman
Course usually offered in fall term
Prerequisites: Completion of course in global health (this may include a reputable online course eg: Coursera), or equivalent background (eg. global health field experience). Permission of Instructor.
Activity: Seminar
1 Course Unit
Notes: For graduate and professional students from any field with an interest in global women's health; Masters students by permission of instructor.

NURS 831 Advanced Topics in Health Informatics
This course is designed to survey a broad range of advanced topics in the field of health informatics. Course faculty and invited speakers will provide the content for weekly meetings conducted in a blended environment (both on-line and in the classroom). Each week, students will listen to a lecture and then participate in a group discussion. Approximately half of these lecture/discussion sessions will take place in a "live" classroom, while the remainder will be available asynchronously in an online setting (i.e. using Blackboard). There will be no textbook, however each speaker will provide links to web-based resources that provide either background information or further elaboration of their topic. A group of students (depending upon size of class, probably 2-3 per topic) will take the lead for each topic, communicating with the speaker and facilitating the class discussion. As a final project, these student groups will also develop a more complete web resource for their selected topic.
Taught by: Bowles
Course usually offered in spring term
Prerequisites: NURS 651, NURS 551, SYS 528, or permission of instructor
Activity: Lecture
1 Course Unit
NURS 832 Laboratory Based Biological Measures
This graduate course is an advanced, mentored exploration of biological measurement techniques used in nursing research. This course will provide an opportunity to gain a broad-based understanding of laboratory methodology, biomarkers, and translational research. Concepts of biological sample processing, storage, quality assurance and control and analysis will be covered. Laboratory measurements with a focus on genetic regulation of biomarkers related to stress, pain, and sleep/fatigue will be covered.
Taught by: Libonati; Muthukumaran
Course usually offered in fall term
Prerequisites: Biology, Chemistry, Physiology, and Permission of Instructor
Activity: Seminar
1 Course Unit
Notes: For Doctoral and Post-Doctoral students interested in biobehavioral research laboratory techniques.

NURS 833 Measurement of Health-Related Behavior and Determinants
Taught by: Karen Glanz
Activity: Seminar
1 Course Unit
Notes: This one semester seminar will provide a detailed overview of measurement of health-related behaviors and determinants of behavior. The course will cover characteristics of measures, data collection, and how to apply the science of measurement to specific health research questions. The course will emphasize how to apply the science of measurement to specific health research questions. The course will provide a detailed overview of measurement of health-related behaviors and determinants of behavior. Students will integrate concepts and topics covered in the course as they work on a measurement project in their specific area(s) of interest and engage in problem-solving with their peers. This course is intended for doctoral studentand advanced masters-level students in the health sciences.

NURS 836 Patient-Reported Symptoms & Outcomes for Clinical Research
Patient-reported symptoms and outcomes are central to health science and have assumed increasing importance in the broader research arena. The research goal, conceptual clarity of variables, participant characteristics, instrument psychometrics, degree of coarseness/specificity, and participant burden are all essential to consider in selecting patient-reported symptom and outcome measures. This course focuses on linking study needs, design considerations, theoretical concepts, empirical measures, data collection strategies, and analytic approaches to patient-reported symptoms and outcomes for clinical research. Specific symptoms and outcomes examined in detail may include functional status, quality of life, health status, well-being, sleep, fatigue, weight, pain, shortness of breath, depression, stress, and nausea but each semester will be tailored to the research interests of the seminar participants.
Taught by: Richmond
Course usually offered in fall term
Activity: Seminar
1 Course Unit

NURS 837 Web-based Research Methodology
This doctoral elective course will provide an introduction to Web-based research methods in health-related disciplines. This course will examine research methods that have been adapted to the study of human subjects through the Web. This course will have particular emphasis on quantitative and qualitative empirical methods using the Web as a data collection medium. Another important feature of this course will be intensive analysis of ethical and methodological issues conducting research through the Web. Areas to be analyzed include: types of Web-based research; advantages and disadvantages of Web-based research; vehicles (e.g. funding, mentoring) that have supported Web-based research; human subject protection issues; issues/concerns in recruitment and data collection in Web-based research; and professional vehicles (e.g. scholarly publication, lay publications, speaking forums) that have helped disseminate the knowledge derived from Web-based research.
Taught by: Im
Course usually offered in fall term
Prerequisite: Enrollment in a Doctoral Program
Activity: Seminar
1 Course Unit

NURS 839 Mixed Methods Research
This course will focus on mixed methods research techniques including mixed methods design, developing mixed methods research questions, data collection, analyses focusing on data integration of qualitative and quantitative data, interpretation, and presentation of results. Skill building will center on sampling, collection, and management of data; data integration techniques; data visualization, methodological rigor and reporting data including dissemination of findings. Students will complete a mixed methods “mini” proposal.
Taught by: Brawner
Course usually offered in fall term
Prerequisites: Qualitative Research Methods; Availability of qualitative & quantitative data sets.
Activity: Seminar
1 Course Unit

NURS 849 Exploring Data Science Methods with Health Care Data
The growth and development of electronic health records, genetic information, sensor technologies and computing power propelled health care into the big data era. This course will emphasize data science strategies and techniques for extracting knowledge from structured and unstructured data sources. The course will follow the data science process from obtaining raw data, processing and cleaning, conducting exploratory data analysis, building models and algorithms, communication and visualization, to producing data products. Students will participate in hands-on exercises whenever possible.
Taught by: Bowles, K; Milo
Course usually offered in spring term
Prerequisites: Students must have completed at least two, sequential graduate level statistics courses.
Activity: Lecture
1 Course Unit

NURS 851 Dnp Project I: Translating Evidence To Practice
Activity: Lecture
1 Course Unit

NURS 852 Translating Ev - Prac II: Dnp Project II
Activity: Lecture
1 Course Unit
**NURS 853 Translating Ev- Prac III: Dnp Project III**
Activity: Lecture
0.5 Course Units

**NURS 854 DNP Project IV**
Course usually offered in fall term
Activity: Lecture
1 Course Unit

**NURS 858 Professional Aspects & Leadership For Nurse Anesthesia Practice**
Course usually offered summer term only
Activity: Lecture
1 Course Unit

**NURS 890 Nursing Doctoral Teaching Residency**
The purpose of this required one semester teaching residency is to enhance the expertise of students in the role of educator. The residency will be tailored to the student's individual learning needs. At the minimum, students with no or minimal prior teaching experience will gain a beginning level of expertise in course planning, course evaluation, dealing with difficult student situations, test construction, paper assignment construction and grading, content delivery methods, as well as other aspects of the faculty teaching role. Students with more extensive teaching experience will tailor their residences with their residency supervisor to enhance their expertise in these various areas.
Taught by: Designated Member of the School of Nursing Grad Group
Course usually offered in fall term
Activity: Independent Study
1 Course Unit
Notes: For Nursing Doctoral Students Only

**NURS 897 Nursing Doctoral Research Residency**
The purpose of this required one semester research residency is to enhance student research training early in the doctoral program by providing a mentored research experience. The residency is designed to be a tailored hands-on experience to provide students with exposure and the opportunity to participate in one or more aspects of an ongoing research project. Research residencies are experiential activities designed to meet the student's individual learning needs. At the minimum, students with no or minimal prior research experience will gain a beginning level of experience on a variety of components of an ongoing research project. Students with more extensive research experience will tailor their residences with their residency supervisor to enhance their expertise in these various areas.
Taught by: Designated Member of the School of Nursing Grad Group
Course usually offered in fall term
Activity: Independent Study
1 Course Unit
Notes: For Nursing Doctoral Students Only

**NURS 900 Directed Study**
Must be arranged with the written permission of the sponsoring faculty member prior to registration.
One-term course offered either term
Activity: Independent Study
1 Course Unit

**NURS 995 Dissertation**
Dissertation General Tuition
One-term course offered either term
Activity: Dissertation
1 Course Unit
OPERATIONS, INFORMATION AND DECISIONS (OIDD)

OIDD 101 An Introduction to Operations, Information and Decisions
OIDD 101 explores a variety of common quantitative modeling problems that arise frequently in business settings, and discusses how they can be formally modeled and solved with a combination of business insight and computer-based tools. The key topics covered include capacity management, service operations, inventory control, structured decision making, constrained optimization and simulation. This course teaches how to model complex business situations and how to master tools to improve business performance. The goal is to provide a set of foundational skills useful for future coursework at Wharton as well as providing an overview of problems and techniques that characterize disciplines that comprise Operations and Information Management.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 105 Developing Tools for Data Access and Analysis (VBA and SQL Programming)
This course provides an introduction to the construction of data analysis tools that are commonly used for business applications, especially in consulting and finance. The course builds on the spreadsheet and analytical skills developed in OPIM 101, providing a much more extensive treatment of spreadsheet application development and database management. The first portion of the course will focus on programming in VBA, the embedded programming language in the Microsoft Office suite of applications. This will be supplemented with discussion of industry best practice in software development, such as specification development, interface design, documentation, and testing. The second portion of the class will emphasize data access and analysis utilizing SQL, the industry standard language for interacting with database software.
Activity: Lecture
1 Course Unit

OIDD 201 Technology Management, Information and the Digital Economy
OIDD 201 introduces students to two critically important and tightly linked concepts. The first is online business model innovation, including key opportunities to exploit information-based strategies in businesses as diverse as Capital One and Uber (newly vulnerable markets) and Amazon and Airbnb (online channel conflict). The second is computer-based simulation modeling to assess the viability of an online innovation, the strategies for its launch, and its economic value.
Activity: Lecture
0.5 Course Units

OIDD 210 Management Information Systems
This course provides a broad-based introduction to the management of information technology focusing on three interrelated themes: technology, organization, and strategy. The goal of this course is to equip students with the knowledge and tools to utilize information systems to pursue a firm’s strategic and organizational goals. The course has no prerequisites other than a general interest in the applications of information technology.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 215 Intro to Analytics and the Digital Economy
Over the past decade, there has been a dramatic rise in the use of technology skills and data analytic thinking to solve business problems in many domains, including finance, HR, policy, transport, and strategy. As a result, the modern “analytic leader” increasingly requires the use of technology, statistics, and data skills to facilitate business analysis. This includes knowing how to effectively frame data-driven questions and use a new generation of technology tools that are becoming available to acquire, analyze, interpret, and communicate insights derived from data. Students in this hands-on course will engage with weekly labs that introduce them to new technologies, techniques, and data-driven business challenges.
Activity: Lecture
0.5 Course Units

OIDD 220 Introduction to Operations Management
This course introduces basic concepts of operations management and application of the same in business practice today. We will examine the theoretical foundations of operations management and how these principles or models can be employed in both tactical and strategic decision making. Topics covered in detail are forecasting techniques, planning under deterministic and uncertain demand, operations planning and scheduling, queuing theory, service operations management, newsvendor models, risk pooling strategies in firms, capacity and revenue management, and supply chain coordination. We will conclude by discussing how supply chains evolve under technological change.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 221 Operations Strategy and Process Management
This course examines how organizations can develop and leverage excellence in process management. The first module focuses on operations strategy. In these classes, we examine what constitutes an operations strategy and how organizations can create value by managing complexity, uncertainty, and product development. In the second half of the course, we discuss recent developments in both manufacturing and service industries. Specifically, we examine initiatives in quality, lean manufacturing and enterprise-wide planning systems. The course is recommended for those interested in consulting or operations careers, as well as students with an engineering background who wish to develop a better understanding of managing production processes.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Cross listed with ESE 522

OIDD 222 Internet Law & Policy
The Internet has become central to business and daily life. This course looks at how courts, legislatures, and regulators confront the major legal issues that the Internet poses. The fundamental challenge is that law comes from governments and other institutions in specific places, but the Internet is global and virtual. Conflicts such as the shutdown of the Napster peer-to-peer file-sharing service and the debate over “network neutrality” regulations for broadband access illustrate the challenge. How does the legal system think about Google, Skype, Twitter, and Facebook? How should it?
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: cross listed with LGST 222
OIDD 224 Analytics for Service Operations
This course considers tools and concepts that can generate operational excellence for the production and delivery of services in industries such as banking, transportation, health care, and communications. Since services typically are intangible, not storable or transportable, and often highly variable, the management of their operations is complex and involves distributed operations with a significant amount of customer contact. Therefore, the understanding and effective management of service operations requires specialized analytical tools and customer-centric focus. This course covers a mix of topics with the emphasis on quantitative methods, application of analytics and strategic frameworks. The class will introduce simple models and basic concepts that support analysis of tradeoffs in a variety of common service processes. Students also will have the opportunity to apply the ideas and analytical models developed in the course to a particular service industry. They will do so by conducting a guided, application group project which includes opportunities for in-depth analysis of a particular service process and field work.
Taught by: Faculty
Activity: Lecture
1 Course Unit

OIDD 236 Scaling Operations in Technology Ventures: Linking Strategy and Execution
This course helps students learn to make strategic scaling decisions that are grounded in operational reality. Students will study how to build and evaluate the "operation systems" of the firm to maximize value with the focus on scaling the firm’s operations. This involves tailoring the firm's operational competencies, assets, and processes to a specific business strategy. The course will approach the challenge of scaling operations and operations strategy by taking a holistic view that incorporates competitive strategy, financial evaluation, and the customer experience.
Activity: Lecture
1 Course Unit

OIDD 240 Gamification for Business
See course description for LGST 240.
Activity: Lecture
1 Course Unit

OIDD 245 Advanced Analytics and the Digital Economy
This course is meant as a follow-on to OIDD 215 (or with instructor permission). The goal of this segment is to further immerse students in the world of data science projects. Specifically, we focus on working with large, unstructured data sources and gain experience with introductory machine learning concepts. Students who take this segment of the course will spend time inside and outside of the classroom combining data and code to develop data products for a number of new industries, including finance, the restaurant industry, and health care. At the end of the course, students will be expected to complete an advanced data project, which involves acquiring data from an online web property (e.g. Uber, Facebook) through an API and developing an interactive data visualization. Students who complete this course should have the necessary tools to begin building a portfolio of data science projects that they can share online through platforms such as GitHub or with future employers.
Prerequisite: OIDD 215
Activity: Lecture
0.5 Course Units

OIDD 261 Risk Analysis and Environmental Management
Taught by: Kunreuther
One-term course offered either term
Also Offered As: ESE 567
Activity: Lecture
1 Course Unit
Notes: Crosslisted with OIDD 761, BEPP 261, 761, 961, and ESE 567. See description under OIDD 761.

OIDD 263 Environmental & Energy Economics and Policy
This course examines environmental and energy issues from an economist's perspective. Over the last several decades, energy markets have become some of the most dynamic markets of the world economy, as they experienced a shift from heavy regulation to market-driven incentives. First we look at scarcity pricing and market power in electricity and gasoline markets. We then study oil and gas markets, with an emphasis on optimal extraction and pricing, and geopolitical risks that investors in hydrocarbon resources face. We then shift gears to the sources of environmental problems (many of which are energy-related), and policy makers can intervene to solve some of these problems. We talk about the economic rationale for a broad range of possible policies: environmental taxes, subsidies, performance standards and cap-and-trade. In doing so, we discuss fundamental concepts in environmental economics such as externalities, valuation of the environment and the challenge of designing international agreements. At the end of the course, there will be special attention for the economics and finance of renewable energy and policies to foster its growth. Finally, we discuss the transportation sector, and analyze heavily debated policies such as fuel-economy standards and subsidies for green vehicles.
Taught by: Arthur van Benthem
Activity: Lecture
1 Course Unit

OIDD 290 Decision Processes
This course is an intensive introduction to various scientific perspectives on the processes through which people make decisions. Perspectives covered include cognitive psychology of human problem-solving, judgment and choice, theories of rational judgment and decision, and the mathematical theory of games. Much of the material is technically rigorous. Prior or current enrollment in STAT 101 or the equivalent, although not required, is strongly recommended.
Prerequisites: STAT 101 or equivalent strongly recommended.
Activity: Lecture
1 Course Unit

OIDD 291 Negotiations
Negotiation is the art and the science of creating good agreements between two or more parties. This course develops managerial negotiation skills by mixing lectures and practice, using cases and exercises in which students negotiate with each other. The cases cover a wide range of problems and settings: one-shot deals between individuals, repeated negotiations, negotiations over several issues, and negotiations among several parties (both within and between organizations). Class participation and case studies account for half the course grade. Students will also write about a negotiation experience outside of class.
One-term course offered either term
Activity: Lecture
1 Course Unit
OIDD 292 Adv Topics Negotiation
This course is designed to teach negotiation principles and to enable students to develop their negotiation skills. This course builds upon and assumes familiarity with the negotiation concepts covered in the prerequisite for this course: "Negotiations." In this course, we extend the study and practice of negotiations, and we develop a deeper understanding of how specific aspects of the negotiation process impact outcomes. Through course lectures, readings, and exercises, students will develop a rich framework for thinking about the negotiation process and acquire tools for guiding the negotiation process.
Activity: Lecture
1 Course Unit

OIDD 298 Study Abroad: Negotiations
Activity: Lecture
1 Course Unit

OIDD 299 Judg & Dec Making Res Im
This class provides a high-level introduction to the field of judgment and decision making (JDM) and in-depth exposure to the process of doing research in this area. Throughout the semester you will gain hands-on experience with several different JDM research projects. You will be paired with a PhD student or faculty mentor who is working on a variety of different research studies. Each week you will be given assignments that are central to one or more of these studies, and you will be given detailed descriptions of the research projects you are contributing to and how your assignments relate to the successful completion of these projects. To complement your hands-on research experience, throughout the semester you will be assigned readings from the book Nudge by Thaler and Sunstein, which summarizes key recent ideas in the JDM literature. You will also meet as a group for an hour once every three weeks with the class’s faculty supervisor and all of his or her PhD students to discuss the projects you are working on, to discuss the class readings, and to discuss your own research ideas stimulated by getting involved in various projects. Date and time to be mutually agreed upon by supervising faculty and students. the 1CU version of this course will involve approx. 10 hours of research immersion per week and a 10-page paper. The 0.5 CU version of this course will involve approx 5 hours of research immersion per week and a 5-page final paper. Please contact Maurice Schweitzer if you are interested in enrolling in the course: schweitzer@wharton.upenn.edu
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: Instructor permission required to enroll.

OIDD 311 Business Computer Languages
This course is taught with the more descriptive title of "Scripting for Business Analytics." "Business Analytics" refers to modeling and analysis undertaken for purposes of management and supporting decision making. The varieties of techniques and methods are numerous and growing, including simple equational models, constrained optimization models, probabilistic models, visualization, data analysis, and much more. Elementary modeling of this sort can be undertaken in Excel and other spreadsheet programs, but "industrial strength" applications typically use more sophisticated tools, based on scripting languages. Scripting languages are programming languages that are designed to be learned easily and to be used for special purposes, rather than for large-scale application programming. This course focuses on the special purposes associated with business analytics and teaches MATLAB and Python in this context. MATLAB and Python are widely used in practice (both in management and in engineering), as are the business analytic methods covered in the course. Prior programming experience is useful, but not required or presumed for this course.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 314 Enabling Technologies
Conducting business in a networked economy invariably involves interplay with technology. The purpose of this course is to improve understanding of technology (what it can or cannot enable) and the business drivers of technology-related decisions in firms. We will be discussing some of the new and most disruptive technologies right now to stimulate thought on new applications for commerce and new ventures, as well as their implications to the tech industry as a whole. Topics include social media, online advertising, big data, and cloud computing. The course will take a layered approach (from network infrastructure) to data infrastructure to applications infrastructure, or technology enablers of commerce) to first, understanding and then, thinking about technology enablers. Network infrastructure layers include fundamentals of wired and wireless infrastructure technologies such as protocols for networking, broadband technologies - for last (DSL, Cable etc) and other miles (advances in optical networking) and digital cellular communications. Data infrastructure layers include usage tracking technologies, search technologies and data mining. Direct application layers include personalization technologies (CRM), design technologies for content and exchanges, software renting enablers, application service provision, agents and security mechanisms. Finally some emerging technology enablers (such as Bluetooth, biometrics and virtual reality) are identified and discussed.
One-term course offered either term
Activity: Lecture
1 Course Unit
OIDD 315 Data Base Management Systems
Organizations continue to increase their reliance on computerized database management and information retrieval systems. Whether purchasing airplane tickets, managing retail merchandise, processing financial trades or simply sending email, data management defines the modern firm. This course aims to provide students with both a practical and theoretical introduction to the design, implementation, and use of such systems. Students are introduced to the fundamental concepts and principals of data management and gain practical experience by designing and deploying a working system. Throughout the course, case studies are used to illustrate theoretical concepts while acquainting students with innovative commercial uses of these systems.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 316 Systems Analysis, Design, and Implementation
At its surface this course introduces students to the management and technical issues associated with planning and designing large-scale computer systems. It does so in part as an elaboration of Fred Brooks's observation that "The technology, the surrounding organization, and the traditions of the craft conspire to define certain items of paperwork." But if that were our only goal, we would soon find ourselves mired in (and probably arguing about) the minutiae of how such paper items ought to be constructed - not a very helpful pedagogical exercise. So then, at a deeper level we seek to understand why the conspiracy endures, and why in spite of it, systems still take too long and cost too much to build as a systems project's team members struggle to understand one another across disparate discourse communities and world views, differences in experience and training, and over long periods of time. More than anything else, within the context of working with the main tools and techniques of systems analysis and design, this course treats communication, corroboration, and thinking within the boundaries of a technology-oriented project as its primary subjects.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 319 Advanced Decision Systems: Evolutionary Computation
This course is taught with the more descriptive title of "Agents, Games, and Evolution." It explores applications and fundamentals of strategic behavior. Strategic, or game-theoretic, topics arise throughout the social sciences. The topics include--and we discuss--trust, cooperation, market-related phenomena (including price equilibria and distribution of wealth), norms, conventions, commitment, coalition formation, and negotiation. They also include such applied matters as design of logistics systems, auctions, and markets generally (for example, markets for electric power generation). In addressing these topics we focus on the practical problem of finding effective strategies for agents in strategic situations (or games). Our method of exploration will be experimental: we review and discuss experiments, principally computational experiments, on the behavior of boundedly rational agents in strategic (or game-theoretic) situations. Course work includes readings, discussions in class (organized as a seminar), examinations, and a course project on a topic chosen by the participants.
One-term course offered either term
Activity: Seminar
1 Course Unit

OIDD 321 Introduction to Management Science
Understanding how to use data and business analytics can be the key differential for a company's success or failure. This course is designed to introduce fundamental quantitative decisionmaking tools for a broad range of managerial decision problems. Topics covered include linear, nonlinear, and discrete optimization, dynamic programming, and simulation. Students will apply these quantitative models in applications of portfolio management, electricity auctions, revenue management for airlines, manufacturing, advertising budget allocation, and healthcare scheduling operations. Emphasis in this course is placed on mathematical modeling of real world problems and implementation of decision making tools.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 325 Computer Simulation Models
This course focuses on agent-based computational models in the social sciences, especially in economic, in commercial and in strategic (game-theoretic) contexts. This relatively recent and now rapidly-developing form of computer simulation seeks to explain and predict complex social phenomena "from the ground up", through interactions of comparatively simple agents. The course reviews experimental and theoretical results, and exposes the students to modern development environments for this form of simulation. Students have the opportunity to design and implement agent-based simulations. Programming, however, is not required. This course aims to integrate various topics in agent-based simulation, while developing an appreciation of the problems that are particularly characteristic of this form of simulation so that students will understand its promise and potential.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 353 Mathematical Modeling and its Application in Finance
Quantitative methods have become fundamental tools in the analysis and planning of financial operations. There are many reasons for this development: the emergence of a whole range of new complex financial instruments, innovations in securitization, the increased globalization of the financial markets, the proliferation of information technology and the rise of high-frequency traders, etc. In this course, models for hedging, asset allocation, and multi-period portfolio planning are developed, implemented, and tested. In addition, pricing models for options, bonds, mortgage-backed securities, and other derivatives are studied. The models typically require the tools of statistics, optimization, and/or simulation, and they are implemented in spreadsheets or a high-level modeling environment, MATLAB. This course is quantitative and will require extensive computer use. The course is intended for students who have strong interest in finance. The objective is to provide students the necessary practical tools they will require should they choose to join the financial services industry, particularly in roles such as: derivatives, quantitative trading, portfolio management, structuring, financial engineering, risk management, etc. Prospective students should be comfortable with quantitative methods such as basic statistics and linear, nonlinear, and discrete optimization, dynamic programming, and simulation. Students will apply these quantitative models in applications of portfolio management, electricity auctions, revenue management for airlines, manufacturing, advertising budget allocation, and healthcare scheduling operations. Emphasis in this course is placed on mathematical modeling of real world problems and implementation of decision making tools. Students will apply these quantitative models in applications of portfolio management, electricity auctions, revenue management for airlines, manufacturing, advertising budget allocation, and healthcare scheduling operations. Emphasis in this course is placed on mathematical modeling of real world problems and implementation of decision making tools.
One-term course offered either term
Activity: Lecture
1 Course Unit

Prerequisite: OIDD321 (or a similar optimization class)
OIDD 380 Operations Strategy Practicum
This course focuses on the management of operations at manufacturing and service facilities located in Israel that are used either by domestic corporations or by multinational companies. The emphasis is on the evolving patterns of operations strategies adopted by firms for producing products, sourcing manufacturing, distributing products, delivering services and managing product design as well as on programs for enhancing quality, productivity and flexibility and managing technology. We will focus on formulation and execution of such strategies for established Israeli multinationals with world class operations and innovative strategies as well as start-ups and smaller companies that are scaling their global supply chain infrastructure to support growth. The course will consist of a set of site visits in Israel during Winter Break that will provide the opportunity to observe company processes directly and in-class sessions which include lectures, case discussions and management speakers who will describe their companies’ current strategy. NOTE: THIS COURSE REQUIRES YOU TO SUBMIT AN APPLICATION FOR ADMISSION. Applications will be reviewed on a rolling basis and enrollment will be limited. Please contact Ramon Jones at ramjones@wharton.upenn.edu for more information. Prerequisites: OIDD 101 or an equivalent course that introduces basics concepts of operations management, supply chains and quantitative methods. Other OIDD and related courses or prior experience can also be used to satisfy the pre-requisite requirement (check with instructor).
Activity: Lecture
1 Course Unit

OIDD 397 Retail Supply Chain Management
Activity: Lecture
0.5 Course Units
Notes: See description under OIDD 697

OIDD 398 Retail Supply Chains
The course will examine how retailers understand their customers’ preferences and respond with appropriate products through effective supply chain management. The course class sections will deal with the following major items: (1) linking finance and operations in retailing, (2) what assortment of products should a retailer carry in each store, (3) optimizing the inventory carried of each SKU in each store, (4) markdown pricing, (5) store execution and (6) supply chain design. In addition, we will consider a broad range of issues facing two retailers, Mothers Work, and Best Buy, when we are visited by current and past senior executives from these firms. The course is highly recommended for students interested in careers in: (1) Retailing and retail supply chains, (2) Businesses like banking, consulting and information technology that provide services to retail firms, (3) Manufacturing companies that sell their products through retail firms. Even if you don’t expect to work for a retailer, this course can be useful to you in two ways. First, because retailers are such dominant players in many supply chains today, it is important that the processes they follow be understood by manufacturers and distributors, or by the consultants and bankers that service retailers and their suppliers. Second, the problems retailers face (e.g., making data accessible, interpreting large amounts of data, reducing lead-times, eliciting the best efforts from employees, and so forth), are shared by firms in many other industries. It’s easier to understand these issues through case studies in retailing because we all experience the industry as consumers and can readily relate to chronic problems such as stock outs and markdowns.
Activity: Lecture
1 Course Unit

OIDD 399 Supervised Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Instructor permission required to enroll (except section 002). Wharton Undergraduate students must also receive approval from the Undergraduate Division. Section 002 is the Management and Technology Freshman Seminar; instruction permission is not required for this section and is only open to MT students.

OIDD 410 Decision Support Systems
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Crosslisted with OIDD 672. See description under OIDD 672.

OIDD 415 Product Design
This course provides tools and methods for creating new products. The course is intended for students with a strong career interest in new product development, entrepreneurship, and/or technology development. The course follows an overall product design methodology, including the identification of customer needs, generation of product concepts, prototyping, and design-for-manufacturing. Weekly student assignments are focused on the design of a new product and culminate in the creation of a prototype, which is launched at an end-of-semester public Design Fair. The course project is a physical good - but most of the tools and methods apply to services and software products. The course is open to any Penn sophomore, junior, senior or graduate student. Also Offered As: IPD 515
Corequisite: Studio Recitation (Spring Semester only)
Activity: Lecture
1 Course Unit

OIDD 416 Design and Development of Web-Based Products and Services
In this course, students will study innovation and new product development in the context of Web-based products and services. This course lies at the intersection of product design and information technology; it is intended for students with general interests in the design of new products and/or information technology management. The course builds from a general product design methodology. For example, students begin with opportunity identification and analysis of user needs. However, the course also extends principles and practices used in innovation and new product development to information technologies in general and the Web in particular. For example, design-for-manufacturing is addressed with open-source software and Web services. Robust Engineering and Design of Experiments is applied to paper prototyping and server log analysis. The course is an interdisciplinary, integrative project-based course. Through weekly assignments, students apply the tools and techniques to the design of a new product, culminating in the initial roll-out of a working service. The course is open to juniors and seniors in SEAS or Wharton
Activity: Lecture
1 Course Unit
OIDD 469 Information Strategy and Economics
The course is devoted to the study of the strategic use of information and the related role of information technology. The topics of the course vary year to year, but generally include current issues in selling digital products, intermediation, and disintermediation, designing and competing in electronic markets, outsourcing, and technology project management. Heavy emphasis is placed on utilizing information economics to analyze new and existing businesses in information-intensive industries. Technology skills are not required, although a background in information technology management (equivalent to OPIM210), strategic management or managerial economics is helpful.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 490 The Science of Behavior Change
The objective of this 14-week discussion-based seminar for advanced undergraduates is to expose students to cutting-edge research from psychology and economics on the most effective strategies for changing behavior sustainably and for the better (e.g., promoting healthier eating and exercise, encouraging better study habits, and increasing savings rates). The weekly readings cover classic and current research in this area. The target audience for this course is advanced undergraduate students interested in behavioral science research and particularly those hoping to learn about using social science to change behavior for good.
Although there are no pre-requisites for this class, it is well-suited to students who have taken (and enjoyed) courses like OIDD 290: Decision Processes, PPE 203/PSYC 265: Behavioral Economics and Psychology, and MKTG 266: Marketing for Social Impact and are interested in taking a deeper dive into the academic research related to promoting behavior change for good. Instructor permission is required to enroll in this course.
Please complete the application if interested in registering for this seminar: https://tinyurl.com/penn-bcfg-seminar
Activity: Seminar
1 Course Unit
Notes: Please complete the application if interested in registering for this seminar: https://tinyurl.com/penn-bcfg-seminar. Application deadline has been extended to July 18th, 2018.

OIDD 515 Product Design
This course provides tools and methods for creating new products. The course is intended for students with a strong career interest in new product development, entrepreneurship, and/or technology development. The course follows an overall product design methodology, including the identification of customer needs, generation of product concepts, prototyping, and design-for-manufacturing. Weekly student assignments are focused on the design of a new product and culminate in the creation of a prototype, which is launched at an end-of-semester public Design Fair. The course project is a physical good - but most of the tools and methods apply to services and software products. The course is open to any Penn sophomore, junior, senior or graduate student.
Also Offered As: IPD 515
Corequisite: Studio Recitation
Activity: Lecture
1 Course Unit
Notes: Only Wharton MBA candidates are allowed to register for OIDD 515. Non-MBA students must register for the OIDD 415, MEAM 415 or IPD 515 cross-listing for the course.

OIDD 611 Quality and Productivity
Matching supply with demand is an enormous challenge for firms: excess supply is too costly, inadequate supply irritates customers. In the course, we will explore how firms can better organize their operations so that they more effectively align their supply with the demand for their products and services. Throughout the course, we illustrate mathematical analysis applied to real operational challenges—we seek rigor and relevance. Our aim is to provide both tactical knowledge and high-level insights needed by general managers and management consultants. We will demonstrate that companies can use (and have used) the principles from this course to significantly enhance their competitiveness.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units

OIDD 612 Business Analytics
"Managing the Productive Core: Business Analytics" is a course on business analytics tools and their application to management problems. Its main topics are optimization, decision making under uncertainty, and simulation. The emphasis is on business analytics tools that are widely used in diverse industries and functional areas, including operations, finance, accounting, and marketing.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

OIDD 613 Managing the Productive Core of the Firm: Information and Business Transformation
Information technology has transformed many industries, including media, financial services, and retailing, among others. These technologies have changed not only how we produce services (e.g., outsourcing and offshoring, and their newest extension, cloud computing) but what services we offer (virtual experiences, online advertising, long tail products and services, and social networking). The purpose of this course is to improve understanding of how information technologies enable transformation of business models within existing organizations as well as the development of completely new business models and new organizational forms. The course will serve as an introductory course on information technologies and will serve as a foundation on which students can explore more advanced technology concepts.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

OIDD 614 Innovation
The course is first and foremost an intensive, integrative, project course in which student teams create one or more real businesses. Some businesses spun out of the course and now managed by alumni include Terrapass Inc. and Smatchy Inc. The project experience is and exciting context in which to learn key tools and fundamentals useful in innovation, problem solving, and design. Examples of these tools and fundamentals are: problem definition, identification of opportunities, generating alternatives, selecting among alternatives, principles of data graphics, and managing innovation pipelines. The course requires a commitment of at least 10 hours of work outside of class and comfort working on unstructured, interdisciplinary problems. Students with a strong interest in innovation and entrepreneurship are particularly encouraged to enroll.
Please read carefully the syllabus posted on-line before registering for this course.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
OIDD 615 Operations Strategy
Operations strategy is about organizing people and resources to gain a competitive advantage in the delivery of products (both goods and services) to customers. This course approaches this challenge primarily from two perspectives: 1) how should a firm design their products so that they can be profitably offered; 2) how can a firm best organize and acquire resources to deliver its portfolio of products to customers. To be able to make intelligent decisions regarding these high-level choices, this course also provides a foundation of analytical methods. These methods give students a conceptual framework for understanding the linkage between how a firm manages its supply and how well that supply matches the firm’s resulting demand. Specific course topics include designing service systems, managing inventory and product variety, capacity planning, approaches to sourcing and supplier management, constructing global supply chains, managing sustainability initiatives, and revenue management. This course emphasizes both quantitative tools and qualitative frameworks. Neither is more important than the other.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units

OIDD 621 Decision Models and Uncertainty
The applicability and use of management science models have increased dramatically in recent years due to the extraordinary improvements in computer, information, and communication technologies. Personal computers and friendly interfaces have become effective “delivery vehicles” for powerful decision models that were once the exclusive province of experts. This core course in management science has a twofold purpose. First, it seeks to introduce simple models and ideas that provide powerful (and oftentimes surprising) qualitative insights about a large spectrum of managerial problems. Its main topics include linear and integer programming, decision making under uncertainty, and simulation. Second, it aims to give a feeling for the kinds of problems that can be tackled quantitatively, the methods and software available for doing so and the difficulties involved in gathering the relevant data. The emphasis is on models that are widely used in diverse industries and functions areas, including finance, operations, accounting, and marketing.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: Lecture and discussion, with case studies and problem assignments.

OIDD 632 Operations Management: Supply Chain Management
Matching supply with demand is a primary challenge for a firm: excess supply is too costly, inadequate supply irritates customers. Matching supply to demand is easiest when a firm has a flexible supply process, but flexibility is generally expensive. In this course we will 1) learn how to assess the appropriate level of supply flexibility for a given industry and 2) explore strategies for economically increasing a firm’s supply flexibility. While tactical models and decisions are part of this course, the emphasis is on the qualitative insights needed by general managers or management consultants. We will demonstrate that companies can use (and have used) the principles from this course to significantly enhance their competitiveness.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
Notes: Lectures, cases, class discussions.

OIDD 636 SCALING OPERATIONS: Linking Strategy and Execution
This course helps students learn to make strategic scaling decisions that are grounded in operational reality. Students will study how to build and evaluate the “operation systems” of the firm to maximize value with the focus on scaling the firm’s operations. This involves tailoring the firm’s operational competencies, assets, and processes to a specific business strategy. The course will approach the challenge of scaling operations and operations strategy by taking a holistic view that incorporates competitive strategy, financial evaluation, and the customer experience.
Prerequisites: OIDD 611, OIDD 612, STAT 613 or those who have a solid understanding of elementary probability and statistics.
Activity: Lecture
0.5 Course Units

OIDD 640 Digital Game Design Techniques for Business: Rules, Incentives, Applications
Why can’t work be fun? Leading firms are engaging in the practice of gamification, using the techniques of digital game designers to serve objectives as varied as marketing, human resources management, productivity enhancement, training, innovation, and customer engagement. This course will examine the mechanism of gamification and provide an understanding of their effective use in the modern firm.
Cross-listed with LGST 640. The course will draw upon interdisciplinary source material as well as real-world case studies and production game environments to identify effective analytical models, strategies, techniques, and metrics for the application of games to business.
It will also identify a number of significant pitfalls to the successful implementation of gamification techniques, notably legal and ethical issues, the difficulty of making things fun, and the problems with implementing radical change in established firms. The course will include both in-person meetings and web-based online sessions.
Taught by: Werbach, Hunter
One-term course offered either term
Prerequisite: none
Activity: Lecture
1 Course Unit

OIDD 642 Analytics for Services
This course covers a range of analytical methods that are useful tools for capacity management in services, and it will provide you with insights into the economics of a range of services businesses including (i) High-level planning models that account for multiple dimensions of service capacity, (ii) Low-level models of system congestion that capture the relationship between capacity choices, quality of service and, in some cases, system revenue, (iii) Statistical estimation and forecasting models to characterize key measures of future supply and demand.
Prerequisites: Students who have already taken OIDD 611, OIDD 612, and STAT 613 should be well-equipped for the class. Other students should have a solid understanding of elementary probability, statistics and linear programming. For questions regarding the specifics of your background, please contact the instructor.
Activity: Lecture
0.5 Course Units
Notes: Class participation, case write-ups, online quizzes, self-study exercises and a final exam.
 OIDD 643 Analytics for Revenue Management
This course introduces you to the essential concepts and techniques required to understand and implement revenue management (RM). The need for repeated, rapid and cycles of estimation and optimization has driven the development of a set of analytical tools that are particularly well suited for RM. This course focuses on those tools.
Prerequisites: Students who have already taken OPIM 612 and STAT 613 should be well equipped for this class. Other students should have a solid understanding of elementary probability, statistics and constrained optimization. For questions regarding the specifics of your background, please contact the instructor.
Activity: Lecture
0.5 Course Units
Notes: Class participation, case write-ups, online quizzes, self-study exercises and a final exam.

 OIDD 652 Advanced Management Science: Models and Applications
This course will cover applications of decision models to managerial problems in a variety of business functions. The course will use management science techniques such as mathematical programming (LP/IP/NLP), Monte-Carlo simulation, decision trees, probability theory and statistical analysis as the vehicle for applying diverse management theories to real-world problems. Potential in-class applications include product-line selection, risk management, corporate real options, and supply-chain restructuring. The course will emphasis the practical application of these techniques; problems will be solved using popular packages such as Excel, and Crystal Ball.
Course not offered every year
Prerequisite: OPIM 621
Activity: Lecture
0.5 Course Units

 OIDD 653 Mathematical Modeling and its Application in Finance
Quantitative methods have become fundamental tools in the analysis and planning of financial operations. There are many reasons for this development: the emergence of a whole range of new complex financial instruments, innovations in securitization, the increased globalization of the financial markets, the proliferation of information technology and the rise of high-frequency traders, etc. In this course, models for hedging, asset allocation, and multi-period portfolio planning are developed, implemented, and tested. In addition, pricing models for options, bonds, mortgage-backed securities, and other derivatives are studied. The models typically require the tools of statistics, optimization, and/or simulation, and they are implemented in spreadsheets or a high-level modeling environment, MATLAB. This course is quantitative and will require extensive computer use. The course is intended for students who have strong interest in finance. The objective is to provide students the necessary practical tools they will require should they choose to join the financial services industry, particularly in roles such as: derivatives, quantitative trading, portfolio management, structuring, financial engineering, risk management, etc. Prospective students should be comfortable with quantitative methods quantitative methods, such as basic statistics and the methodologies (mathematical programming and simulation) taught in OPIM612 Business Analytics or OPIM321 Management Science (or equivalent). Students should seek permission from the instructor if the background requirements are not met.
Taught by: Tsoukalas
One-term course offered either term
Prerequisite: Either OPIM321 or OPIM612 (or a similar optimization class)
Activity: Lecture
1 Course Unit

 OIDD 654 Product Design and Development
The course provides the student with a number of tools and concepts necessary for creating and managing product development processes. The course consists of two interwoven parts. First, it presents the basic steps that are necessary for moving from a "cool idea" to a product sufficiently mature to launch an entrepreneurial start-up. This includes cases, lectures, and exercises on topics like identifying customer needs, developing a product concept as well as effective prototyping strategies. The capstone of this first part is a real project in which student teams conceptualize and develop a new product or service up to the completion of a fully functional prototype. Second, the course discusses a number of challenges related to product development as encountered by management consultants, members of cross-functional development teams as well as general managers. We will analyze several cases related to, among others, resource allocation in R&D organizations, organizational forms of product development teams, as well as managing development projects across large geographic distances.
Course usually offered in spring term
Activity: Lecture
0.5 Course Units
Notes: Lectures, case and problem analyses, group presentations, the development of a new product to the prototype stage.

 OIDD 655 Operations, Marketing, and Design Integration
This course covers topics that span marketing and operations management. Students will examine issues and decisions that require significant coordination between managers in marketing and operations. Topics include channel management, supply chain design, product variety management and service operations pricing and control.
Course usually offered in spring term
Prerequisites: MKTG 621, MKTG 622, OPIM 631, OPIM 632.
Activity: Lecture
0.5 Course Units
Notes: Crosslisted with MKTG 655

 OIDD 656 Operations Strategy
This course examines how organizations can develop and leverage excellence in process management. The first module focuses on operations strategy. In these classes, we examine what constitutes an operation strategy and how organizations can create value by managing complexity, uncertainty, and product development. In the second half of the course, we discuss recent developments in both manufacturing and service industries. Specifically, we examine initiatives in quality, lean manufacturing and enterprise-wide planning systems. The course is recommended for those interested in consulting or operations careers, as well as students with an engineering background who wish to develop a better understanding of managing production processes.
One-term course offered either term
Prerequisites: OPIM 621, OPIM 631, and OPIM 632 or equivalent
Activity: Lecture
1 Course Unit
Notes: Crosslisted with ESE 522

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OIDD 668 Service Operations Management
The service sector represents the largest segment of most industrial economies. In the U.S., for example, it accounts for approximately 70% of GDP and 70% of employment. In addition to this "pure" service sector, the operations and competitive positions of many manufacturing firms are becoming increasingly service-oriented. While operational excellence is critical for success in most industries today, in a wide range of service industries this is particularly true. For example, recent, significant deregulation in banking, health care, and communications has led to intensified competition and pressure on operations. At the same time, the rapid evolution of information technology has enabled firms to operate in a fashion - and offer a level of service - that has not been previously possible. Elements common to most services make the management of their operations complex, however. In particular, services are intangible, not storable or transportable, and often highly variable. Frequently their delivery involves distributed operations with a significant amount of customer contact. All of these factors make service operations end up looking quite a bit different than manufacturing operations, and the task of achieving excellence in them requires specialized analysis frameworks and tools. This course covers a mix of qualitative and quantitative models that provide the necessary tools. The class will focus on simple models that should help you to better understand both the difficulty of managing and the underlying economics of the service operations being considered. You will have the opportunity to apply these course tools in a group service assessment field project.
One-term course offered either term
Prerequisites: Courses in operations management, linear programming, probability and statistics
Activity: Lecture
0.5 Course Units

OIDD 659 Advanced Topics
The specific content of this course varies from semester to semester, depending on student and faculty interest. Recent topics have included global operations, product design and development, quality management, and logistics strategy. See department for course description.
One-term course offered either term
Prerequisites: To enroll, you should have already completed one of the following courses: OIDD 415, MEAM 415, IPD 509, OIDD 515, IPD 515, MKTG 262, ARCH 725 or MKTG 853.
Activity: Lecture
1 Course Unit

OIDD 662 Enabling Technologies
This course is about understanding emerging technology enablers with a goal of stimulating thinking on new applications for commerce. No prerequisite or technical background is assumed. The class is self-contained (mainly lecture-based) and will culminate in a class-driven identification of novel businesses that exploit these enablers. No prerequisite or technical background is assumed. Students with little prior technical background can use the course to become more technologically informed. Those with moderate to advanced technical background may find the course a useful survey of emerging technologies. The course is recommended for students interested in careers in consulting, investment banking and venture capital in the tech sector.
Activity: Lecture
1 Course Unit
Notes: Lectures, discussions, assignments and class participation.

OIDD 664 Database and Information Management Systems
Data and information are critical to the modern organization. Whether used in knowledge management, business intelligence, enterprise resource planning (ERP), product design, marketing, personalized and other aspects of managing customer relationships (CRM), the underlying principles of data management are the same. This course aims to provide a practical introduction to the fundamental principles. Examples and exercises will cover the relational database tools at the core of ERP, CRM, and on-line exchanges and portals. However, the course will also use the same basic foundations to consider emerging technologies and standards such as XML, ebXML, UDDI, etc.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 665 Operations Management in Health Care
In an era where health care systems around the world face rapidly rising costs and quality issues, organizations large and small are looking into the operational side of health care for solutions. Likewise, the abundance of unfulfilled needs in the health care marketplace has led to an array of technology ventures with innovative new products and services. In this course, we apply the tools of operations management to analyze the health care value chain. The course consists of four modules: (1) the management of productivity, quality, and variability by care providers, (2) capacity and investment decisions under uncertainty confronting pharmaceuticals, (3) the design of health insurance by health plans and the determination of health benefits by employers, and (4) business ideas and operations models from the intersection of academic research and technology ventures. Students will learn from case discussions, hands-on decision tools, and several distinguished speakers and alumni from Stanford Hospital & Clinics, Merck, U.S. Naval Academy, and Deloitte Consulting. No prior exposure to the health care industry is assumed. The course prepares students for several career paths including consulting, operations management, and health care administration and is open to both first- and second-year MBA students.
Taught by: Faculty
Prerequisite: OPIM 631
Activity: Lecture
0.5 Course Units

OIDD 669 Advanced Topics in Information Strategy
The capstone course for the MBA major "Information Strategy, Systems, & Economics," OIDD 669 covers essential topics in information strategy - such as pricing of information goods; competing in electronic markets; market transparency and search issues; information-intensive strategies; IT outsourcing; and software project management - that have high impact on 21st-century business but are not typically covered in other Wharton courses.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
OIDD 670 Special topics in Information Systems: Simulation and Dynamic Competitive Strategy
This course introduces tools and techniques for modeling dynamic competitive strategies - strategies that evolve over time as you and competitors take actions in response to each other and to changes in the competitive environment. This goes beyond case discussions and approximates the rigor of theoretical or game theoretical analyses, even for problems for which no traditional analytical solutions exist. Students of the course will learn to model business environments and design simulators with the goal of gaining insight and designing policies for strategy implementation. Students will develop understanding of the timing and sequencing of the actions required, as well as understanding how to modify strategies on the fly based on changing conditions or objectives. Students are introduced to state of the art software for general purpose business modeling and simulation. Course not offered every year Activity: Lecture  0.5 Course Units

OIDD 672 Decision Support Systems
The past few years have seen an explosion in the amount of data collected by businesses and have witnessed enabling technologies such as database systems, client-server computing and artificial intelligence reach industrial strength. These trends have spawned a new breed of systems that can support the extraction of useful information from large quantities of data. Understanding the power and limitations of these emerging technologies can provide managers and information systems professionals new approaches to support the task of solving hard business problems. This course will provide an overview of these techniques (such as genetic algorithms, neural networks, and decision trees) and discuss applications such as fraud detection, customer segmentation, trading, marketing strategies and customer support via cases and real datasets. One-term course offered either term Activity: Lecture  1 Course Unit Notes: Lectures and discussions, written assignments, projects using software packages to build models.

OIDD 673 Global Supply Chain Mgmt.
Several forces, ranging from technology that has dramatically reduced the cost of communication, to political developments such as the opening up of China, Vietnam, and Eastern Europe, have created an avalanche of outsourcing and offshoring and lead to supply chains that stretch halfway around the world. This course will study the many questions that arise in the management of such global supply chains, including: Which design and production activities to do in-house and which to outsource? Where to locate various activities around the world? How to forecast the many factors that influence these decisions, including inflation in cost factors such as labor and freight, and the likelihood of future government regulation or political instability? How to keep the supply chain flexible so as to adapt to change? How to manage a geographically disbursed supply chain, including what relationships to have with vendors to ensure low cost, high quality, flexibility, safety, humane labor practices and respect for sustainability of the environment? The course is highly interactive, using case discussions in most classes and senior supply chain executives in many sessions. Grades are based on one-third each on class participation, individual write-ups of the discussion questions for 3 of the class sessions, and a course paper. Activity: Lecture  0.5 Course Units

OIDD 676 Electronic Markets: Structures, Market Mechanisms and IT Enabled Strategies
This course deals with Electronic Markets and Market structures and the strategic uses of information within the firm. The course consists of four related modules on the design and functioning of Business to Business markets, use of technology to source services from global providers - i.e., outsourcing of business processes (as opposed to IT), the use of strategic technological platforms such as CRM and Web Services and the technology-enabled precision pricing techniques. Further, students are exposed to strategy formulation and execution in an online market where they compete both against each other and against (electronic) agents. This course is recommended for students interested in a career in consulting, strategic management and to students interested in information technology related professions. The course will be delivered through a mix of lectures, case discussions and hands-on trading in virtual markets using different market mechanisms. The course Web cafe will be used for discussions and responses from instructor and TA. We do not assume or require any specific technical knowledge. Workings of electronic markets and market mechanisms and how IT can enable the formulation of new strategies and empower firms to define new markets in ways that were not possible until recently. This is an advanced elective that covers several essential topics in information strategy - IT and market structure, impact of IT on knowledge-intensive products and services and creating hybrid markets that span multiple channels. Students will compete in simulated electronic markets, using different market mechanisms and formulate information-based strategies. Students will also study how IT has enabled the globalization of services through the outsourcing of processes (BPO) and how quasi market structures which combine elements of organization and markets are emerging in knowledge-intensive service industries. Prerequisites: MGE 621 is recommended. Activity: Lecture  0.5 Course Units

OIDD 680 Operations Strategy Practicum
This course will focus on the management of operations at manufacturing and service facilities of domestic corporations and foreign multinational companies. Our emphasis will be on the evolving patterns of operations strategies adopted by firms for producing products, sourcing manufacturing, distributing products, delivering services and managing product design as well as on programs for enhancing quality, productivity and flexibility. The course will focus on the formulation and execution of such strategies for a collection of firms in the context of the current dynamics of global competition. The course consists of a set of site visits and in-class sessions which include lectures, case discussions and management speakers who will describe their company's current strategy. Activity: Lecture  1 Course Unit

OIDD 690 Managerial Decision Making
The course is built around lectures reviewing multiple empirical studies, class discussion, and a few cases. Depending on the instructor, grading is determined by some combination of short written assignments, tests, class participation and a final project (see each instructor's syllabus for details). One-term course offered either term Activity: Lecture  1 Course Unit Notes: Crosslisted with MGMT 690.
OIDD 691 Negotiations
Negotiation is the art and science of creating good agreements. In this course we will work on both, studying economics and psychology for the science, and practicing actual negotiations for the art. Throughout we think of negotiation in general terms, relevant not only to salary negotiations and home buying, but performance evaluations, speeches, group collaborations and interpersonal relationships. We practice these kinds of negotiations in 2-, 3-, 4-, and 6-person exercises. Potential reasons to skip this particular negotiation course are: 1) We have a strong attendance policy, 2) We have strong no-computers/phones policies, 3) the course is very discussion oriented, 4) We survey your work colleagues about your influence tactics, and 5) You have a short assignment due almost every class. Beginning with the second week of class, if you miss one class you lose a letter grade. If you miss two classes you fail. We have this policy because it is an experiential class, and because your attendance directly affects classmates you are paired with. For some weeks you can attend another section if necessary. Cross-listed with MGMT691 and LGST806.

One-term course offered either term
Prerequisites: STAT 621, OPIM 621
Activity: Lecture
1 Course Unit
Notes: Crosslisted with LGST 806, MGMT 691. Lectures, cases, presentations, and written assignments.

OIDD 692 Advanced Topics Negotiation
This is a course the builds on the basic Negotiation course. In this course, we explore a wide range of negotiation topics from crisis and hostage negotiations, to the role of emotions including anxiety, envy and anger in negotiations, to backlash effects for women in negotiations, and the role of alcohol in negotiations. We will survey many aspects of current negotiation research, discuss historic negotiation cases, and students will participate in role-play exercise. Many of the role play exercises will involve multi-party negotiations and afford opportunities to hone skills in team-based negotiations.

One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Cases, presentations, lecture and discussion.

OIDD 693 Influence
One-term course offered either term
Activity: Lecture
0.5 Course Units

Notes: Cases, presentations, lecture and discussion.

OIDD 695 Semester in San Francisco Regional Seminar
As part of the Wharton Semester in San Francisco (SSF) program, this course is designed to (i) provide integrative material that emphasizes links between finance, marketing, product design, negotiations, and other themes in the SSF academic curriculum; (ii) link classroom theories and principles to actual practice by reflecting on the academic literature and (iii) highlight the unique characteristics of, and the programs proximity to, the Bay Area economy. All students participating in the SSF are required to register for this Regional Seminar.

One-term course offered either term
Activity: Lecture
0.5 Course Units

OIDD 697 Retail Supply Chain Management
This course is highly recommended for students with an interest in pursuing careers in: (1) retailing and retail supply chains; (2) businesses like banking, consulting, information technology, that provides services to retail firms; (3) manufacturing companies (e.g. P&G) that sell their products through retail firms. Retailing is a huge industry that has consistently been an incubator for new business concepts. This course will examine how retailers understand their customers' preferences and respond with appropriate products through effective supply chain management. Supply chain management is vitally important for retailers and has been noted as the source of success for many retailers such as Wal-mart and Home Depot, and as an inhibitor of success for e-tailers as they struggle with delivery reliability. See M. L. Fisher, A. Raman and A. McClelland, "Rocket Science Retailing is Coming - Are You Ready?" Harvard Business Review, July/August 2000 for related research.

One-term course offered either term
Activity: Lecture
0.5 Course Units
Notes: Lectures, case discussion, guest speakers. Class participation, papers, and a team report.

OIDD 698 Value Netswoks
This is a project-based course run in a seminar format to explore current trends and opportunities for integration and coordination in IT-enabled value-chain networks. The curriculum is structured around a live case; students will work in teams to synthesize data from the live case and evaluate possible operational strategies and IT enablers in the context of a real, on-going business restructuring decision. Students will review a set of operations strategies affecting production, fulfillment, procurement product design, and support that may prove relevant e.g. Postponement, Mass Customization, Customer Service Differentiation, Buyer/Supplier Coordination. We also consider functionality that underlies relevant information technologies like Enterprise Resource Planning (ERP) or Customer Relationship Management (CRM), e.g. data integration, information quality, and security. Finally, we invite different vendors into the class to provide students with the opportunity to compare and contrast state-of-the-art IT and Operations Management solutions.

Course not offered every year
Activity: Lecture
1 Course Unit

OIDD 761 Risk Analysis and Environmental Management
This course is designed to introduce students to the role of risk assessment, risk perception and risk management in dealing with uncertain health, safety and environmental risks including the threat of terrorism. It explores the role of decision analysis as well as the use of scenarios for dealing with these problems. The course will evaluate the role of policy tools such as risk communication, economic incentives, insurance, regulation and private-public partnerships in developing strategies for managing these risks. A project will enable students to apply the concepts discussed in the course to a concrete problem. Cross-listed with BPUB 761.

One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Cross listed with OPIM 261, BPUB 261, 761, 961, and ESE 567
OIDD 762 Environmental Sustainability and Value Creation
This course provides an overview of topics related to corporate sustainability with a focus on how sustainable approaches can create value for the firm. We will explore trends in corporate practices and consider several case studies to examine the interactions between the firm and the environment. Several guest lecturers will discuss how they have addressed sustainability within their company. This course has three objectives: to increase your knowledge as future top decision makers on key environmental questions; to recognize environmental concerns as competitive opportunities; to teach students to think strategically and act entrepreneurially on environmental issues. You will leave the class with a tool-kit for action.
One-term course offered either term
Activity: Lecture
0.5 Course Units

OIDD 763 Energy Markets & Policy
Activity: Lecture
1 Course Unit

OIDD 898 Advanced Topics
Course not offered every year
Activity: Lecture
1 Course Unit

OIDD 900 Foundations of Decision Processes
The course is an introduction to research on normative, descriptive and prescriptive models of judgement and choice under uncertainty. We will be studying the underlying theory of decision processes as well as applications in individual group and organizational choice. Guest speakers will relate the concepts of decision processes and behavioral economics to applied problems in their area of expertise. As part of the course there will be a theoretical or empirical term paper on the application of decision processes to each student's particular area of interest.
One-term course offered either term
Prerequisite: STAT 510 or 550
Activity: Lecture
1 Course Unit
Notes: Non-PhD students must contact instructor for permission to enroll.

OIDD 904 Experimental Economics
Many theories in economics can be tested usefully in experiments in which researchers control parameters that are uncontrolled in natural settings. This course presents the theory of the experimental method and validity along with several examples of experimental testing: simple competitive equilibrium, intertemporal competitive equilibrium, asset markets, futures markets, bargaining models, tournaments, reputation-building in repeated games, etc.
Course not offered every year
Prerequisite: OIDD900 or permission of the instructor
Activity: Lecture
1 Course Unit

OIDD 906 Proseminar in Operations and Information Management
Advanced seminar focusing on topics in Operations, Information and Decisions research
Course not offered every year
Activity: Seminar
1 Course Unit

OIDD 910 Concepts of Math Programming
Introduction to mathematical programming for PhD students who would like to be intelligent and sophisticated consumers of mathematical programming theory but do not plan to specialize in this area. Integer and nonlinear programming are covered, including the fundamentals of each area together with a sense of the state-of-the-art and expected directions of future progress.
Course usually offered in fall term
Also Offered As: ESE 504
Activity: Lecture
1 Course Unit
Notes: Crosslisted w/ ESE 504.

OIDD 912 Introduction to Optimization
This course constitutes the second part of a two-part sequence and serves as a continuation of the summer math camp. Mathematical optimization provides a unifying framework for studying issues of rational decision-making, optimal design, effective resource allocation and economic efficiency. It is a central methodology of many business-related disciplines, including operations research, marketing, accounting, economics, game theory and finance. In many of the disciplines, a solid background in optimization theory is essential for doing research. This course provides a rigorous introduction to the fundamental theory of optimization. It examines optimization theory in two primary settings: static optimization and optimization over time (dynamic programming). Applications from problem areas in which optimization plays a key role are also introduced. The goal of the course is to provide students with a foundation sufficient to use basic optimization in their own research work and/or to pursue more specialized studies involving optimization theory. The course is designed for entering doctoral students. The prerequisites are calculus, linear algebra and some familiarity with real analysis, as covered in summer math camp. Other concepts are developed as needed throughout the course.
Prerequisites: OIDD 910, OIDD 930.
Activity: Lecture
0.5 Course Units

OIDD 913 Advanced Linear Programming
Course not offered every year
Prerequisite: OIDD 910/ESE504 or equivalent
Activity: Lecture
1 Course Unit

OIDD 914 Advanced Non-Linear Programming
Course not offered every year
Prerequisite: OIDD910 or equivalent
Activity: Lecture
1 Course Unit
OIDD 915 Advanced Graph Theory
Deals mainly with algorithmic and computational aspects of graph theory. Topics and problems include reachability and connectivity, set covering, graph coloring, location of centers, location of medians, trees, shortest path, circuits, traveling salesman problem, network flows, matching, transportation, and assignment problems.
Course not offered every year
Prerequisite: OIDD910 / ESE504 or equivalent
Activity: Lecture
1 Course Unit

OIDD 916 Advanced Integer Programming
In-depth review of solution methods: Lagrangean relaxation and column generation, Benders partitioning, cross-decomposition, surrogate relaxation, cutting planes and valid inequalities, logical processing, probing, branch-and-bound, branch-and-price. Study of special problems and applications: matching, location, generalized assignment, traveling salesman, forest planning, production scheduling. Prerequisite: OIDD 910/ESE 504 or equivalent. Please email the instructor for any questions regarding the prerequisite.
Course not offered every year
Prerequisite: OIDD 910/ESE 504 or equivalent
Activity: Lecture
1 Course Unit

OIDD 920 Empirical Research in Operations Management
Empirical research in Operations Management has been repeatedly called for over the last 10-15 years, including calls made from the academic thought leaders in the field as well as by many of the editors of the top academic journals. Remarkably though, most researchers in the field would be pressed to name even three empirical papers published in such journals like Management Science or Operations Research. But, has there really been so little published related to empirical Operations Management? (you might be surprised to learn that all five bullets listed above has been addressed by Management Science papers)? What types of problems in operations are interesting and worthwhile studying from an empirical viewpoint? How can one get started with an empirical research project in Operations Management? These are the questions that are at the heart of this course. Specifically, the objective of this course is to (a) expose doctoral students to the existing empirical literature and (b) to provide them with the training required to engage in an empirical study themselves.
Activity: Lecture
0.5 Course Units

OIDD 930 Stochastic Models
This course introduces mathematical models describing and analyzing the behavior of processes that exhibit random components. The theory of stochastic processes will be developed based on elementary probability theory and calculus. Topics include random walks, Poisson processes, Markov chains in discrete and continuous time, renewal theory, and martingales. Applications from the areas of inventory, production, finance, queueing and communication systems will be presented throughout the course.
Course usually offered in fall term
Prerequisite: STAT510 or 550 or equivalent
Activity: Lecture
0.5 Course Units

OIDD 931 Stochastic Processes II
Extension of the material presented in OIDD930 to include renewal theory, martingales, and Brownian motion.
Course usually offered in spring term
Prerequisite: OIDD930
Activity: Lecture
0.5 Course Units

OIDD 932 Queuing Theory
This course presents the mathematical foundations for the analysis of queueing systems. We will study general results like Little’s law and the PASTA property. We will analyze standard queueing systems (Markovian systems and variations thereof) and simple queueing networks, investigate finite server models and many server approximations, study G/G/1 queues through random walk approximations, and read papers on applied queueing models.
Course offered spring; even-numbered years
Prerequisites: OIDD930 and OIDD931
Activity: Lecture
0.5 Course Units

OIDD 934 Dynamic Programming and Stochastic Models
The course goal is to provide a brief but fairly rigorous introduction to the formulation and solution of dynamic programs. Its focus is primarily methodological. We will cover discrete state space problems, over finite or infinite time horizon, with and without discounting. Structured policies and their theoretical foundation will be of particular interest. Computational methods and approximation methods will be addressed. Applications are presented throughout the course, such as inventory policies, production control, financial decisions, and scheduling.
Course usually offered in spring term
Prerequisite: OIDD930
Activity: Lecture
0.5 Course Units

OIDD 937 Methods Stumblers: Pragmatic Solutions to Everyday Challenges in Behavioral Research
This PhD-level course is for students who have already completed at least a year of basic stats/methods training. It assumes students already received a solid theoretical foundation and seeks to pragmatically bridge the gap between standard textbook coverage of methodological and statistical issues and the complexities of everyday behavioral science research. This course focuses on issues that (i) behavioral researchers are likely to encounter as they conduct research, but (ii) may struggle to figure out independently by consulting a textbook or published article. One-term course offered either term
Activity: Lecture
0.5 Course Units

OIDD 940 Operations Management
Concepts, models, and theories relevant to the management of the processes required to provide goods or services to consumers in both the public and private sectors. Includes production, inventory and distribution functions, scheduling of service or manufacturing activities, facility capacity planning and design, location analysis, product design and choice of technology. The methodological basis for the course includes management science, economic theory, organization theory, and management information system theory.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Crosslisted with ESE 620
OIDD 941 Distribution Systems Seminar
Seminar on distribution systems models and theory. Reviews current research in the development and solution of models of distribution systems. Emphasizes multi-echelon inventory control, logistics management, network design, and competitive models.
Course usually offered in spring term
Prerequisite: OIDD940
Activity: Lecture
1 Course Unit

OIDD 943 Retail Operations
Activity: Lecture
0.5 Course Units

OIDD 950 Perspectives on Information Systems
Provides doctoral students in Operations and Information Management and other related fields with a perspective on modern information system methodologies, technologies, and practices. State-of-the-art research on frameworks for analysis, design, and implementation of various types of information systems is presented. Students successfully completing the course should have the skills necessary to specify and implement an information system to support a decision process.
One-term course offered either term
Activity: Lecture
1 Course Unit

OIDD 951 Seminar on Logic Modeling
Seminar on the elements of formal logic necessary to read and contribute to the Logic modeling literature, as well as the implementation principles for logic models. The primary topics include elements of sentence and predicate logic, elements of modal logics, elements of semantics, mechanical theorem proving, logic and database, nonmonotonic reasoning, planning and the frame problem, logic programming, and metainterpreters.
Course not offered every year
Prerequisites: Permission of the instructor and some prior knowledge of logic or Prolog
Activity: Seminar
1 Course Unit

OIDD 952 Computational Game Theory
Seminar on principles of knowledge-based systems including expert systems. Topics include basics of expert systems, knowledge representation, meta-level reasoning, causal reasoning, truth maintenance systems, model management, planning systems and other applications.
Course not offered every year
Prerequisites: Permission of instructor and knowledge of logic and Prolog or Lisp
Activity: Seminar
1 Course Unit

OIDD 955 Research Seminar in Information Systems
This course provides an overview of some of the key Information Systems literature from the perspective of Insormation Strategy and Economics (ISE) and Information Decision Technologies (IDT). This course is intended to provide an introduction for first year OIDD doctoral students, as well as other Wharton doctoral students, to important core research topics and methods in ISE and IDT in order for students to do research in the field of Information Systems. While it is intended as a "first course" for OPIM doctoral students in ISE and IDT, it may also be useful for students who are engaged in research or plan to perform information technology related research in other disciplines.
Activity: Lecture
1 Course Unit
ORGANIZATIONAL ANTHROPOLOGY (ORGC)

ORGC 160 Leading Teams
In this course, students learn about the basics of team dynamics. Students explore the foundations of effective teams, and understand why they inevitably become misaligned. Students then step through a process for generating passion and high-performance in any group that has to work together toward a common goal. Through engaging case studies and role plays, students get practice diagnosing and managing interpersonal issues that can derail teams.
Activity: Online Course
1 Course Unit

ORGC 201 Virtual Collaboration
Virtual Collaboration looks at interconnections and synergies that can be intentionally created in the virtual space of work by following frameworks and techniques that allow greater and more frequent exchange of views, freedom to express divergent views and harness the richness of variety of people, thoughts, geographies, cultures, and social norms, intelligence and above all experience. Students practice course tools and techniques by collaborating and providing peer feedback in the virtual classroom environment.
Activity: Online Course
1 Course Unit
ORGANIZATIONAL DYNAMICS (DYNM)

DYNM 500 Foundations of Research and Scholarship
A main objective of this foundation course is to improve the academic papers and presentations in all Organizational Dynamics work, including the capstone. Because the discipline of writing for academic purposes is based on skills that are not common to business writing and because the writing process is central to learning in this program, Organizational Dynamics offers this course designed to assist participants in developing efficient, reliable, and fruitful academic writing and presentation techniques.

Taught by: Barstow, Greco, and Shapiro
Prerequisites: Non-DYNM students must complete a course permit request form: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: F

DYNM 501 Perspectives on Organizational Dynamics
“Perspectives” is both a fundamental and integrating course intended for MSOD students at any point in the program who wish to understand and deploy a multiplicity of dynamics operative in organizations and in the minds that create and inhabit them. It is particularly useful for those in their first year and for non-MSOD students. One key focus is on understanding the implicit mental and emotional frameworks or metaphors that “inform” organizing so that we can virtually see more robust and complex approaches to effectiveness and to leadership within them. Several faculty members highlight their specialties. One special theme examines new management models and thinking frameworks designed to prevail in a 21st century context. Lectures, discussion, and experiential learning are used to build an informed grounding in the history, philosophy, theory and practice of Organizational Dynamics. The course requirements are active class participation, potential application projects/weekly journal, a midterm paper and a final paper.

Taught by: Greco
One-term course offered either term
Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: F; DYNM Concentrations: LMC, GL, OC, SD

DYNM 542 Theories, Models, and Practices that Inform Coaching
This course will examine how theory guides the effective practice of coaching. Students will be introduced to a theory and model that encompasses a multi-disciplinary approach to coaching in an organizational setting. With this framework as a basis, students will select, research, and present a theoretical model of their own choosing and design a coaching application that demonstrates theory in action. Students will leave the course with an array of theoretical frameworks and practical techniques that will enhance their own coaching capabilities as managers and consultants. Undergraduates may enroll in 500-level courses only with permission of the instructor.

Taught by: Orenstein
One-term course offered either term
Prerequisites: Permits for Non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Course Category: F; DYNM Course Concentrations: LMC, OC. Course Schedule: 9/8 9; 22 23, 29.

DYNM 551 Devil’s Advocate: Power of Divergent Thinking
Short-term or long-term? Us or them? Build or buy? Margin or volume? My way or the highway! Ad infinitum, apparent forced choices—or no choice—and limited perspectives can create costly tugs of war or constrained judgment without our minds (and hearts) and in organization dynamics, persuasive, and often hidden, divergence in thinking offers great opportunity for learning, creativity, and sound decision-making. This course offers several robust, practical techniques for bringing the value of diverse perspectives in politically productive ways to leadership thinking, communications, and organization dynamics.

Taught by: Greco
One-term course offered either term
Prerequisites: Permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentration: LMC. Course meeting schedule: Tuesdays 5-9:30 from May 22-June 19th; Thursday, 5:00 to 9:00 pm June 21st ONLY; Fridays 4:30-8:30 from May 25-June 15th
**DYNM 552 Strategic Crowdsourcing & Business Models**

This online course offers insight on how innovative firms are organizing strategically to gain advantage from engaging online with the value distributed resources held by a global pool of individuals. Through cases derived from original research, including Amazon, Facebook, Netflix, oDesk, Kiva, Wikipedia, among others, this course unveils the business models that these organizations use to create new value by working with "crowds" online. Open, distributed, online approaches to work and innovation have been widely studied over the past decade in the context of the computer and software industry (e.g. Benkler 2002; Chesbrough 2003; von Hippel and von Krogh 2003). Many of those concepts have since then permeated other industries, eventually giving birth to a distributed organizational paradigm referred to as "crowdsourcing" (e.g. Howe 2008, Villarroel 2008). The crowdsourcing model has proven valuable for innovation, work, entrepreneurship, among other applications. For example, in 2011, a crowd innovation initiative involving 57,000 individuals solved a decade-old scientific problem in molecular biology in only 3 weeks. In 2012, the top 3 crowd labor platforms brought skilled work to 6 million people in over 200 counties. In 2013, US $5 billion are expected to be invested in crowd-funded projects around the world. The aims of this course are (1) to gain a solid understanding of the business models in crowdsourcing; (2) to benefit from first-hand experience with the "power of the crowd"; (3) to critically analyze the potential and limitations of this new organizational paradigm.

Taught by: Villarroel

One-term course offered either term

Activity: Seminar

1 Course Unit

Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

**DYNM 553 Becoming a Courageous Follower**

This course will examine both personal and professional behaviors that constitute effective followership. While the leadership literature is saturated with books on becoming better leaders, there is a dearth of awareness on finding and supporting those who follow those leaders effectively. Students will use surveys from the limited literature on effective followership to profile their own organization's dynamics on styles of followership, and stories of success and failure in confronting organization mistakes and leadership errors will be researched. The outcome of the class will be a personal profile on followership style and an organizational profile on its followership culture.

Taught by: Eldred

One-term course offered either term

Activity: Lecture

0.5 Course Units

Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

**DYNM 555 The Idea of Nationalism**

Nationalism has been the most important geo-political phenomenon of the past two hundred years. Its continuing power has been amply demonstrated by recent events in many parts of the world. The principle of national self-determination and closely related notions of individualism and human rights shape the global context in which businesses, governments, organizations, and individuals must operate in the 21st century. This seminar course will explore the ideology of nationalism through the lens of institutions and organizationscorporations, nonprofits, government, NGOs, unions, religious communities, etc. Starting with concrete examples from students own experiences and the contemporary conflicts confronting governments, organizations, and businesses, we will examine the ideology of nationalism, its meaning and content, its philosophical foundations, its underlying assumptions about the nature of human identity, and its contemporary expressions in nationalist movements and ethno-political conflicts around the world. In the process, we will explore such questions as: What is a nation? Does every identifiable ethnic or national group have a valid claim to a nation-state of its own? How are claims to national self-determination justified? Why do nationalist movements seem so often to engender political extremism and violent ethno-political conflicts? Is national self-determination compatible with our commitments to individualism, rationality, and universal human rights? What are the best strategies to cope with the persistence of nationalism in the 21st century?

Taught by: Steinberg

One-term course offered either term

Prerequisites: Permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Seminar

1 Course Unit

Notes: DYNM Category: A; DYNM Concentration: GL

**DYNM 555 Social Media and the Organization**

If you don't yet believe in the social media revolution, then watch this: http://youtube.com/watch?v=Qz5hHE. Facebook. Twitter. Pinterest. Tumblr. Path. Delicious. Digg. Youtube. LinkedIn. It's been less than a decade since many of these social media services have launched, yet they've transformed society in many significant ways. Social Media and the Organization will deepen your understanding of and offer real time practical experience with social media. The course will examine the current trends and use of social media in marketing, product development, customer service, networking and other facets of organizational policy and practice. Students will have hands-on participation online with the class blog, http://upennsocialbook.wordpress.com, sharing relevant case studies, analyzing social media campaigns and critiquing their own organization's culture and values surrounding social media policy, staff challenges, and evaluation of challenges and opportunities in its use.

Taught by: Havely/Warren

Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Lecture

1 Course Unit

Notes: DYNM Category: A; DYNM Concentration: LMC
DYNM 559 Research Methods to Develop Dynamic Expertise
It's not enough to be competent, educated, smart and professional. Globalization, technology, and vastly improved communications have increasingly led to "Winner Take All" markets. Consider the local opera house: 100 years ago, Iowa alone had more than 1,500 of them. Thousands of sopranos earned adequate, if modest, livings from the live performances, but now, thanks to i-pods, the world’s best soprano can be literally everywhere at once. And since it costs no more to transmit MP3s of Renee Fleming’s Mozartarias than her understudy’s, most opera fans listen to Fleming. Thus, Fleming earns several million dollars a year while most other sopranos, many of whom are almost as talented, struggle to get by. The same is increasingly true of other professions: Those who are recognized for being the best at what they do can sell their services anywhere and everywhere at top dollar, whereas those who lack such recognition find their services valued less and less— if they are valued at all. As graduate students at the University of Pennsylvania, you have an extraordinary opportunity to become the leading expert in a given domain in a few short years, maybe less.

Taught by: Freeman
Activity: Lecture
0.5 Course Units
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 601 Gender, Power, and Leadership in Organizations
For the last several years, issues related to gender in organizations and organizational leadership have not been hot topics of discussion in the popular media, in organizations themselves, or in academia. That is no longer true. The advent of #metoo and the revelation of sexual harassment in corporations, government sector organizations, and nonprofits has highlighted the ways in which those with more power have been using their power to both harass and silence their victims, many of whom are women— although this dynamic is true for others belonging to groups with less power. Addressing these issues effectively will require more than lawsuits and more than sexual harassment and bystander training. This course will explore what will be required if we are to have organizations that effectively leverage the skills and talents of both men and women. Although in the last 30 years there has been some significant progress made in placing women in leadership roles in organizations, we will take a deep look at the data about where and how gender differences continue to exist in organizations including differences in both professional and outcomes.

Taught by: Vanderslice
One-term course offered either term
Prerequisites: Permits for Non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit

DYNM 602 Leader-Manager as Coach
New work technologies, increased competition, and employees’ desire for more involvement in their work are changing the traditional role of the manager. Rather than directing, planning, and controlling the work, managers and leaders are facilitating processes and coaching and developing their employees. Team-based organizations are built on coaching as a core requirement of the team leader role. This course explores the theory and practices of individual coaching as leadership behavior. The focus is on helping managers develop their skills and improve their performances as coaches. We will examine the need to provide others with successful performance strategies, timely feedback on strengths and on development needs, and growth opportunities in order to challenge others to reach their potential. We will explore workplace environments that foster the growth and achievement of those we lead.

Taught by: Russo
One-term course offered either term
Prerequisites: Course permits for Non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentrations: LMC, OC. Course Schedule: 10/13; 11/3, 10, 17; 12/1

DYNM 603 Leading Emergence: Creating Adaptive Space in Response to Complex Challenges
This seminar is designed to be highly experiential so that participants can engage in the practices necessary to enable innovation and adaptation. Participants will examine emergent innovation theory by addressing the dynamics and conditions in which ideas emerge in an informal manner, garner organizational attention, and gain momentum towards becoming successful innovations or bold changes within complex organizations. This will include examining the need for adaptive space in generating value that drives growth by enabling an environment of idea generation, entrepreneurship and innovation while leveraging the benefits of existing, formal systems to scale these ideas. Participants will explore and engage in such topics as creative experimentation, idea emergence, organizational network analysis, social capital, design thinking, organizational analytics and complexity leadership.

Taught by: Arena
One-term course offered either term
Prerequisites: Permit requests for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
DYNM 604 Entering Risk Management
Can enterprises undertake effective risk management in our globalized, interdependent economy? What risk management role do we play in our organizations? We will apply readings and engage in case studies to discuss whether our organizations do or should manage risks as strategically as opportunities. We'll also examine our involvement with our organizations' risk management. By the conclusion of the course, you will develop a framework for addressing risk in your current organization or future enterprise.

Taught by: Combrinck-Graham
Course usually offered summer term only
Prerequisites: Non-DYNM students must complete a course permit request form: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Categories: DE, A; DYNM Concentration: LMC

DYNM 605 Resolving Project Risk, Uncertainty, and the Unexpected
DYNM 605 is a uniquely blended content of thought leadership vetted by subject matter experts worldwide. This participant-centered seminar is an opportunity to increase both awareness and knowledge of risk and uncertainty by examining causes of unexpected events in predictive (classic) and adaptive (agile) project frameworks. Successful applications of non-deterministic approaches are explored as antidotes to constrained command and control project environments. Course content is valuable in roles, organizations, and sectors of all types. Prominent project/operational risk management methodologies are included in this seminar. Processes advanced by the Project Management Institute, U.K. Association for Project Management, International Council on Systems Engineering, and by the International Organization for Standardization are contrasted with industry specific practices, including the U.S. Food and Drug Administration, NASA, and the Departments of Defense and Energy. Case examples are based on relevant experience. Participants perform hands-on implementation of processes in realistic team working sessions and facilitated dialogue. Spreadsheet/network analysis using Monte Carlo Simulation tools will be included in the course and clinics (see syllabus).

Taught by: Hornbacher
One-term course offered either term
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: DE, A; DYNM Concentrations: LMC. Course Schedule: 9/9, 23; 10/7, 14, 21; 11/4, 18; 12/2, 9.

DYNM 606 Leading from the Center: Unleashing Your Leadership Potential
This seminar is designed to support existing and emerging leaders who recognize their need for more adaptive leadership skills to effectively respond to rapidly changing environments. We will weave leadership theory and practice in a highly experiential seminar so that participants can actively engage in a leadership lab including deep reflective thinking, rapid prototyping and experimenting with new behaviors and practices. The purpose of the seminar is to evoke personal leadership at more impactful levels and improve organizational performance and personal satisfaction. Participants will examine their own, and others', leadership theories by identifying assumptions about leading, creating a preferred model for individual leadership, and field testing actual shifts in behavior. Participants will engage in a three-part exploration over the course of the seminar: first, we will have an opportunity to examine our own models and those of the leading theorists in the field; second, participants will be asked to articulate and improve their own model; and finally, participants will be asked to activate and test their model and report back on the experience. This course is designed to create an 'action-learning' community in which you will integrate your professional experience, this class, and other graduate course work with a final exploration of leadership concepts, theory, and applied practice. This course is also designed to strengthen your ability to lead, including as a colleague who can support leadership behavior in peers and as one who can promote leadership behavior in supervisors and subordinates.

Taught by: Arena and Benjamin
Course not offered every year
Prerequisites: Permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit

DYNM 607 Psychodynamics of Organizations
As an area of study, the psychodynamics of organizations draws out attention to the tacit, implicit, and unconscious dimensions of organizational life. It presumes that a person takes up his or her role at work by drawing on both individual history and the organizational context that helps define a role, its boundary, and the resources available to take it up. In both these aspects, the organizational context, and one's individual biography, people are often unaware of the thoughts and feelings that animate their behavior. This course will introduce students to some basic concepts of psychoanalysis, which focuses on individual motivation, and systems psychodynamics, which focuses on group dynamics and group psychology. System psychodynamics also emphasizes how an organization's primary task, or its "reason for being" influences individual experience. Readings include case studies as well as expositions of theory. The instructor will also draw on his own consulting cases.

Taught by: Hirschhorn
One-term course offered either term
Prerequisites: Course permits for Non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
DYNM 608 Organizational Dynamics of Working in a Global Marketplace
This course examines some of the sources of confusion, conflict, misperception and error that arise when representatives of U.S. organizations interact and work in the global marketplace. The aim is to heighten awareness, help avoid personal or professional pitfalls, and to more effectively manage some of the organizational and business challenges that arise when operating across dissimilar environments. We will focus on areas including: ethics, culture, language, ethnicity, religion, gender, the political and legal systems, labor, corruption, and corporate organization. Each class session will begin with a short, interactive introductory lecture, followed by discussion around assigned readings and mini-cases.
Taught by: Tschoegl
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 609 From Traditional Project Management to Transformational Project Leadership
The primary objective of this course is to provide a comprehensive framework for analyzing both current and future expectations for success of Project Leaders in the context of Project Management, Project Teams, and the Project/Program/Portfolio Management Office (PMO) by addressing the following questions: 1) What is the track record of Project Management and what capabilities are required to succeed as a Project Leader in a complex and evolving business environment? 2) What characteristics does a Project Leader possess and can every Project Manager become a successful Project Leader? 3) How can Project Managers better integrate their left-brained analytic intelligence with their right-brained emotional intelligence to become successful Project Leaders? 4) What are the desired attributes of a transformational leader and what organizational barriers may impede transformational change? 5) What are the roles and responsibilities of the Project Leader as Team Leader, Coach, and Mentor? 6) How can Project Managers and Project Leaders better prepare themselves for integration into PMOs within their organizations?
Taught by: Bayney
One-term course offered either term
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit

DYNM 610 Knowing Yourself: The Coach as an Instrument of Change
Note: This class is predicated on the assumption that prior to offering coaching assistance, a coach should have a deep understanding of his or her own behavior and its impact on a client. Utilizing validated tools and strategies available for coaches, the students practice sets of coaching skills on each other. This includes practice in interviewing and observational skills. In addition, students will have the opportunity to give and analyze 360 degree feedback data, as well as use a variety of other instruments that can be foundational for a useful coaching experience. Premise: Coaching others is very serious business. Intrepid individuals willing to take on this responsibility should be willing to answer the following questions: Who am I as a leader and helper? What are the assets I bring to the coaching relationship? What are my deficits, overused strengths, or underutilized skills and behaviors? What historical influences from my family of origin influence my capacity to build a positive relationship with my coaching client? Are there discrepancies in relation to my self-perceptions and those who know me well–family members, peers, colleagues, friends, boss, and direct reports? As a result, are these specific areas of personal development that I need to address as I move? Similar to most traditional programs where the focus is on the management of change, the course is organized to: 1) A diagnostic phase in which the values, history, assumptions, and behaviors of the client will be assessed. In this case the client will be the student/coach. 2) The applied phase in which analysis, interpretation, and formal learning will be the central focus. The end result will be individuals with a deep and abiding understanding of their own psychodynamics and their personal impact. Finally, by modeling many of the tools and strategies useful in any effective coaching effort and practicing them on themselves and their student peers, it is hoped that the experiential nature of the course will allow maximum transference to the real work of coaching.
Taught by: Napier
One-term course offered either term
Prerequisites: Non-DYNM students must complete a course permit request form: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentrations: LMC, OC. Course schedule: January 20 21; February 17 18; March 10
DYNM 611 Effective Collaboration for a Changing Global Workplace
Effective collaboration requires a combination of strong self-awareness and an ability to make adjustments at the individual and group level. This course provides tools for building teams that leverage individual strengths and a mutual learning process of continuously addressing collaboration barriers to improve team performance. This seminar/lab is designed to extend each participant’s analytical skills and gain practice implementing high performance practices through a team-based simulation. Specific learning objectives are to: 1. Understand leading-edge frameworks for building effective teams. 2. Learn and apply tools for diagnosing barriers to collaboration. 3. Develop implementation plans for teams and organizations consistent with best practices. 4. Provide tools for self-assessment of participants to leverage their strengths for teamwork success. 5. Apply learning from classroom-based teamwork simulation to participants’ real life experiences.

Taught by: Hirshon, Legatt, and Newberry
Course not offered every year
Prerequisites: Non-DYNM students must complete a course permit request form: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit

DYNM 612 Mastering Organizational Politics and Power
The purpose of this course is to explore, enhance, and expand the participants’ competence in organizational politics. Students will observe political dynamics as they occur in their own organizations and will interview senior managers in other organizations to learn how political realities vary from one organization to another. Theoretical ideas about a dimension of organizational politics of particular interest to each individual participant will be analyzed in a term paper. In addition, each participant will keep a personal diary of political dynamics in his or her own workplace. The course will also explore ways to master the political skills of networking, negotiating, influencing, leading, and following, as well as developing a political strategy.

Taught by: Eldred
One-term course offered either term
Prerequisites: Course permit requests for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentration: LMC

DYNM 613 Is Bigger - Inevitable, Better or Worse in Organizations?
Is the modern large corporation alienating, inflexible, unproductive? Is the small organization or work team engaging, innovative or creative, productive? Has it always been this way in the U.S.? Is change possible? In this unique, informal, "turbo" seminar, we will examine the large corporation in terms of history, governance and control, and delivery of (office) work. We will consider whether “bigness” and bureaucracy are inevitable, and how organizations of the present, and probably the future, are affected by those of the past. This seminar has been structured to cover a good deal of ground in a short time. The seminar will meet on six Saturdays. The subject matter of the seminar is the large-scale organization. Questions to be raised include: 1) Is the modern large corporation alienating, inflexible, and unproductive? 2) Are bigness and bureaucracy inevitable? 3) Is the small organization or work team engaging, innovative, creative, and productive? 4) What does the historical record for the United States reveal? 5) Are organizational alternatives and change possible?

Taught by: Licht
One-term course offered either term
Prerequisites: Non-DYNM students must complete a course permit request form: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: F; DYNM Concentration: LMC. Course Schedule: 1/16, 23, 30; 2/6, 20 27. 1/16 is 9 to 12; all other meetings are 9 to 5.Indian

DYNM 614 Consulting/Coaching Tools and Techniques
This course will offer a conceptual comprehension of the tools and techniques used in effective internal and external organizational consulting engagements. By contrasting the theory and practice of alternative coaching models, we will build tools and techniques for effective coaching as a leadership competency. Through an analysis of the coaching relationships in your organization, you will learn to develop a personalized approach to coaching and expand upon and within organizational settings. Participants learn the “how and why” as well as consulting frameworks. Additionally, the relevant and often symbiotic connection between consulting and coaching will be studied. What process tools are most useful to today’s executive coach in a consultative environment? How do approaches to consulting and coaching differ? How are they similar? How can a confluence of coaching and consulting lead to more effective decision-making and wide-scale organizational performance? This course will be presented over five class meetings. The class sessions will be taught utilizing lectures, case studies, structured small group discussions, individual and team presentations, faculty and participant experience, and guest speakers.

Taught by: Russo
One-term course offered either term
Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: DE; DYNM Concentrations: OC. Course Schedule: 2/24; 3/10 24; 4/7 21

Environmentalist Paul Hawken challenged a class of 2009 college graduates that they would have to "figure out what it means to be a human being on earth at a time when every living system is declining, and the rate of decline is accelerating." That theme is at the heart of this course. While we have seen the notion of sustainability gaining some traction in recent years, our quality of life in the near future very likely hinges on the development and implementation of sustainable solutions to enormously complex environmental and social problems. This course is designed to foster the thinking that is needed to address those enormous problems. It involves focusing on a critical global problem with sustainability and social dimensions—in this case global water security—and addressing it in detail as a project team over the course of a semester.

Taught by: Finn
Course usually offered in spring term
Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit

DYNM 616 Myths to Media: Stories on a Mission

What determines our behavior? How do we come to understand? Who determines our purpose? Is now the only time? When asked "What if there were nothing in the universe," one professor replied, "How do we know there isn't?" The more our world seems to dis-integrate into discrete and unpredictable units and actors, the more we crave guidance from robust human models and conceptual frameworks of intellect, emotion, psyche, and action. Fortunately, our 100,000-year-old brains retain mechanisms enabling us even now to enhance our choice using the "stories beneath the stories" that—in form and content—have driven our purposes and actions since sentient beings could communicate. Yoda you should ask. This course offers several means of deploying these powerful ancient sense-making tools—myths and stories—to purposefully communicate and foment action with individuals, groups, and organizations, particularly in our global social media milieu. We will learn many practical story-based ways to apply this power to several "missions": enaging others in individual and collective action, increasing understanding of patterns in human behavior, and harnessing the driver of purpose for business and social enterprise. Seek help from Prometheus.

Taught by: Greco
One-term course offered either term
Prerequisites: Course permits for non-DYNM students: https://sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentration: LMC

DYNM 617 Economics of Human Behavior and Organizational Life

As a society, we choose many different ways to organize different aspects of our lives. The institutions and organization we choose to provide us with the necessities and comforts of life range from the fundamental institutions of family and religious organizations, to firms in the capitalistic market and democratically elected governments. We respond to this environment in unique ways: we marry, we worship, we buy and sell goods and services, and we vote. The primary goal of this course is an examination of the various aspects of human behavior in the context of organizational and institutional life from an economic perspective. We recognize that the choices we make are sensitive to the costs and benefits of different actions and use this economic perspective to gain insights into social, economic and political behavior in our daily lives. We start the course with an examination of how micro economists view the world and examine their favorite toolkit. We discuss concepts such as: efficiency, opportunity cost, marginal analysis, externalities, incentives, free-riding, rent-seeking, and transaction costs. These concepts are fundamental if an economic perspective and they will be presented using every day examples. Before concluding the course, we will look at several topics such as: Human capital and investment in education (Should you invest in an Ivy League school education?); Law and enforcement (When is it profitable to break the law?); Bribes and gifts (Quid pro quo?); Economics of information (Used cars and the market for "lemons"); Why we discriminate against minorities?; Property rights and externalities (The tragedy of the commons: Should we have smoke-free environments?); and Free-riding (Should I vote in the next election? Should I volunteer to clean up?)

Taught by: Handy
Course usually offered summer term only
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: F; DYNM Concentrations: LMC, SD

DYNM 618 Strategic Crowdsourcing and Business Models 2.0

Crowdsourcing is among the most impactful innovations in organization of the 21st century, enabling the rise of distributed organizations. In this course, we will learn the radical business models used by a new generation of companies that transcend the format boundaries of the firm—e.g. Uber, oDesk, Kickstarter, among hundreds of such distributed organizations. The crowdsourcing economy is rapidly expanding, with at least 117 distributed work companies receiving venture capital in 2013—up from 17 in 2009 and 55 in 2011 (The Economist, 2015). Entrepreneurs taking this course will understand how crowdsourcing startups made big strides in the global economy. For example, five-year-old Uber—founded in 2009—developed operations in more than 50 countries, reaching sales of $1 billion in 2014. It received $3.3 in venture capital, valued at more than $41 billion in December 2014 (The Wall Street Journal, 2014). Uber offers an online platform connecting self-selected drivers and users who use a smartphone app to interact with the service. Any interested driver, who has a car and a smartphone, can sign up to be an Uber driver.

Taught by: Villarroel
Course not offered every year
Activity: Seminar
0.5 Course Units
Notes: This course will be in a hybrid in-person and online course.
DYNM 619 Organizational Project Management
The course provides an overview of the concepts, procedures, and fundamental processes of project management for working professionals. Participants are introduced to the principles, tools, and techniques of project management within an integrative framework. The course emphasizes that, for most organizations, projects are the primary means for implementing strategic initiatives. Course Objectives: 1) Understand and critically evaluate expectations, procedures and processes of program management as currently practiced in large for-profit enterprises; 2) Understand the content and processes and standards of practice as defined by the Program Management Institute (PMI); 3) Understand how to build and manage effective project teams; 4) Become familiar with the critical components of effective project plans. In addition to the scheduled meeting dates, additional class activities will be planned between faculty and students.

Taught by: Choukroun
One-term course offered either term
Prerequisites: Non-DYNM students must complete a course permit request form: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Categories: F, A; DYNM Concentration: LMC. Course schedule: 9/22, 29; 10/13, 27; 11/3, 10, 17; 12/1, 8.

DYNM 620 The Art and Science of Paradox in Organizations
This course introduces multiple approaches to understand and interpret the paradoxes that baffle us, such as: 1) Why is it that we go to hospitals to be healed and get well, but we leave sick and infected? 2) Why is it that we come together to do purposeful work and end up doing mundane, boring tasks? 3) Why is it that banks were created to protect and ensure financial security, but banks have caused a global recession? 4) Why do we not learn from history? Why do we repeat the mistakes we have made before? 5) Why is it that the “Developed and Advanced” countries of the world are destroying the planet? This highly interactive, flexible, and remarkably diverse online course will offer frames to observe the paradox in ourselves, our families, our friendships, our workplace, and our relationships with individuals, teams, and systems—the three units of analysis that constitute every paradoxical situation. Paradox appears in our organizations, our relationships, and our experience as contributing members and leaders of our society.

Taught by: Barstow and Subramanian
One-term course offered either term
Prerequisites: Non-DYNM students must complete a permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Hybrid Course
1 Course Unit
Notes: DYNM Course Category: A; DYNM Course Concentration: LMC

DYNM 621 Project Portfolio Management
The primary objective of this course is to enable participants to gain a thorough understanding of and appreciation for the discipline of Project Portfolio Management. Ill-defined and poorly utilized in many organizations, Portfolio Management has struggled to become inculcated within the fabric of these cultures without direct intervention and sponsorship from the highest levels of Senior Management. Beginning with a decidedly strategic focus, the course brings together the very essence of Portfolio Management—technically robust analytics—with the softer elements of communication and decision-making to enable portfolio value maximization. The course is structured in such a way that it follows a unique Portfolio Management framework—CREOPMTM—created by the authors Bayney & Chakravarti in their book titled Enterprise Project Portfolio Management: Building Competencies For R&D and IT Investment Success. In each of the first 6 classes, the framework is followed sequentially and is then applied holistically to a case study in the final classes. The impact of risk and uncertainty to the quantification of project, program, and portfolio value is addressed through classic program and portfolio optimization. Students will be expected to apply many of the principles taught in this course to their own organizations and to deliver class presentations that address portfolio strategy, linkages between organizational plans, decomposing complex decisions, project prioritization, portfolio optimization, and Stage Gate Review (SGR) processes. In their final paper, students will be presented with a choice of analyzing their organizations portfolio health or a selected Kellogg School of Management case study in Portfolio Management using the CREOPMTM framework.

Taught by: Bayney
One-term course offered either term
Prerequisites: Non-DYNM students must complete a permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Course Category: A; DYNM Course Concentration: LMC

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DYNM 623 Building Intercultural Competence in A Global Work Environment

This engaging course will promote intercultural competence and heighten cross-cultural awareness. You will engage in activities, simulations, and discussion about culture, values, perceptions, communication styles, and cultural patterns of thought and behavior that will help you understand the basic concepts, theories, and issues of intercultural communication related to intercultural relationships and how these concepts apply to your personal and professional lives. This fun and stimulating course will also explore ways to create an interculturally-competent work environment. Learning opportunities will examine tools to interact more positively with each other. As we build intercultural competence, we will sometimes encounter barriers as we interact with people whose cultural backgrounds vary from our own. As learners of intercultural communication, we will be bringing different cultural experiences and perspectives. As we interact and learn together, you will be exposed to different viewpoints and cultural lenses. We will all realize that as we unravel differences, you will find that what is acceptable and appropriate in one culture may be disrespectful from another cultural vantage point. As we cultivate, learn, and shape our intercultural competences, we may need to have an open mindset to learn new things and unlearn misinformation. The cultural competency of learning and unlearning, shaping and reshaping is a life skill that will be useful and extended well beyond the course to our work settings and personal lives.

Taught by: Altamirano
Course not offered every year
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Hybrid Course
1 Course Unit
Notes: DYNM Category: A; DYNM Concentrations: LMC, GL. In-person meetings: 6/12 19. All other meetings are online.

DYNM 624 Program Leadership Skills and Systems

Program Leadership Skills and Systems takes a fresh look at how organizations (and the people who work for them) pursue strategic goals via initiatives that can be recognized as programs. Taking a broad view of the nature of programs, it examines the role of teams in delivering program success and how an individual team member’s knowledge, skills, and behaviors, should contribute to that success. Program Leadership Skills and Systems will progress through content that examines: 1) The important of programs: What are programs and why are they critical to organizational, professional, and personal success? 2) The challenges of programs: Why do most programs fail to deliver their intended benefits? 3) The leadership needs of programs: How does an individual’s leadership style and focus influence the likelihood of success of their programs—and the likelihood that they will get promoted? 4) The ideal program team: What should one look for when building a program team? 5) An individual’s role on a program team: What should program team members do to be a more successful team leader, manager, or member? 6) What experts say? What are the current “standards” of program management and how can you learn from them? It is expected that students who take Program Leadership Skills and Systems will achieve a greater understanding of how programs can be used to pursue organizational, professional, and personal goals. They will learn what it takes to effectively fill the role of a program team member, manager, and/or leader and to achieve personal and professional success in their roles.

Taught by: Heaslip
One-term course offered either term
Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Course Category: A; DYNM Course Concentrations: LMC, OC

DYNM 625 Ethnography of Everyday Life: A Master Class

Ethnography is a fundamental method within the social sciences that concerns the systematic study of culture. It involves a “thick description” of how people actually live their everyday lives, personal or professional. Ethnographers study how human groups form institutions and how these structures grow, function, maintain themselves, and persist. Also at issue is how people share their understandings and develop ideologies pertaining to these processes. Social negotiation and the development of "local knowledge" in the culture of interpersonal affairs will be emphasized, particularly as it is transmitted from one generation to the next. Through direct observation and discussion, students will treat Philadelphia as an "urban laboratory" and seek to identify, to study, and to learn about local people and places. In this vein, the class will visit communities and organizational settings to gain exposure to ordinary people but, particularly, to apply ethnographic methods to the complexities of the modern workplace as well as to everyday life of the city. The final paper will be a synthesis of ethnographic literature and observations of local urban life and culture, particularly as these issues apply to understanding and organization or a local community.

Course usually offered summer term only
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
0.5 Course Units
DYNM 626 Navigating the Post-Professional World
This course will explore the emerging space between virtual reality and augmented reality as they manifest themselves in the marketplace shifts in both startups and large corporations. The goal of this course is to design, from the future back to the present, a graduate curriculum that supports the evolution and transformation of traditional professional training and development. Leaders of professional services from disparate fields, including health/medicine, law, architecture/design, information technology, and spirituality/religion will be engaged to participate in identifying trends for future professional enhancement. These representatives would be asked to be both resources to the class and recruiters within their own organizations so we can obtain participants for a Delphi study for the future of that profession. Taught by: Eldred
One-term course offered either term
Prerequisites: Course permits for non-DYNM students: https://sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A. DYNM Concentration: LMC

DYNM 628 Organizational Diagnosis: Diagnostic Strengths for Effectiveness
This seminar is designed to help participants learn multiple approaches to diagnosing the complex ways in which issues and/or problems manifest themselves in organizations. Frequently, when organizations find themselves in trouble, i.e., there are rumblings in the system about such things as lack of leadership, poor communication, diminished productivity, low morale, etc., there is a tendency to frame the problem(s) simplistically and/or locate blame in a few difficult individuals or groups. However, upon closer examination, problematic issues are often found to be symptomatic and/or symbolic of multiple issues within the organization. This course will help students understand how problems which appear at one level of the system (for example, at the personal or interpersonal level) often represent problems at other levels of the system (e.g., at the group and/or institutional level) or signify a range of interrelated issues. It will provide students with the theoretical constructs and application skills necessary for identifying and framing problem areas, collecting data, and organizing feedback to client systems. Real-time examples will inform our discussions as we consider the relationships between diagnosis, organizational reflection and appropriate action. Taught by: Kaminstein
One-term course offered either term
Prerequisites: Course permits for non-DYNM students: https://sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Categories: DE, A; DYNM Concentration: LMC

DYNM 629 Strategic Approaches to Human Capital Management and Its Implications for Leaders
In this course we look at how human capital strategy is changing in response to increasing demands for results and more purposeful practice. We look first at the broader landscape of human capital management and see what’s new in the way an organization should approach its human capital practice. Then, we look more closely at the specific challenges–demographically, structurally, and organizationally–facing managers and Human Capital professionals in an age of uncertainty, and learn what they can do to remain adaptive and competitive. By the end of the course, through meetings and discussions, assignments, presentations, case studies, research, and required reading, participants will: 1) Learn how to assess and adjust Human Capital Development (HCD) policies, processes, and practices; 2) Think strategically about the critical human capital concerns in their own organization; 3) Connect and align individual and organizational learning imperatives; 4) Learn how to reshape human capital goals to meet continuously changing global, political, and economic environments; 5) Inspire leadership of human capital that is results-oriented and ethical; 6) Identify and explore a specific human capital issue relevant and important to their organization and develop a strategic approach for addressing it. Taught by: Hart
One-term course offered either term
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Categories: F, DE; DYNM Concentration: LMC

DYNM 630 The Discipline of Value-driven Business Process Management: Strategy Execution in a Digital World
Business strategies and operations are driven by scores of ever-shifting factors: from demographic changes and capital availability to increasing regulations, technological innovations and all present digitalization. Static business models are no longer able to keep pace with such dynamic change. Companies need a next generation management approach that fits to this environment and drives collaboration across organizational boundaries. In effect, they need to know how and when to modify or enhance their business processes, which processes are best candidate for intervention, and how to move rapidly and at the lowest risk from business strategy to execution. Business Process Management (BPM) helps organizations master change successfully and create immediate as well as durable competitive advantage. It uses the opportunities of our digital world systematically. BPM has become a management discipline that delivers significant business value by converting strategy into people and technology-based execution—at pace with certainty. It is implemented through the "process of process management” that addresses all aspects of the lifecycle of a business process: design, implementation, execution, an controlling of processes. It is about identifying the right focus to improve what really matters and to sustain those improvements. framework, approaches, methods and software for achieving and maintaining a stable process environment. Taught by: Kirchmer and Naidoo
Course usually offered in fall term
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentration: LMC
**DYNM 631 Everyday Intergenerational Conversations: Baby Boomers and Millennials**

This hybrid course delves into three big questions around the burning theme of everyday intergenerational conversations. The class-experience will be a living such conversation with Dr. Barstow, a Baby Boomer, and Amrita Subramanian, a millennial. The course format is 20% in person and 80% on a virtual platform. It’s a learner-centric and a learner-driven course. It is created to mine the practical know-how and life experiences of all participants, so all generations within the class can have a revealing experience that they can immediately apply at work and their personal relationships in life. At this exact point in time there are 300+ million people in the workforce and four generations at play. We begin to see the tiers of own understanding falling apart. It’s no longer about stereotyping or simply managing by default or banking on quick-recall labels--and here’s why--workplace performance or productivity or engagement or intergenerational respect and trust cannot be left to chance or opinions. We have to pause and consider the following questions: 1) Wht: What are the generation names and labels we use? What purpose do they serve? How do they help and how do they hurt? What do they help us see? What do they hide, obstruct or make us miss? 2) So what? Intergenerational communication is poor and we can do better. Understand it and strategies and tactics to prosper and cope. How to use agency and brokerage? What of cognitive dissonance? Responding versus reacting to Fake News? 3) What’s next? What have we learned from this whole century about the 4 generations at work? At home? At meetings or webinars or potluck parties? What of families at Thanksgiving? How can we expect to have valuable and meaningful conversations and relationships with all generations--current and future?

Taught by: Barstow and Subramanian

One-term course offered either term

Prerequisites: Course permit for Non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Hybrid Course

1 Course Unit

Notes: DYNM Category: A; DYNM Concentration: LMC, GS. Course schedule: In person session 9/8 from 12-5 pm. Synchronous online sessions via Zoom: TBA. 4 additional synchronous sessions will be scheduled between the faculty and class at a mutually convenient time.

**DYNM 633 Leadership from the Middle of the Organization**

Durable organizations have learned to encourage innovation from within. This course's objective is to give Organizational Dynamics graduates the skills and practical knowledge to organize change and improvement from a middle position within an existing organization. The course seeks to prepare students to assume responsibility for acting without authority by becoming the leader they have been looking for. The course's learning objectives are: (a) to gain a working understanding of the pragmatic, ethical/moral, and cognitive foundations for leading informally from mid organization; (b) to adapt an existing Leading from the Middle (LtM) process to each student's actual situation; and (c) to carry out small scale actions in accordance with the process between classes, and in each class to coach students in learning by doing leadership arts and skills such as negotiating, maximizing the feasibility of change plans, enlisting and coordinating cooperation on a team, identifying and addressing stakeholder points of view, maintaining legitimacy of an initiative, and crediting all who help. Students who take this course should already be concerned about one or more important opportunities or upsetting challenges in their present or previous organizational surroundings. The instructor will coach the class in functioning as an idealized design team. The design process has two phases, a base case projection and an idealized design. Phase 1, the base case projection, formulates the current reality without change, and projects the likely undesired effects and outcomes of maintaining status quo. Phase 2, idealized design, creates a leadership approach that all stakeholders would wish for, if all their feasible, sustainable and adaptable wishes could come true today. By participating in a design process, the class itself models many group dynamics of an actual LtM situation. Scholarly Commons describes the work done in this class with examples. (Please see Stankard, Martin (2011). Guest speakers from earlier years are invited to share experiences with course content and answer questions. This course fills the following Organizational Dynamics requirements: Categories: DE, A Concentrations LMC, OC

Taught by: Stankard

One-term course offered either term

Activity: Seminar

1 Course Unit

Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu
DYNM 634 Process Improvement Tools and Strategies
Process improvement as taught in this course often provides high-leverage, high visibility opportunities for showcasing coaching and leadership skills as a member, coach, or leader of cross-functional process improvement teams. Cross-functional process improvement teams (running lean and six sigma projects) have evolved into a major pathway for developing leadership and coaching talent in such organizations as Baptist Healthcare, Federal Express, Ritz Carlton, Toyota Motor Co., and General Electric. Process improvement project leaders and team members use specific tools and capabilities to analyze as-is processes and to define and deploy new or improved processes that deliver better outcomes and customer satisfaction with less non-value added effort. Leading or serving on cross-functional process improvement teams creates opportunities to work and network with people from other parts of your organization and creates opportunities for visibility to executives and managers sponsoring strategic improvements. Participating in or leading process improvement is also a great leadership, coaching and professional development activity.
Taught by: Stankard
One-term course offered either term
Prerequisites: Course permit for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Categories: DE, A; DYNM Concentration: LMC. Course Schedule: 9/9 23; 10/7, 21; 11/4, 18. (Back up date in case of cancellation: 12/2)

DYNM 635 Organizational Essentials for Leadership
Through presentations by expert speakers, case discussions, and participation in team projects, students will review and evaluate critical issues from across the frames of business, including general; human resource; marketing; information and stakeholder management; leadership; corporate culture; communications; organizational behavior; sales, marketing and public relations; finance and financial reporting; ethics and social responsibility; unions and government relations; and business law. Each of these elements will be studied in light of changing environmental conditions, including the economy; society; consumer behavior; market trends; regulation; politics; unpredictable events such as 9/11; organizational change; history; and internationalism.
Taught by: Choukroun
Course usually offered summer term only
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit

DYNM 636 21st Century Leadership Development: Integrating Cultural Influences into Coaching Practice
Coaching has been used to support high-level leadership, to develop high potential talent, to overcome or remediate deficiencies or unproductive behaviors, and to support or manage performance during periods of change. As the use of organizational coaching has grown over the last decade, globalization of the economy has transformed organizational markets, operations, and workforces so that "culture" routinely influences interpersonal, group, and organizational interfaces. In this context leadership requires an ability to recognize and leverage the "cultural diversity" inherent in teamwork, communication, collaboration, conflict, and change. Coaching, as a leadership development practice, must help leaders grow in their ability to recognize and leverage the national, professional, functional, and organizational cultures that influence workforce engagement, productivity, satisfaction, and innovation. This course is intended for students with an interest in culturally complex leadership and organizational development. This course has a dual purpose. First, through reading, class discussion, and written reflection, the course will enhance student understanding of coaching models, methods, and cases informed by cross-cultural psychology, intercultural communication, anthropology, and international business disciplines. Secondly, through guided practice, students will develop their skills in coaching across cultural differences. Students will coach one another through a self-assessment, development planning process, and initial movement toward their objectives using Rosinski's global coaching process as one illustrative example of this kind of coaching. This course is a hybrid of online and in-person meetings on the following schedule: 6/1: In-person and online; 6/25 & 26; 7/23 & 24: In-person; 8/10: In-person and online.
Taught by: Reyes
One-term course offered either term
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Course Category: A; DYNM Course Concentrations: LMC, GL, OC. Meeting Schedule: 6/1, 25, 26; 7/23 24; 8/10.

DYNM 637 Creating High-Performing Groups and Teams: A Course in Real-Time Experiential Learning
This course will be offsite in Pennsylvania, August 4th through 9th, 2017. This course will have an additional course fee to cover lodging and other program logistics. Registration permits will be issued upon signed Travel Agreement being returned to the Organizational Dynamics program office. This course is limited to 12 students. This five-day, offsite program is more about the "how" to develop high performing teams than the intellectual "what" of such teams. For five days the twelve members will immerse themselves into what differentiates a high performing team from the dysfunctional teams with which we are familiar. We will take a deep dive into the fundamentals of any group or team in our efforts to become such a team. We will, along the way, learn about the art of design--internalizing the skills and tools essential for building strategic interventions into a team in real time. Not only will we design them, but also we will be critiqued in relation to the quality of our efforts as well as to the facilitation skills we used during the process.
Taught by: Rodney Napier
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: DYNM Course Category: A; DYNM Course Concentrations: LMC, OC. Residential course: 8/4 to 8/9.
DYNM 638 Organizing for Entrepreneurial Effectiveness

Entrepreneurship has become a popular aspiration for many individuals in the United States and around the world. In fact, a recent survey by UK Trade & Investment confirmed that roughly 1 in 3 individuals under the age of 34 have expressed a desire to form their own new venture within the next five years. This represents a marked increase in aspirational levels over the past two decades. Although not all new ventures are entrepreneurial in nature, the motivation for starting a new venture is ultimately rooted in a desire to change one's professional and/or personal circumstances. Most individuals never achieve this objective because they fail to take the first step in organizing their entrepreneurial aspirations into an effective plan. This course is designed for mid-career professionals who aspire to either form an independent new venture (i.e., entrepreneurial venture) or lead the creation of a new venture within their existing organization (i.e., intrapreneurial venture). Participants in this course will: 1) learn the internal and external motivation forces that drive individuals in general and themselves in particular; 2) become familiar with the general competencies and skills needed for a new venture to be effective; 3) understand the unique needs associated with creating a balance team for the new venture; 4) cover the practical aspects of developing an effective new venture; and 5) prepare a formal plan designed to marshal the necessary resources and support the new venture. The course will culminate with each student preparing a formal executive summary and professional presentation to support the creation of a new venture in a new or existing organization.

Taught by: Knorr
Course not offered every year
Activity: Hybrid Course
1 Course Unit

DYNM 639 Sustainable Change: Managing Organizational Culture to Achieve Leadership Goals

"Culture eats strategy for breakfast," as management guru Peter Drucker famously said. We know that leaders who can effectively manage their organization’s culture are better at adapting to market trends, retaining employees, and engaging external stakeholders who demand more corporate transparency and social responsibility. Yet most of us find it difficult to understand what culture really is, let alone manage it successfully. This challenge is magnified at a time when technological and demographic trends have made organizational boundaries more porous and ambiguous than ever, threatening to make traditional models of top-down change management ineffective. This course will therefore take a bottom-up, contextual approach to helping students understand and manage organizational culture in order to achieve their strategic and career goals. We will start with the individual, learning how culture works to shape organizational politics. We will discuss ways in which students can develop strategies for navigating organizational culture to achieve their career goals. We will then move to the group level, examining how cultural barriers form between teams, functions, and divisions, harming communication and coordination. The final section of the course will build to the organization level and provide students with a toolkit for creating strategies to achieve sustainable cultural change. The course will be heavily focused on practical application: students will conduct semester-long cultural research/consulting projects with organizations located in Philadelphia. We will also apply course frameworks and tools to case studies of leaders attempting to create sustainability-oriented cultures in their organizations.

Taught by: Newberry
One-term course offered either term
Prerequisites: Course Permits for Non-DYNM Students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
DYNM 640 Virtual Collaboration
NOTE: Logitech ClearChat Headphones and Logitech QuickCam Pro9000 are required for this course. Please see the syllabus for other requirements. Across the globe companies, both large and small, are increasingly conducting culturally complex work thorough technology channels and virtual personnel transfers, making multi-cultural organization and virtual work inextricably intertwined. In this context electronically mediated collaboration and communication capabilities across time, distance, organization, culture, and other knowledge boundaries have become necessary for the everyday work of telecommuters, virtual teams, remote managers, professional knowledge communities, and electronic marketplaces. This course is primarily intended for students with an interest in globally distributed work and collaborative virtual organizations. The purpose of this elective is to enhance student understandings of virtual forms of human collaboration and to develop student abilities to work jointly with others via electronic tools. This course design makes typical social patterns encountered in virtual organizations visible so that students can learn from participating and collectively reflecting on their course experiences. This course has an online course fee of $150.
Taught by: Reyes
One-term course offered other term
Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Online Course
1 Course Unit
Notes: DYNM Course Category: A; DYNM Course Concentrations: LMC, GL

DYNM 641 The Art and Science of Organizational Coaching
Coaching has become a primary tool for consultants, human resources professionals and administrators interested in promoting and sustaining leadership and executive development, behavioral change, and role transition. This course explores the theory and practices associated with organizational coaching. We examine and practice the steps of the normative coaching process, the issues and boundaries that effect coaching, and pitfalls to avoid. This is an introductory course that follows a hybrid model of instruction, learning and application in class and in virtual class. The first class will be a weekend face-to-face experience followed by consecutive virtual classroom sessions with a variety of different applications. Students will practice phone coaching and virtual coaching as well as virtual group written discussion. Throughout the course we will contrast theory and practice through our own experience and observation via assignments and behavioral experimentation.
Taught by: Pennington and Subramanian
One-term course offered other term
Prerequisites: Permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Hybrid Course
1 Course Unit
Notes: DYNM Categories: F, DE; DYNM Concentration: OC In-person meeting: 9/22 23. In person meeting times: 8:00 am to 5:00 pm. Virtual sessions will be scheduled between faculty and students.

DYNM 642 A Cognitive Playbook: How to Integrate Strategy, Organization, and Thinking
Strategy and organization are of a piece. Bain & Company's Chris Zook put the matter ironically: "I don't know whether organization is the new strategy, or strategy is the new organization, but it's something like that." Too often, however, these realms are treated as discrete. This course not only integrates strategy and organization; it adds metacognition (thinking about thinking) to the mix. A Cognitive Playbook enables students to understand the three perspectives—strategy creation, organizational design, and critical thinking—in light of each other. Students gain both big-picture scope and nitty-gritty tools for organizational analysis, planning and change. They also learn how to speed-read the literature on strategy, organization, leadership, management, and the like—because so much of it is derivative and redundant. Old wine in new bottles.
Taught by: Keidel
One-term course offered other term
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: DE, A, DYNM Concentration: LMC

DYNM 643 Trappings, Substance, and Memories: Effective Public Presentations in Organizations
In spite of the technological advances that have transformed organizational communication, the ability to articulate and present ideas, arguments, and positions in a face-to-face context remains a vital skill. At the same time, the opportunities to develop fundamentally sound presentation skills are rather limited, and, in many cases, organizations don't train their employees to do so. In this very hands-on course, we will resurrect this age-old practice by exploring the tried and true presentation methods and approaches while simultaneously making direct connections to how technology has transformed presentation speaking in organizations. We will initially explore the fundamentals of public presentations: what makes an effective presentation, the arguments for developing strong presentation skills, and specific analysis of business speech. How does one establish proper credibility and build the trust necessary for success? Where does structure play a role and how can certain elements from theater, storytelling, and narrative help create highly impactful organizational presentations. We'll explore what determines ethical presentations, where charisma (or lack thereof) plays a role, and how to most effectively incorporate visual accompaniments such as PowerPoint into presentations. We will dig much deeper into the development of strong persuasive arguments with emphasis on how social media has impacted credibility in novel ways. Finally, we will use improvisational techniques as a way to prepare for those sudden moments when one is called upon to make a quick presentation.
Taught by: Shapiro
One-term course offered other term
Activity: Seminar
1 Course Unit
DYNM 644 Applied Organizational Change: Methods Dojo
This seminar is designed to support existing and emerging leaders who recognize their need for more adaptive practices to effect organizational and individual change in complex and rapidly changing environments. Building on a strong base of theory, this seminar is largely experiential. Students are expected to identify a real need in a system (work, internship, or volunteer), which, if improved, would have a substantial improvement on overall organizational performance and satisfaction. Beginning with this problem or dilemma, the seminar is designed as a ‘dojo.’ or practice space, where students can clarify their own assumptions about how and why change occurs and practice new techniques and approaches for eliciting change. Theory provides the foundation for our work and students will be expected to recognize and be able to articulate how they are operationalizing theory in their setting.
Taught by: Benjamin
One-term course offered either term
Prerequisites: Permits for Non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: DE. DYNM Concentration: LMC. Course Schedule: In-person: 6/29-7/1 and 8/3-5. Virtual sessions TBA.

DYNM 645 Project Based Laboratory
Course not offered every year
Activity: Independent Study
1 Course Unit

DYNM 646 Bringing New Technologies to Market
Each year, innovators attempt to bring dozens of new technologies to the mainstream, commercial market. Inevitably, most of them fail, but equally inevitably, a few of them succeed, sometimes spectacularly. Organizational professionals may be called upon to evaluate investments in new technologies in several ways. Some organizations may want to bring such new technologies to market embedded in new products. Other organizations will want to be pioneers in using new technologies to gain competitive advantage. Careful evaluation will be required to select the right technologies and provide them with the proper context to insure successful commercialization. This includes identifying promising candidates, considering packaging and design alternatives, understanding issues of timing and customer readiness, and looking at how pricing and distribution models are crafted. Choosing new technologies is just like making any other investment. Organizations seek high rewards at acceptable risks. In this course, real-world examples of technologies that failed versus those that succeeded will be presented and analyzed. We will do this by examining the technologies in related pairs, i.e., by comparing the Apple Newton and the Palm Pilot. Participants are invited to bring interesting new technologies to the attention of the class.
Taught by: Wohl
Activity: Seminar
1 Course Unit

DYNM 647 The Psychology of Conflict and its Resolution
Taught by: Seltzer
Activity: Seminar
1 Course Unit

DYNM 650 Outdoor Dynamics
This course explores the implications of past and future changes in land use and population changes over time in one of the least densely populated areas of the country, but which serves as both a winter and summer playground for millions of urban residents each year. Set in the White Mountains of New Hampshire, only a day’s drive for over 10 million Americans, the area boasts some of the most pristine and exotic microenvironments in the world, left from the last Ice Age. Over 250,000 people visit the summit of Mt. Washington, the region’s highest peak, every year, driving, hiking or riding the cog railway to the top. The focus of this course is the growing interest in promoting “sustainable development,” which most people envision as protecting the environment and wild species from human encroachment and pollution. The course will examine the human sphere and the natural sphere as common ground in the analysis of competing issues; areas of compatibility; and future plans to promote a sustainable environment in this region. The course will focus on three themes: 1) how the people and institutions tasked with being the environment’s guardians go about their jobs; 2) how the area is used by visitors; and 3) how industry and its stakeholders have worked with local regulators and politicians to create jobs and promote growth. The course will ask students to overlay the principles of sustainability and issues management, in managing the increasing concern that the trajectory of land use and industrial growth will compromise the region’s native ecology and wilderness and backcountry attractiveness. Left to its own momentum, how will the future of the area fare versus promoting and implementing more sustainable goals? Changes in behavior will be needed to bring the two into line, and that leads to organizational dynamics. How will stakeholders resolve the natural tensions of the institutions’ (primarily those that operate in the region) mission and development goals with outsiders’ desires? What leverage do they and others have in the debate over the future of the region? In addition to an active outdoor week in the White Mountains, participants will meet with key players and leaders from the area and come away with a deeper understanding of the major issues in the tensions between “the place no one knew and the place that got loved to death.”
Taught by: Barstow/Havely
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: DYNM Course Category: A; DYNM Course Concentrations: LMC, SD. Travel Course Dates: 8/3 to 8/11.
DYNM 651 Group Team Dynamics: Understanding the Overt and Covert Dynamics that Support Effective Work
Although groups and teams are often lauded as the mechanisms that provide the competitive edge for organizations in today's challenging economic environment, there is often little attention paid to the deeper social and psychological currents influencing group and team dynamics. Organizational leaders and facilitators frequently lack an in-depth understanding of how work groups, multifunctional teams, and cross-national executive groups develop, operate, accomplish their goals—or not—and end. Team members often struggle to make meaning of the myriad spoken, as well as unexpressed, factors influencing the process and outcomes of the groups of which they are a part. This course, by emphasizing both theory and practice, provides students with a thorough grounding in the ways groups and teams develop and learn. The class will also examine approaches to building group and team competencies related to effective communication, conflict-resolution, and solving complex strategic problems as well as ways to manage the range of intentional and more hidden dynamics that both support and challenge high performance. The course is designed to include seven 3-hour classroom meetings across the semester and two extended sessions that will afford students the opportunity to explore various theoretical frameworks. In addition to drawing on the extensive literature and research in group dynamics and team building, the class will rely on experiential methods to help students develop keener understanding and insight into the ways in which their own leadership and followership dynamics, as well as the dynamics of the group-as-a-whole, influence their team's ability to accomplish its tasks.

Taught by: Kaminstein
One-term course offered either term
Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Categories: DE, A; DYNM Concentrations: LMC, OC

DYNM 653 Coaching Others to Manage Conflict
Not a day goes by when you or I, or a person we are coaching, is not faced with some tantalizing, challenging conflict. It may be with someone we love, a conflict in a team, a struggle between two direct reports, a difference with our boss, or the challenge of a difficult, perhaps aggressive persona in a meeting we facilitate. The problem is not that there is a conflict. The problem is that most of us have a very thin, often inadequate repertoire of responses to the conflicts that engage us on a daily basis. The result is that all too often we are predictable in our responses. Thus, if we take these same limited skills and attempt to provide them to a client in our role as a coach, the consequences will more than likely be similar. This course is about expanding your repertoire of responses to a wide array of conflict situations. In the process, you will increase your understanding of the theoretical constructs that underlie successful conflict management. Not only will your strategies for managing a variety of conflicts expand, but you will be better able to design unique responses that relate to the particular situation with which your client is faced. How you translate these ideas to your clients and, in the process, provide them the confidence to use them, will be a central theme throughout the course. This course provides a balance between intellectual theory, skills, and applied strategies along with the time to practice them.

Taught by: Napier
One-term course offered either term
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentration: OC. Meeting Schedule: 9/8-9; 10/13-14, 27.
DYNM 655 Using the Political Process to Effect Organizational Change
At one time or another, each of us has said something like, “I know what to do to make some really effective—and possibly even profitable—changes in this organization, but the politics make it almost impossible to get anything done.” The sense is that, although there are changes that should be made to improve organizational performance, politics (internal, external, governmental) simply obstruct our ability to make a difference. Frustrations notwithstanding, depending on how it is employed, politics can be either an impediment or, more importantly, a source of opportunities for improving organizations. Politics is the art and science of coordinating individuals, departments, management, markets—the entire organizational environment—to effect a balance between the organization’s objectives and the methods used to achieve them. As with the other factors that are employed to affect organizational performance—the methods used to improve manufacturing, marketing, sales, finance, and so on—politics is a means that organizations can use to initiate and maintain critical personal and institutional relationships.

One of the seminar readings—Latimer’s “Why Do They Call It Business If It’s Mostly Politics?”—is used to provide illustrations of the ambiguous nature of much of what is regarded as organizational politics. What is critical to understand and appreciate from the outset, however, is that politics is not an external factor that is imposed on organizations. Politics is not only a means for achieving personal or institutional power; it is also a method for developing and maintaining personal and institutional relationships within and among individuals and organizations of all types. This seminar will discuss organizational politics and the ways that it is used to identify, characterize, and effect change—both within and among organizations. After reviewing several perspectives on organizations and the roles that political processes play in decision-making, a series of cases is presented that illustrate the contexts and conditions for effective political communication and coordination.

Taught by: Gale and Brady

One-term course offered either term

Prerequisites: Course Permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Seminar

1 Course Unit

Notes: DYNM Category: A; DYNM Concentration: LMC

DYNM 656 The New Normal: Racial and Ethnic Diversity in the 21st Century Workplace
This course examines the social construction of race and ethnicity, including relations within and across groups, with a particular focus on their implications for organizational culture and management. In a very real sense, the workplace is a microcosm of the larger society; a place where our individual experiences, beliefs, and biases related to race and ethnicity intersect, creating both opportunities and challenges. Our capacity to understand the different backgrounds and experiences that individuals and groups bring to the organization, as well as recognizing our own biases and the biases of others are directly implicated in our ability to both manage and be managed in the organizations that we are a part of. A primary objective in this course is to increase our capacity to first understand the contours of racial and ethnic diversity in twenty-first century America by investigating (1) the historical context that influences present-day understandings of racial/ethnic diversity (2) how and why individuals from different racial/ethnic backgrounds can “see” the same thing but interpret it very differently, depending on experience, culture, and social position relative to race/ethnicity (3) the meaning and importance of dominant and minority groups, the degree to which a racial hierarchy exists, and the implications of that hierarchy for important outcomes (4) the degree to which the workplace is, indeed, a microcosm of the larger society (5) the pitfalls of “colorblindness” (6) the nature of stigma and its workplace implications and (7) the benefits and drawbacks of affirmative action policy in the workplace.

Taught by: Charles

Course usually offered summer term only

Activity: Seminar

1 Course Unit

Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 661 Organizational Culture Change: Theory and Practice
The importance of organizational culture as a factor that can influence organizational performance either positively or negatively gained renewed attention beginning in the mid-1990’s. The success of high-profile firms with “quirky cultures” such as Southwest Airlines and the entrepreneurial cultures of high tech firms, along with the rise of interest in companies that have created “Great Places to Work” with associated awards programs have generated recognition that organizational culture can be a major factor contributing to organizational performance. The related emergence of “high performance organizations,” acknowledgment that organizational culture can trump the implementation of organizational strategy, competition among companies to attract the best employees, and the failure of many financially-promising mergers and acquisitions all pointed to the importance of understanding and intentionally managing organizational culture. This course will address many of the major debates about organizational culture as well as provide students with tools for better assessing and understanding organizational culture and managing culture change.

Taught by: Vanderslice

One-term course offered either term

Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Seminar

1 Course Unit

Notes: DYNM Category: A; DYNM Concentration: LMC. Course Schedule: This course will meet on specific Monday evenings and Saturdays. Exact dates are listed below.
**DYNM 662 Entrepreneurship and Leadership: Creating Winners**
Peter Drucker once famously said that "entrepreneurs innovate." The course looks at how innovation drives the entrepreneurial process in both large organizations and in startup ventures. It stresses the importance of bringing entrepreneurial vision and energy to all organizations: profit and non-profit, as well as government and institutional. The course examines the characteristics of successful entrepreneurs. Participants will learn how to develop their own entrepreneurial instincts and how to encourage an entrepreneurial culture in their organizations. The course examines the challenges of startup ventures and provides practical information to participants who are considering an entrepreneurial venture. It explores strategies for identifying opportunities, creating successful business models, valuing a business, raising capital and managing the business. The course builds understanding of how a culture of entrepreneurship and innovation are critical to any organization that wants to survive and prosper in the future. The course discusses how sustainability is becoming a global force for change, creating exceptional entrepreneurial opportunities. The course looks closely at the leadership roles of both the CEO in a large organization and the entrepreneur in a venture. The course examines how leaders in all kinds of organizations set priorities, identify game-changing opportunities, shape the organizational culture and motivate their teams to achieve outstanding performance or, sometimes, fail. The course stresses the leadership responsibilities of the board of directors in providing governance and oversight in both for-profit and non-profit organizations.

Taught by: Keech

One-term course offered either term

Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Seminar

1 Course Unit

Notes: DYNM Category: A; DYNM Concentrations: LMC, SD

**DYNM 663 Green Skepticism: Communicating and Implementing Sustainable Business**

Green initiatives are creating competitive advantage for businesses. Smart companies are integrating environmental stewardship into their strategies, operations, marketing, and product innovation. Companies that successfully embed sustainability in their core business strategy and culture—rather than "bolting it on" as a peripheral activity—are gaining the most value added. Embedding sustainability requires the active engagement of all organizational stakeholders, many of whom may be green skeptics, dubious of the need to change. "Many people who feel passionately about sustainability cannot relate to those who have a harder time understanding the need for a change..." - Corporate associate & MBA candidate. The business case for sustainability has been made many times, yet skepticism about the need for change remains widespread. While adopting sustainable business practices must make sense financially, an economic argument alone may not be enough to convince people to purchase green business products and services or to implement sustainability practices. The course is based on the assumption that "task significance" is an important factor for implementing sustainable business practices. This means helping people see the connection between small tasks they are being asked to do and the big picture of global sustainable business. The first part of the course focuses on understanding sustainability driven changes in the global business landscape through a coherent framework. The second part of the course focuses on what those changes mean for business fundamentals: consumption, production systems, innovation, and emerging economies. The third part of the course focuses on communicating and implementing sustainable business strategies and initiatives. Students will have the opportunity, with a team, to design a communication and implementation program for an organization. Throughout the course, strategies and tactics that work to engage skeptics who do not understand the need for change, as well as tactics that don't work, will be studied. The course is based on the instructor's experience leading hundreds of business and environmental professionals from skepticism to enthusiasm for sustainable business over the past decade. This course is designed for everyone tasked with engaging others in implementing sustainable business practices and for entrepreneurs selling green business products and services. It will provide strategies for enhancing a technical and economic sales pitch. The course is also for those who may be skeptical themselves, and want to reconsider their skepticism. Categories: A Concentrations LMC, SD

Taught by: Heller

One-term course offered either term

Activity: Seminar

1 Course Unit

Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu
DYNM 664 Organizational Culture and Learning
What is organizational culture? What is organizational learning? How do organizations learn effectively and change their culture? A learning organization is skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge (Garvin, 1993). According to Ray Stata, Chairman of Analog Devices, “The rate at which individuals and organizations learn may become the only sustainable competitive advantage.” However we define and prioritize organizational learning, we must still struggle with how to do it. This is a tougher question. The thesis of this seminar is that an enriched understanding of culture can enhance organizational learning. Participants will explore the concept of culture, study the work of Chris Argyris, and discover practices and behaviors that promote organizational learning and culture change. The objective of this seminar is to help participants get beyond highly abstract philosophy and develop a deeper understanding and useful skills based on these concepts. This course will meet on the following Wednesdays: May 27th; June 3rd, 10th, and 17th; July 22nd and 29th.
Taught by: Barstow
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 666 Systems and Design Thinking
This class is designed to challenge the traditional thinking of basic management strategy and practice. Through a series of lectures, interactive cases, and group discussions, faculty will challenge participants to rethink their assumptions and move beyond the traditional practice of management strategy formulation and execution. The prevailing pattern of thought employed by management is analytical. Analysis has come to dominate thought in the western world. But no amount of analysis can explain systemic interaction and organizational behavior. A new pattern of thought is required: synthetic. Systems Thinking involves both analysis - to produce knowledge of organizations (systems) - and synthesis to provide understanding. Without both, effective solutions to problems cannot be obtained. To go beyond understanding to wisdom requires awareness of the difference between doing things right (efficiency) and doing the right thing (effectiveness). The better we do the wrong thing, the more wrong we become. Today a great deal of energy is expended by organizations in an effort to increase the efficiency with which wrong things are done.
Taught by: Pourdehnad
Course usually offered in fall term
Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: F; DYNM Concentrations: LMC, SD

DYNM 667 Building a Business Case for Sustainability
What are the systemic changes that an organization must undergo in order to become sustainable? (Sustainability is defined here to mean that no aspect of business operations is harmful to the planet or future generations.) We will examine the issues of sustainability using Peter Senge’s work on learning organizations, the Swedish sustainability model, The Natural Step, and Russell Ackoff’s idealized design as our frameworks for building a business case for sustainability within an organization or department. Class participants will be asked to build a business case for sustainability within an organization or department and to prepare an interim progress report (5-7 pages) plus a final paper (15-20 pages) using the concepts and principles covered in this course and then will present their case to the class in the last sessions of the course.
Taught by: Barstow
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 669 The Power of Confusion
Confusion is a lack of clarity about some situation that matters to you, which causes you to feel so uncertain or uncomfortable that you have a hard time making decisions. You may be confused about whether you fit into an organization; or about what work makes you feel great versus work that you are good at or about the right thing to do when you are frightened. The power of confusion is that it forces you to stop and seek clarity in your life and career. This seminar addresses seven types of personal and organizational confusion encountered in organizational life during a professional career: 1) confusion over which personal ethics, skills, and talents you find most meaningful; 2) confusion over discovering what is really going on in an organization; 3) confusion of who is in charge—leadership and which direction ‘we’ are moving toward; 4) confusion over ‘what’s in it for me?’ How motivation and satisfaction relate to incentives and pay schemes; 5) confusion caused by blaming, rather than developing skills needed to make lasting changes and improvements; 6) confusion about how teams pull together 7) confusion caused by committing random acts of improvement instead of building a system for making customer-oriented organizational innovations and improvements. You were not born with any inherited knowledge or wisdom, yet you are certain to face fear and confusion during your lifetime. You were born with curiosity and the ability to ask ‘why?’ when you face a confusing situation. You were also born with the ability to think for yourself, listen to others, and learn from experience. Confusion spurs you to use these abilities to gain the clarity that leads to understanding and wisdom; you will need tools to guide your learning. This seminar will show you how to use simple tools to achieve that clarity.
Taught by: Stankard
One-term course offered either term
Prerequisites: Non-DYNM students must complete a course permit request: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentrations: LMC, OC. Course Schedule: 1/14, 28; 2/11, 25; 3/11; 4/1. Snow make up day: 4/8
**DYNM 671 Workplace Ethics: Ownership, Participation, Productivity**

In this course, you will have the opportunity to: 1) examine ethical, religious, legal, technological, and economic bases for different ownership systems from early human history through the 20th century; 2) develop a theoretical framework for understanding ownership issues in the contemporary workplace; 3) review social science concerning ownership and the related organizational issues of motivation, performance, productivity, profitability, culture, diversity, and equity; 4) analyze a variety of cases to measure ownership’s effects across many industries and business situations; 5) learn about various forms of ownership and compensation in use today in small and large organizations, both public and private; 6) utilize a diagnostic tool for assessing the ways in which your own organization’s culture and business outcomes are impacted by the firm’s ownership system; 7) describe your own experiences of the different ownership systems with which you may have engaged, including: family, schools, little leagues and professional sports, volunteer service organizations, charities, religious institutions, professional service providers (e.g., doctors, lawyers, veterinarians), the places where you shop (e.g., think about Genuardi’s before and after it was sold to Safeway), and the different places you have worked...as a way of systems; 8) assess and refine your views regarding ownership in light of your social, political, religious, and ethical commitments. Who is going to own what we all have a part in creating? The history of American business is an evolving answer to the question of ownership. Of all the issues relevant to organizational dynamics, ownership is arguably the most important and least understood. Matters of ownership have also been and remain of intimate concern to ordinary Americans—the slave yearning to be free, the young couple with a dream of home ownership, the entrepreneur who wants to be his own boss, the consultant who wants to form a partnership with her best friends, and the indebted, mid-level manager reviewing last year’s 401(k) statement.

Taught by: Lamas

Course usually offered in spring term

Prerequisites: Non-DYNM students must complete a course permit request form: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Seminar

1 Course Unit

Notes: DYNM Category: F; DYNM Concentration: LMC

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**DYNM 672 A Systems Approach to Crisis Preparation and Organizational Resilience**

Educational Objectives: 1. Awareness of crisis as a part of life and social systems; macro-level crises that could affect you; organizational/individual crisis vulnerability; types of organizational crises; group, family and individual crises. 2. Understanding of: nature and phases of crisis; what to do before, during and after a crisis; crisis psychology/decision-making; security strategies-anticipation vs. resilience; Skills, models and practices of resilience; systemic vulnerability/systemic resilience. 3. Enhance ability to: think critically; develop expertise; adopt a systems perspective; articulate and communicate your thoughts cogently, concisely and compellingly. 4. Apply course-related knowledge to be able to successfully foresee and weather crises. General Education Philosophy. This course fills the following Organizational Dynamics requirements: Categories: A Concentrations: LMC, SD The course includes travel to New York and the World Trade Center site, and lectures at Columbia University to understand what can happen during and after a crisis.

Taught by: Freeman

One-term course offered either term

Activity: Seminar

1 Course Unit

Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

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**DYNM 673 Stories in Organizations: Tools for Executive Development**

As we all know, living in—and out—of organizations is getting exponentially harder. Things seem to be multiplying, splintering, and coalescing kaleidoscopically, and each of us is increasingly taxed to make sense of it all, let alone create meaning for ourselves and those we manage and care about. Remarkably, a powerful tool for helping us is one we have already mastered: stories. As humans we think, feel, speak, listen, explain, and believe in narrative form. Yet this capability is dramatically under-exploited at work. This course examines a variety of ways to bring the power of stories to organizational life. We will look at how stories enhance communication, support change, and intensify learning and development in individuals and organizations, thus informing your leadership style and effectiveness. We will have many opportunities in class to apply “story-based technologies” to issues you face in personal or professional life. Readings come from the literatures of human development, narrative psychology, organizational change, executive learning, and, of course, from literature itself.

Taught by: Greco

Course not offered every year

Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Seminar

1 Course Unit

Notes: DYNM Category: A; DYNM Concentration: LMC
**DYNM 676 Communication Competence: Extracting Value in Key Organizational Interactions**

Often an organization can facilitate its own success by employing fundamental communication practices during value-latent interpersonal interactions. In this course we explore the direct relationship between competent communication and the ability to extract maximum value in most Key Organizational Interactions. Starting off on a personal development note and building off time-tested principles, participants will conduct their own communication skills assessment to determine their own communication strengths and identify specific areas for improvement. Qualities such as effective empathy and active listening are also explored. Moving into the organizational realm, together we define then locate those Key Organizational Interactions, both within and external to the organization, that significantly impact how that organization is perceived. We explore all the possible value points within these Key Organizational Interactions, how they tie into the organization’s strategic objectives, and how to best approach them interpersonally.

Taught by: Brian Shapiro

One-term course offered either term

Activity: Seminar

1 Course Unit

Notes: DYNM Course Category: A; DYNM Course Concentrations: LMC

**DYNM 679 To Thrive Or To Survive? Our Question in the Evolving World**

The seminar focuses on the implications for our own work and personal lives as we reinvent ourselves, our organizations, and our society in what is often called "the new normal." We begin with a realistic exploration of the relationship of the global economy to the widely different political systems which provide individuals with safety nets. We compare the United States to China and Europe and the ways in which our different systems both compete and support each other. Each participant will research a portion of the regional job market, analyzing the source of investments, patents, required skill levels and experience of employees, and competitive outlook. The final presentation and paper will fit their regional analysis into the global picture. Where does it fit? What are its risks?

Taught by: Bauer

One-term course offered either term

Activity: Seminar

1 Course Unit

Notes: DYNM Category: A; DYNM Concentrations: LMC, GL

**DYNM 683 Quantitative Project Risk Analysis Methods and Tools**

DYNM 683 is an unusual opportunity for students to develop a working knowledge and set of skills in a seminar conducted by an experienced subject-matter while using their own Windows PC computers. Quantitative project risk analysis of cost estimates, critical path networks, and integrated cost-schedule models is a highly specialized capability that industry and government organizations increasingly seek to deploy. Sophisticated tools and methods used in this course can be applied across industry domains and are scalable from mega projects to volatile start-ups. These world-class tools and best practices have been validated through use in public and private organizations. (Academic licenses will be provided with the course.) Prospective students need previous experience using spreadsheet software (an installed version of Microsoft Excel is required). Also, it is preferable, but not required, for students to have some experience with planning/scheduling software (for example, Microsoft project or Oracle Primavera P6). Please contact the instructor with questions and to clarify expectations. The course is composed of 4 modules, each of which will be approximately two sessions in duration. Learning objectives are to answer these important questions—How confident are you in achieving your project’s cost and schedule objectives? What can you do to improve your confidence? Will the right resources be available to implement your responses when needed? Module 1: Develop project plans with resources and costs during uncertain conditions Module 2: Implement spreadsheet quantitative cost risk analysis (Monte Carlo simulation) Module 3: Implement Monte Carlo simulation of plans, CPM schedules, and decision trees Module 4: Integrate cost and schedule risk analysis using Monte Carlo Simulation.

Taught by: Hornbacher

One-term course offered either term

Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Seminar

1 Course Unit

Notes: DYNM Categories: DE, A; DYNM Concentrations: LMC, SD. Course Schedule: 9/10, 17; 10/1, 15, 29; 11/5, 19; 12/3, 17. This course will have a software fee, TBA.

**DYNM 689 Balance of Power in the Global New Normal**

The economy is global and every successful business in every nation must operate with awareness of its place in the interconnected dynamics of local, national, and global issues. This course uses many lenses, such as history, culture and economy to understand the global issues, their interconnections, and the impact they may have in different places, on different organizations, and in our personal decisions. Each of us needs to be able to engage systems thinking as we aim to understand others from the inside and ourselves from the outside. The centrality relationship in the global new normal is the United States and China. The weekly readings begin with recognition of the centrality of a liberal for the United States and the effect that has on China and the cultures of East Asia. This sets up three frames of reference: Human Rights, Democracy, and Capitalism. Current and potential Organizational Dynamics students with interest in Global Studies, particularly those focusing on Systems Thinking, (Sustainable) Development Policy, and international courses will find this course helpful. MPhil students with MSOD background can use this course as a foundation for advanced research in Global Studies.

Taught by: Bauer

One-term course offered either term

Prerequisites: Course permits for non-DYNM students: https://www.sas.upenn.edu/lps/graduate/dynamics/course-permit

Activity: Seminar

1 Course Unit

Notes: DYNM Category: F; DYNM Concentrations: LMC, GL, SD
**DYNM 692 Innovation in Organizations**
Most serious study of innovation has focused on its dynamics and how these dynamics can be managed. A broader range of studies also consider the nature of creativity and techniques to facilitate innovation. We survey these areas, emphasizing the relationship between innovation and organization, which are central to innovation both as facilitators and impediments. More generally, we consider the process of Organizing Innovation, the role of individuals, teams and organizations in effecting change and realizing its benefits. I cover one additional theme—improvisation—because it provides insight into dealing with novel situations, and also as antidote to the relentless organizational and institutional pressures that crush the "impulsivity" and "deviance" that we need for creativity and innovation. In the end, though, the core of the course are the real issues of your life and work. Creativity begins with questions, innovation begins with problems, and education begins with you. Reflect on the central issues of your life and work and come prepared to share them with the class. This course fills the following Organizational Dynamics requirements: Categories: A Concentrations: LMC, SD
Taught by: Freeman
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

**DYNM 693 The Global Leader**
The "Global Leader" is a co-listed INTS/DYNM course, developed as part of the Lauder Institute’s new Global Program that will prepare students for leadership roles in international and culturally diverse environments. The course will focus on developing skills through a hands-on approach that includes using case students, in-class exercises, movie clips, and class discussion, with readings that emphasize theory and application. The course is comprised of two modules. The first module - Globally Capable Leadership - introduces students to the core qualities of leadership that transcend cultures, as well as examine how cultural context influences leadership efficacy. The second module - Managing Across Borders - will teach students how to negotiate effectively in a variety of contexts, including conflict resolution, transactional settings, conflict resolution, and across borders, such as those of gender, ethnic identity, national culture, and differences in values and beliefs.
Taught by: Taheripour
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

**DYNM 705 Capstone Course**
This course requires the student to study a topic of their own choice, discuss their progress with the class in regular meetings and to deliver a final paper that meets the following criteria: 1. Makes an argument, describes or summarizes a position that is unique, original, or which directly applies to the student; 2. Uses primary sources or applies to a primary organization as much as possible; 3. Conforms to the style and format of good academic writing and the MSOD Capstone Presentation Guidelines; 4. Allows a student to demonstrate competencies gained from the courses completed in the Organizational Dynamics program. The role of the capstone professors is to coordinate the development of each student’s capstone committee, to offer facilitation during peer-review discussion, to discuss the student’s work as the capstone is written. A course professor may also be the student’s primary advisor or a reader. For details about the capstone course, including delivery dates, please see the DYNM Canvas community site.
Taught by: Barstow and Russo
One-term course offered either term
Activity: Online Course
1 Course Unit
Notes: DYNM Category: Capstone. This course is an online and in-person course.

**DYNM 720 Foundations of Organizational Consulting and Executive Coaching**
This 5.5 day intensive course is the first in a six-course cohort program in Organizational Consulting and Executive Coaching. During this course students will experience the formation of a group (their cohort) and learn the dynamics that commonly affect groups. Students will be taught a variety of theoretical constructs which influence the helping professional role and also start to practice as helping professionals through live coaching and case studies. This course is a residential course. This course will have an additional course fee to cover lodging and other program logistics. Registration permits will be issued upon a signed Travel Agreement being returned to the Organizational Dynamics program office.
Taught by: Bergey/Pennington/Russo
One-term course offered either term
Prerequisites: This course is for OCEC Cohort members only.
Activity: Seminar
1 Course Unit
Notes: DYNM Category: F; DYNM Concentration: OCEC. Course Schedule: TBA
DYNM 722 Making Meaning from Organizational Experience and Establishing Frameworks for Consulting and Coaching
This course is designed to immediately follow the five-day DYNM 720 intensive in order to build on cohort member experiences by introducing a broad range of coaching and consulting theories. Using newly introduced theories and your own experiences and observations, you will begin applying them to assess, interpret, and make meaning of behavior at three levels: individual, group, and organizational. Using your knowledge and research, you will begin narrowing and deepening theories you are drawn toward to begin laying a foundation for your further work in DYNM 723 and 724. DYNM 722 culminates with each cohort member researching and executing a high-level presentation based on one theoretical approach. You will continue your cohort-based learning with your deeper appreciation of one approach, as well as benefitting from each of your cohort member's presentations.
Taught by: Bergey
One-term course offered either term
Prerequisites: This course is for OCEC Cohort members only.
Activity: Seminar
1 Course Unit
Notes: DYMN Category: F; DYMN Concentration: OCEC. Course Schedule: TBA

DYNM 723 Consulting and Coaching Process: Knowing Yourself
Participants learn to be coaches by being coaches to one another. Over a two-month period, cohort members expand their repertoire of skills and tools, share their experiences, and together scrutinize the client/coach relationship.
Taught by: Pennington
One-term course offered either term
Prerequisites: This course is for OCEC cohort members only.
Activity: Seminar
1 Course Unit
Notes: DYMN Category: A; DYMN Concentration: OCEC. Course Schedule: 4/7-8; 5/5-6; 6/9-10.

DYNM 724 Building Consulting/Coaching Tools and Techniques
This course will offer a conceptual comprehension of the tools and techniques used in effective internal and external organizational consulting engagements. By contrasting the theory and practice of alternative coaching models, we will build tools and techniques for effective coaching as a leadership competency. Through an analysis of the coaching relationships in your organization, you will learn to develop a personalized approach to coaching and expand upon within organizational settings. Participants learn the "how and why" as well as consulting frameworks. Additionally, the relevant and often symbiotic connection between consulting and coaching will be studied. What process tools are most useful to today's executive coach in a consultative environment? How do approaches to consulting and coaching differ? How are they similar? How can a confluence of coaching and consulting lead to more effective decision making and wide-scale organizational performance? DYNM 724 will be presented over five class meetings. The class sessions will be taught utilizing lectures, case studies, structured small group discussions, individual, and team presentations, faculty and participant experiences, and guest speakers.
Taught by: Russo
One-term course offered either term
Prerequisites: This course is for OCEC cohort members only. DYNM 614, which teaches the same content, is open to all DYNM students.
Activity: Seminar
1 Course Unit
Notes: DYNM Category: DE; DYNM Concentration: OCEC. Course Schedule: 1/6 7; 2/17 18; 3/17 18

DYNM 725 Interpretation & Problem-Solving & Managing Conflict
Participants explore sources of problems and conflicts, identify the range of choices for resolution, and spend time in the field identifying and resolving conflicts at the personal and team levels.
Taught by: Napier
One-term course offered either term
Corequisite: DYNM726
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 726 Expanding Coaching/Consulting Tools and Skills
Competencies are expanded into more complex aspects of team and organizational change. Having experienced the art of design at a micro level, they now examine it as a means of enhancing larger system change. The cohort explores the nature of system change and how it relates to changing teams and individuals.
Taught by: Russo/Napier/Orenstein
Corequisite: DYMN725
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 727 Practicum Experience in Consulting and Coaching
Participants integrate everything they have learned by contracting with a client to provide consulting/coaching services. Individual supervision is provided on a weekly basis by a core faculty member and peer supervision is provided in two clinics, where cohort members share their experiences and learning with one another and, at the conclusion of the second clinic, bid the cohort farewell as members are now ready for their internship experiences. This course is open to OCEC students only. This course fills the following Organizational Dynamics requirements:
Categories: A Concentrations: OCEC
Taught by: Russo/Napier/Orenstein
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 728 Executive Coaching Internship
This course is designed to immediately follow the five-day DYNM 720 intensive in order to build on cohort member experiences by introducing a broad range of coaching and consulting theories. Using newly introduced theories and your own experiences and observations, you will begin applying them to assess, interpret, and make meaning of behavior at three levels: individual, group, and organizational. Using your knowledge and research, you will begin narrowing and deepening theories you are drawn toward to begin laying a foundation for your further work in DYNM 723 and 724. DYNM 722 culminates with each cohort member researching and executing a high-level presentation based on one theoretical approach. You will continue your cohort-based learning with your deeper appreciation of one approach, as well as benefitting from each of your cohort member's presentations.
Taught by: Bergey
One-term course offered either term
Prerequisites: This course is for OCEC Cohort members only.
Activity: Seminar
1 Course Unit
Notes: DYNM Category: F; DYNM Concentration: OCEC. Course Schedule: TBA

DYNM 729 Executive Coaching Internship
In this course, each participant is exposed to a variety of executive coaching opportunities designed to enable them to utilize their skills in multiple situations and contexts. Access to an advisor/coach during this period ensures that each participant's advanced learning will be provided in a timely and individualized manner.
Taught by: Bergey/Pennington/Russo
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentration: OCEC
DYNM 730 Capstone Portfolio Preparation and Proposal
In this course, students demonstrate their consulting and coaching mastery and scholarship by creating their capstone/thesis summary proposal. Throughout the program, participants will have systematically codified their learning experiences through the delivery and accumulation of various papers, project results, and other measures of performance. These will be contained in a Personal Portfolio which includes a record of understanding the assigned literature and classroom-based theory and experiences. In addition, each individual’s personal coaching philosophy is framed in a theoretical and model developed over the course of the program. Personal reflections and insights are an essential aspect of the ongoing record of learning. Using all of these as source material, the participant writes and assembles a full case history drawn from the Practicum (DYNM 727) and the Internships (DYNM 728 and DYNM 729).
Taught by: Russo/Napier/Orenstein
One-term course offered either term
Corequisite: DYNM729
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 758 Sweden: Strategies for Thriving in the 21st Century
Neutral during WWII, and claiming a "Middle Way" between east and west in the post-war twentieth century, Sweden - its people, institutions, and culture - has left its mark on our global society. In today’s world, the influence of Swedish ideas and innovations can be seen in government structures, health and social policies, business organizations, working life, education, science, art, literature, and, of course, the design and style of many products and services which enjoy high demand. These are impressive impacts from a nation-state of only eight million people.
What lessons are there for Americans and our institutions as we enter the twenty-first century where our leadership position, ability to determine the rules and control the agenda of world economic and political affairs are diminished? In this course, we focus on “the people philosophy” of Sweden, its government, businesses and organizations. We cover healthcare issues and policy, sustainable development, the European Community and the human relations issues in organizations. This course will include meetings with academics and leaders from industry, government, health care, science, media, arts and culture. Students will meet with and learn from these representatives in order to explore Swedish organizational dynamics, both in terms of its economic prosperity and the problems Swedish society faces today.
Taught by: Barstow
Course usually offered summer term only
Activity: Seminar
1 Course Unit
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 766 Global Collaboration for Sustainability: The Food-Water-Energy Nexus in Italy
Environmentalist Paul Hawken challenged a class of 2009 college graduates that they would have to “figure out what it means to be a human being on earth at a time when every living system is declining and at the rate of decline is accelerating.” That theme is at the heart of this course. While we have seen the notion of sustainability gaining traction in recent years, our quality of life in the near future very likely hinges on the development and implementation of sustainable solutions to enormously complex environmental and social problems—particularly around food, water, and energy. This course is designed to foster the thinking and the collaborative spirit that is needed to address those enormous problems. It involves focusing on a critical global sustainability problem with vast social, cultural, and environmental dimensions—in this case, the need to balance global food, water, and energy needs in a manner that allows the world to feed 9.6 billion citizens by 2050 while preserving the environment for future generations. It also involves collaboration and the exchange of ideas between multi-disciplinary leaders from multiple countries and perspectives on how to manage diverse views and sustainability initiatives that are extremely relevant to the success of today’s organizations (i.e., how to lead “big change” for competitive advantage).
Taught by: Finn
Course usually offered summer term only
Prerequisites: Permits to register for this course will be issued upon receipt of a signed travel agreement.
Activity: Seminar
1 Course Unit
Notes: This course departs the US 4/28 and returns 5/6.

DYNM 770 Process Excellence in South America: Chile on Its Journey to Productivity and Performance
This course will travel to Chile July 21st through 29th. The class will meet on campus before and after departure on dates to be determined. This course will have an additional course fee to cover lodging and other program logistics. Registration permits will be issued upon a signed Travel Agreement being returned to the Organizational Dynamics program office. Chile is a long and narrow strip of land along the pacific coast of South America. It is the longest country in the world, 2,700 miles in length, which is about the distance from San Francisco to New York. In 1973 the military imposed a dictatorship, led by Augusto Pinochet, who ruled the country until 1990. The Chilean strategy to be part of the world economy has been based on open markets and the development of Free Trade Agreements. A report by The Economist Intelligence Unit shows Chile has the best environment in the region for business and is among the top 20 countries worldwide. Chile stands out for the effectiveness of its policies, labor, and infrastructure. The strength and stability of its banking and financial systems have generated high credibility indexes in foreign markets, which has meant that big companies want to invest in the country, improving access to goods and services. Chilean companies have started improving the way they organize themselves. Business Process Management and Digitalization have become important topics in many organizations. The Universidad de Chile offers numerous courses and certificates in that field. Chile is making good progress on its journey to productivity and performance. Students will meet with academics and business leaders and observe the organizational dynamics of
Taught by: Kirchmer and Olivos
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentrations: LMC, GL, SD. Travel Dates: 7/21-29. Pre-departure class is 7/5 from 1-4 pm.
DYNM 771 Micro-Finance in India: The Past, Present and Future
This 2CU course includes travel and study in Bangalore, Mangalore, and Mumbai, India, a country acknowledged as the world’s largest democracy with a population of over 1 billion. India has a thriving microfinance industry that has come under scrutiny in the past year. While microfinance has been touted by many as the panacea in helping raise people out of poverty, empower women and aid in development from the grassroots level, it has come with some serious attendant costs. This course will discuss a variety of different models of microfinance and review the new trends of financial inclusion for the poor. We will start in Bangalore and continue to Mangalore, where we will visit local development projects, microfinance women's groups, and meet organizational leaders. We will see firsthand how and if microfinance and financial inclusion "work effectively" to achieve the goals of alleviating poverty. While in Mangalore, students will attend and participate in a conference: Micro Finance in India: The Past, Present and Future, being held at Nitte University. We will hear experts speak on current issues and how new legislation in India may change the face of microfinance. We will end the program in Mumbai, one of the most populous urban regions in the world and the richest city in India with the highest GDP of any city in South, West or Central Asia. Taught by: Handy
Activity: Lecture
2 Course Units
Notes: For additional information, please see our website at: http://www.organizationaldynamics.upenn.edu

DYNM 786 European Approaches to Multi-Stakeholder Project Management
In the interconnected world of global corporations, studying Project Management from the standpoint of U.S. firms is not enough. Broadening perspectives is the goal of the seminar in Paris, France. Dr. Jean-Marc Choukroun will lead Organizational Dynamics students in a study of European approaches to the challenges of large project management, particularly those involved in public-private and other multi-group projects. Dr. Choukroun notes that "In today’s global economy, managing multi-national, multi-cultural teams, devising innovative financing arrangements and securing public-private cooperation are increasingly becoming standard requirements for complex projects. European integration has made dealing with these issues a priority with many European organizations. Students will be exposed to new ideas, and new ways of applying time-tested methods and techniques that European organizations in general, and more specifically French organizations, have developed to address these issues. Properly adapted, some of these ideas should prove to be readily applicable in the US context. In addition, students will discover how French managers in the public and private sectors frame issues, approach problems and implement solutions."
Taught by: Choukroun
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: DYNM Category: A; DYNM Concentrations: LMC, GL. Travel Course Dates: 5/25 to 6/2.

DYNM 899 MPhil Capstone Registration
Activity: Masters Thesis
1 Course Unit
Notes: DYNM 899 is a required registration for MPhil candidates.
PERS 011 Elementary Persian I
This course is designed to help you start learning Persian and to give you the necessary tools to continue your study of Persian. This course introduces the Persian alphabet alongside grammar and vocabulary. Emphasis is placed on actively using the language for interpersonal, interpretive, and presentational modes of communication. The four language skills (i.e., listening, speaking, reading and writing) as well as pronunciation and culture are integrated into the curriculum. There is no prerequisite.
For BA Students: Language Course
Taught by: Entezari
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PERS 012 Elementary Persian II
This course is designed to help you build upon what you have learned in Elementary Persian I. Emphasis is placed on using the language for interpersonal, interpretive, and presentational modes of communication. Therefore use of English is restricted. Listening, speaking, reading, and writing as well as culture, vocabulary, grammar, and pronunciation are integrated into the course. Students must either have successfully completed PERS-011, or take the departmental exam.
For BA Students: Language Course
Taught by: Entezari
Course usually offered in spring term
Prerequisite: PERS 011 or equivalent
Activity: Lecture
1 Course Unit

PERS 013 Intermediate Persian I
This course is conducted in Persian and designed to help you continue expanding upon what you have learned in Elementary Persian II (PERS-012). In this course, we will begin to address a broader variety of cultural topics in order to increase your proficiency in linguistic as well as cultural terms. Emphasis is placed on actively using the language for interpersonal, interpretive and presentational modes of communication. Therefore use of English is restricted. Listening, speaking, reading, and writing are integrated into the course, as are culture, grammar, vocabulary, and pronunciation. Students must either have successfully completed PERS-012 or take the departmental placement exam.
For BA Students: Language Course
Taught by: Entezari
Course usually offered in fall term
Prerequisite: PERS 012 or equivalent
Activity: Lecture
1 Course Unit

PERS 014 Intermediate Persian II
In this course, we will continue to address a broader variety of cultural topics in order to increase your proficiency in linguistic as well as cultural terms. Emphasis is placed on actively using Persian for interpersonal, interpretive and presentational modes of communication. Therefore use of English is restricted. Listening, speaking, reading, and writing are integrated into the course, as are culture, grammar, vocabulary, and pronunciation. Students must either have successfully completed PERS-013, or take the departmental placement exam.
For BA Students: Last Language Course
Taught by: Entezari
Course usually offered in spring term
Prerequisite: PERS 013 or equivalent
Activity: Lecture
1 Course Unit

PERS 015 Advanced Persian I
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: PERS 014 or PERS 018 or equivalent
Activity: Lecture
1 Course Unit

PERS 016 Advanced Persian II
For BA Students: Advanced Language Course
Taught by: Assefi-Shirazi
Course usually offered in spring term
Prerequisite: PERS015 or equivalent
Activity: Lecture
1 Course Unit

PERS 017 Persian for Heritage Speakers I
A course designed to teach the reading and writing of standard modern Persian to those with a competency in spoken Persian. The course will focus on the lexical and syntactic differences between written and spoken Persian, and the problems of Persian spelling.
Taught by: Assefi-Shirazi
One-term course offered either term
Prerequisites: Fluency in spoken Persian.
Activity: Lecture
1 Course Unit

PERS 018 Persian for Heritage Speakers II
A course designed to develop greater skills in reading and writing standard modern Persian for those with a competency in spoken Persian. The course will focus on the lexical and syntactic differences between written and spoken Persian, and the problems of Persian spelling.
One-term course offered either term
Prerequisites: PERS 017 or permission of the instructor.
Activity: Lecture
1 Course Unit

PERS 019 Advanced Persian in the Media
This course is designed for advanced students of Persian interested in contemporary Persian media from Iran as well as Afghanistan and abroad, who wish to gain a deeper understanding of contemporary Persian-speaking societies and politics. Students will advance their skills in reading and listening, as well as in writing and speaking.
Taught by: Assefi-Shirazi
Course usually offered in spring term
Prerequisites: PERS 016 or permission of the instructor.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.
PERS 111 Beginning Pashtu I
Reading, writing, basic grammar and elemental speaking.
For BA Students: Language Course
Taught by: Santry
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PERS 113 Intermediate Pashtu
A wide variety of reading genres, writing, and oral expression.
For BA Students: Language Course
Taught by: Santry
Course usually offered in fall term
Prerequisites: Beg. Pashtu, or permission by instructor.
Activity: Lecture
1 Course Unit

PERS 114 Intermediate Pashtu Part II
Beg. Pashto, or permission of the instructor. A wide variety of reading genres, writing, and oral expression.
For BA Students: Last Language Course
Taught by: Santry
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: Offered through Penn Language Center. This is a two-semester course.

PERS 320 Persian Culture, Literature and Film for Advanced Learners I
Taught by: Shams Esmaeili
Activity: Lecture
1 Course Unit

PERS 321 Persian Culture, Literature and Film for Advanced Learners II
Taught by: Shams Esmaeili
Activity: Lecture
1 Course Unit

PERS 415 Classical Persian Prose
This course is designed for those junior and senior students who are eager to explore the major works of classical Persian prose. Students will become familiar with the medieval Persia through an in-depth reading of major mystical, historical and literary works of classical Persian prose. Depending on the text under discussion, students will be introduced to the socio-cultural context of Medieval Persia. Although no prerequisites are required, this course is a perfect follow-up for NELC 216 "Persian Poetry in Translation". Only basic knowledge of Persian language is required for this course as all texts will be read and compared against their English translation.
Taught by: Shams Esmaeili
One-term course offered either term
Activity: Seminar
1 Course Unit

PERS 512 Beginning Pashtu Part II
Reading, writing, basic grammar and elemental speaking.
For BA Students: Language Course
Taught by: Santry
Two terms. student must enter first term.
Prerequisites: For second semester, completion of the first semester.
Activity: Seminar
1 Course Unit
Notes: Offered through Penn Language Center. This is a two-semester course.

PERS 514 Intermediate Pashtu Part II
For BA Students: Last Language Course
Taught by: Santry
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit
Notes: Offered through Penn Language Center. This is a two-semester course.

PERS 611 Elementary Persian I
This course is designed to help you start learning Persian and to give you the necessary tools to continue your study of Persian. This course introduces the Persian alphabet alongside grammar and vocabulary. Emphasis is placed on actively using the language for interpersonal, interpretive, and presentational modes of communication. The four language skills (i.e., listening, speaking, reading and writing) as well as pronunciation and culture are integrated into the curriculum. There is no prerequisite.
For BA Students: Language Course
Taught by: Entezari
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PERS 612 Elementary Persian II
This course is designed to help you build upon what you have learned in Elementary Persian I. Emphasis is placed on using the language for interpersonal, interpretive, and presentational modes of communication. Therefore use of English is restricted. Listening, speaking, reading, and writing-as well as culture, vocabulary, grammar, and pronunciation-are integrated into the course. Students must either have successfully completed PERS-611, or take the departmental exam.
For BA Students: Language Course
Taught by: Entezari
Course usually offered in spring term
Prerequisite: PERS 611
Activity: Lecture
1 Course Unit

PERS 613 Intermediate Persian I
This course is conducted in Persian and designed to help you continue expanding upon what you have learned in Elementary Persian II (PERS-012). In this course, we will begin to address a broader variety of cultural topics in order to increase your proficiency in linguistic as well as cultural terms. Emphasis is placed on actively using the language for interpersonal, interpretive and presentational modes of communication. Therefore use of English is restricted. Listening, speaking, reading, and writing are integrated into the course, as are culture, grammar, vocabulary, and pronunciation. Students must either have successfully completed PERS-612 or take the departmental placement exam.
For BA Students: Language Course
Taught by: Entezari
Course usually offered in fall term
Prerequisite: PERS 612
Activity: Lecture
1 Course Unit
**PERS 614 Intermediate Persian II**
In this course, we will continue to address a broader variety of cultural topics in order to increase your proficiency in linguistic as well as cultural terms. Emphasis is placed on actively using Persian for interpersonal, interpretive and presentational modes of communication. Therefore, use of English is restricted. Listening, speaking, reading, and writing are integrated into the course, as are culture, grammar, vocabulary, and pronunciation. Students must either have successfully completed PERS-613, or take the departmental placement exam.

For BA Students: Last Language Course
Taught by: Entezari
Course usually offered in spring term
Prerequisite: PERS 613
Activity: Lecture
1 Course Unit

**PERS 615 Advanced Persian I**
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: PERS 614
Activity: Lecture
1 Course Unit

**PERS 616 Advanced Persian II**
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisite: PERS 615
Activity: Lecture
1 Course Unit

**PERS 617 Persian for Heritage Speakers I**
An intensive, one-semester course designed to teach the reading and writing of standard Tehran Persian to those with a speaking knowledge of that language. In recent years there has been an increasing demand from Persian-speaking Iranian-American students for formal instruction in Persian. While many of these students have some degree of spoken fluency in Persian, they are often unable to read or write it. Their speaking ability makes it difficult to integrate them into first- or second-year classes of students who have started with no knowledge of Persian. If these Persian-speaking students could be brought to at least a second-year level of reading and writing, they could then be enrolled in more advanced courses in Persian where they would be more or less at the same level as other students. The course will focus on the lexical and syntactic differences between written and spoken Persian, and the problems of Persian spelling.

One-term course offered either term
Prerequisites: Fluency in spoken Persian.
Activity: Lecture
1 Course Unit

**PERS 620 Persian Culture, Literature and Film for Advanced Learners I**
Taught by: Shams Esmaeili
Activity: Lecture
1 Course Unit

**PERS 621 Persian Culture, Literature and Film for Advanced Learners II**
Taught by: Shams Esmaeili
Activity: Lecture
1 Course Unit
PHARMACOLOGY (PHRM)

PHRM 495 High Throughput discovery: A multidisciplinary approach to cancer
The newly developed massively parallel technologies have enabled the simultaneous analysis of many pathways. There are several large scale international efforts to probe the genetics and drug sensitivity of cancer cell lines. However, there are some rare cancers that have not been analyzed in depth. One of these rare cancers is malignant peripheral nerve sheet tumors (MPNST). MPNST, although a rare cancer, are common in patients with neurofibromatosis type 1. In the course, students will take part in a high throughput discovery effort in two phases. Phase 1 is a training phase, which will consist of quantitative profiling the sensitivity of MPNST cell lines to a library of 130 common and experimental cancer drugs. Phase 2 is an independent research project. We expect the course to be a hypothesis engine that generates ideas for further research.

Taught by: Staff Dr. Jeffrey Field; Dr. David Schultz; Dr. Simon Berritt
Course usually offered in spring term
Prerequisites: Prerequisites include a strong foundation in biology and chemistry. Students will prepare an abstract proposal by week four on their phase 2 projects, and a report in scientific paper style, due on the last day of the semester. In addition to attending the class lecture, an estimated 10 hours a week Independent Laboratory Research is expected.
Activity: Laboratory
1 Course Unit

PHRM 510 Neurotransmitter Signaling & Neuropsychopharmacology
The goals of this course are three-fold: 1) Provide an overview of major psychiatric disorders. 2) Provide in-depth information on neurotransmitters, emphasizing the wealth of new molecular information on how neurons function and communicate, as well as the basis for psychotherapeutics (one class per week). 3) Develop skills to appreciate, present and critically evaluate the the current literature in neurotransmitter signaling and neuropsychopharmacology (one class per week).

Taught by: Staff Dr. Steve Thomas; Dr. Chris Pierce; Dr. Wade Berrettini; Dr. Liz Heller
Course offered spring; even-numbered years
Also Offered As: NGG 510
Prerequisite: Permission of course director
Activity: Lecture
1 Course Unit
Notes: Meets two times per week.

PHRM 532 Human Physiology.
This course will present a survey of the physiology of most of the major organ systems. It will integrate knowledge of cellular and molecular mechanisms into an understanding of function at the tissue organ and organism levels. It will begin with a brief review of membrane physiology followed by electrophysiology and signaling in nerve. Then after a brief outline of neural control systems and their role in homeostasis it will present motility and muscle the cardiovascular system respiration the renal and gastrointestinal systems and selected topics from the endocrine system the reproductive systems environmental and exercise physiology. As well as providing a basis of integrative physiology for students in fields such as physiology bioengineering and pharmacology it should be of interest to students of cellular and molecular biology and genetic engineering who will need to appreciate the roles of specific systems and molecules at higher levels of organization.

Taught by: Tejvir Khurana, Ben Prosser, and Paul Titchenell
Prerequisites: Although not a formal prerequisite a good foundation in cell biology at the level of BIOM/CAMB 600 (or an equivalent upper level undergraduate course) is strongly recommended. A general understanding of the chemistry and biochemistry of macromolecules and of basic molecular biology will also be assumed. This course is primarily designed for 2nd year BGS students; 1st year students in BGS or other programs will require the permission of the instructor. This course is not open to undergraduates.
Corequisites: Students without BIOM 600 require the instructors permission.
Activity: Lecture
1 Course Unit

PHRM 534 Experimental Genome Science
This course will survey methods and questions in experimental genomics including next generation sequencing methods genomic sequencing in humans and model organisms functional genomics proteomics and applications of genomics methods. Students will be expected to review and discuss current literature and to propose new experiments based on material learned in the course.

Taught by: C. Brown, J. Murray
Also Offered As: GCB 534
Prerequisites: Undergraduates and Masters students need BIOL431 or equivalent
Activity: Lecture
0.01 Course Units
**PHRM 535 Introduction to Bioinformatics**

This course provides overview of bioinformatics and computational biology as applied to biomedical research. A primary objective of the course is to enable students to integrate modern bioinformatics tools into their research activities. Course material is aimed to address biological questions using computational approaches and the analysis of data. A basic primer in programming and operating in a UNIX environment will be presented and students will also be introduced to Python R and tools for reproducible research. This course emphasizes direct hands-on experience with applications to current biological research problems. Areas include DNA sequence alignment genetic variation and analysis motif discovery study design for high-throughput sequencing RNA and gene expression single gene and whole-genome analysis machine learning and topics in systems biology. The relevant principles underlying methods used for analysis in these areas will be introduced and discussed at a level appropriate for biologists without a background in computer science.

Taught by: B Voight, C Greene
Course usually offered in spring term
Also Offered As: GCB 535
Prerequisites: The course will assume a solid knowledge of modern biology. An advanced undergraduate course such as BIOL 421 or a graduate course in biology such as BIOL 526 (Experimental Principles in Cell and Molecular Biology) BIOL527 (Advanced Molecular Biology and Genetics) BIOL 528 (Advanced Molecular Genetics) BIOL 540 (Genetic Systems or equivalent is a prerequisite.
Activity: Lecture
1 Course Unit
Notes: All students are required to bring a laptop to the lab sessions (Fridays). TAs will provide help with the material but students should be computer-capable with their own laptop and should be willing/capable to download and install free software from the internet.

**PHRM 542 Topics in Molecular Medicine**

TiMM is planned as a once-weekly seminar course whose goal is to introduce students to the ways in which biomedical research can provide new insights into clinical medicine and, conversely, how knowledge of clinical disease impacts scientific discovery.

Taught by: Skip Brass, MD, PhD; Gary Koretzky, MD, PhD; Mark Kahn, MD
Course usually offered in fall term
Prerequisite: Permission of the course directors
Activity: Seminar
1 Course Unit
Notes: The course is designed primarily for combined degree (MD/PhD) students, but will be available to all medical and graduate students as space permits. Priority will be given to 2st and 2nd year combined degree students. The optimal class size will be 14. Tentatively, the course will meet for one hour from 4 - 5 pm on Wednesday afternoons with occasional double sessions that will be two hours long.

**PHRM 564 DRUG DELIVERY**

In this course, students will learn about drug delivery systems with emphasis on targeted therapeutics and translational nanomedicine. The course will be directed and taught by Miriam Wattenbarger (CBE) and Vladimir Muzykantov (PHRM). Lectures will also be given by other faculty from the Penn School of Engineering and Applied Science and the School of Medicine. The four main topics for the course are traditional drug delivery, drug delivery systems and nanocarriers, targeted and smart drug delivery systems, and translational aspects of drug delivery systems. There will be a midterm, final, and a group project for the course. Students will form small groups for the project and research a drug delivery topic to propose an extension of a current research area. An oral and written proposal will be given by each group to the class at the end of the semester. The course is open to SEAS seniors and graduate students, SAS college pre-med, pre-MED and pre-BGS seniors, biotechnology MS students, PGG and BGS graduate students, Wharton and Dental School students.

Also Offered As: CBE 564
Activity: Lecture
1 Course Unit

**PHRM 570 Principles of Cardiovascular Biology: Vascular biology, medicine and engineering**

Lectures to be presented by various Medical School faculty members. Topics covered include: general principles of vascular biology and hemodynamics, endothelial cells and integral vascular functions, signaling in the cardiovascular system, angiogenesis, hemostasis and thrombosis, platelets, platelet/vascular interactions, vascular integrins and adhesion molecules, vascular inflammation and oxidative stress, white blood cells, vasoactive compounds and drugs, mechanisms of atherosclerosis, cholesterol and lipid metabolism, hypertension, novel vascular directed gene and enzyme therapies.

Taught by: Drs. Vladimir Muzykantov and Tilo Grosser
Course usually offered in spring term
Prerequisite: Permission of course director
Activity: Lecture
1 Course Unit

**PHRM 580 Topics In Pharmacogenetics**

This is a "literature-based" course (i.e. a seminar course/literature survey). It will survey the emerging technologies and computational advances that have permitted the field of pharmacogenetics to mature into a major biomedical discipline over the past few years. It will consider the likely impact on disease target identification, the development of new drugs for established and "niche" markets, the advent of "personalized medicine", including the selection of therapies that have maximum efficacy and minimum side-effect profiles. This course will also touch on some of the ethical issues associated with the routine genetic testing of patients to facilitate treatment choices and clinical monitoring.

Taught by: DR. A. STEVEN WHITEHEAD
Course usually offered in spring term
Prerequisite: Permission of course director
Activity: Seminar
1 Course Unit
**PHRM 590 Molecular Toxicology: Chemical and Biological Mechanisms**

Course Goals: Exposures to foreign compounds (drugs, carcinogens, and pollutants) can disrupt normal cellular processes leading to toxicity. This course will focus on the molecular mechanisms by which environmental exposures lead to end-organ injury and to diseases of environmental etiology (neurodegenerative and lung diseases, reproduction disruption and cardiovascular injury). Students will learn the difficulties in modeling response to low-dose chronic exposures, how these exposures are influenced by metabolism and disposition, and how reactive intermediates alter the function of biomolecules. Mechanisms responsible for cellular damage, aberrant repair, and end-organ injury will be discussed. Students will learn about modern predictive molecular toxicology to classify toxicants, predict individual susceptibility and response to environmental triggers, and how to develop and validate biomarkers for diseases of environmental etiology. Students are expected to write a term paper on risk assessment on an environmental exposure using available TOXNET information.

Taught by: Dr. Trevor M. Penning

Course usually offered in spring term

Prerequisites: Pre-requisites: Must have taken or will take Fundamentals of Pharmacology concurrently. Undergraduate course work in biochemistry and chemistry essential. Exceptions allowed based on past course work. Please consult with Course Director. Students: All 1st and 2nd year GPSC, CAMB, Neuro and BSTA students with required prerequisites; residents in Environmental and Occupational Health, and professional masters students (MPH and MTR).

Activity: Lecture

1 Course Unit

**PHRM 605 Drug Discovery and Devel**

Course usually offered in spring term

Also Offered As: BMB 605

Activity: Lecture

0 Course Units

**PHRM 623 Fundamentals of Pharmacology**

This course is designed to introduce students to basic pharmacological concepts with special emphasis on the molecular actions of drugs. Subject matter includes use of microcomputers to analyze pharmacological data.

Taught by: Dr. Jeffrey Field and staff

Course usually offered in fall term

Prerequisite: Permission of course director

Activity: Lecture

1 Course Unit

Notes: Meets three times per week

**PHRM 624 Medical Pharmacology**

This course surveys the major classes of drugs used to treat human conditions, and focuses in the detail on their molecular mechanisms of action. It consists of two 2-hour lectures per week and problem sets. Student evaluation is based 50% on exams and 50% on problem sets.

PHRM 624 is required of all 2nd year PGG students. PGG students must co-enroll in PHRM 532/CAMB 532 (Human Physiology).

Taught by: Course Directors: Paul H. Axelsen, Park Cho Park, Akiva Cohen, Steve Whitehead

Prerequisites: PHRM 623 - Fundamentals of Pharmacology; BIOM 600 - Cell Biology and Biochemistry Non-PGG students must have permission from course director to enroll.

Activity: Lecture

2 Course Units

**PHRM 632 Cell Control by Signal Transduction Pathways**

This course, “Targeting the cancer cell: from mechanism to precision medicine”, will examine how various signal transduction mechanisms influence cell functions including replication, growth, transcription, translation and intracellular trafficking. We will also consider how non-cell autonomous mechanisms, such as the tumor microenvironment and the immune system influence cancer cell signaling. We will consider how important signaling pathways, such as Ras, Raf, Notch, Wnt, TGF beta, and various kinases/phosphatases become dysregulated in cancer, as well as delve into how the DNA damage response, immune system, and tumor microenvironment exert important influences on oncogenic signaling. In the first half of the course, invited faculty members will pick 2 relatively recent papers from their field that highlight important areas. Each paper will be assigned to a student, who will meet with the faculty mentor prior to the class to discuss the paper and their presentation. During the class, students will present each paper for approximately 45 minutes with time for discussion. Students will present the important background, break down the paper, look for strengths and weaknesses and come up with a plan of what the next set of experiments could or should be. In the second half of the course, students will independently pick a relevant paper for in class presentation and will also write a short “News and Views” style article based on the paper they have chosen. The goal of the course is to provide students with a view of the cancer cell that integrates both cell autonomous and non-cell autonomous signals and to use this information to consider how to successfully treat cancer.

Taught by: X. Hua, J. Field, A. Resnick, and W. Pear

Course usually offered in spring term

Prerequisites: BIOM 600, Molecular and Cell Biology Courses

Activity: Seminar

1 Course Unit

**PHRM 650 Current Biochemical Topics**

Participation in the “Dr. George W. Raiziss Biochemical Rounds”, a weekly seminar program sponsored by the Department of Biochemistry and Biophysics. Program deals with a wide range of modern biochemical and biophysical topics presented by established investigators selected from our faculty, and by leading scientists from other institutions.

Taught by: Black, B. & Shorter, J.

Also Offered As: BMB 650

Prerequisites: Course is limited to BGS graduate students and undergrads from the Vagelos Scholars Program.

Activity: Seminar

1 Course Unit

**PHRM 657 Introduction to Superfund Sites and Health Effects of Hazardous Waste**

Superfund hazardous waste sites are prevalent in our nation and the exposures to toxicants from these sites raise immediate health concerns. The aims of this course are to educate students about such sites and provide a scientific basis for hazard identification, hazard characterization, risk communication and risk management. The course will describe the effect of these hazardous chemicals on the ecosystem and vice-versa, and remediation and mitigation approaches. These environmental science issues will lead into the environmental health aspects of exposures including: biomonitoring (external and internal dose, biomarkers and the exposome), toxicological properties of contaminants and mode-of-action. The course will be complemented with visits to two Superfund sites in the region: Ambler (asbestos) and Palsmerton (heavy metals).

Taught by: Jane Willenbring, Richard Pepino, Trevor Penning

Prerequisites: 400 level course in Biology/Chemistry and Biochemistry

Activity: Lecture

1 Course Unit
PHRM 660 Frontiers in Cancer Pharmacology
This advanced course for graduate students combines didactic lectures from Penn faculty with oral presentations and oral assignments from the students. Students should have either completed PHRM 560, Principles in Cancer Signaling and Therapeutics or PHRM 640, Topics in Cancer Pharmacology or equivalent classes. The faculty will present overviews of current and emerging topics in cancer pharmacology. Emphasis of the presentations will be on the translation of basic science discoveries into therapeutic agents. Students will choose related topics to explore in more detail. In consultation with Dr. Blair, students will prepare a 45-minute presentation (using Power Point slides). Each student will give at least two presentations during the semester. The faculty teaching the course will be available for help with the presentations. The written assignment will involve a 10-page double spaced paper (exclusive of references) with a maximum of 25 references. The assignment will consist of a literature review in the area of one of the presentation topics chosen by the student. Additional information can be obtained from the Center for Cancer Pharmacology web site: http://www.med.upenn.edu/ccp/
Taught by: Dr. Ian A. Blair
Course usually offered in fall term
Prerequisite: Permission of the course director
Activity: Lecture
1 Course Unit

PHRM 699 Laboratory Rotation
Activity: Laboratory
1 Course Unit

PHRM 799 Independent Study
One-term course offered either term
Activity: Independent Study
0.5 Course Units

PHRM 899 Pre-Dissertation Lab Rotation
Activity: Laboratory
1 Course Unit

PHRM 970 Candidacy Examination
One-term course offered either term
Activity: Lecture
2 Course Units

PHRM 995 Dissertation
Activity: Dissertation
1 Course Unit

PHRM 999 Research in Pharmacology
Independent or collaborative research in various fields of pharmacology arranged individually with members of the staff.
One-term course offered either term
Prerequisite: Permission of staff member
Activity: Independent Study
1 Course Unit
PHILOSOPHY (PHIL)

PHIL 001 Introduction to Philosophy
Philosophers ask difficult questions about the most basic issues in human life. Does God exist? What can we know about the world? What does it mean to have a mind? How should I treat non-human animals? Do I have free will? This course is an introduction to some of these questions and to the methods philosophers have developed for thinking clearly about them. For BA Students: Humanities and Social Science S Taught by: Forbes One-term course offered either term Activity: Lecture 1 Course Unit Notes: Also fulfills General Requirement in History Tradition for Class of 2009 and prior. Freshman Seminar sections offered

PHIL 002 Ethics
Ethics is the study of right and wrong behavior. This introductory course will introduce students to major ethical theories, the possible sources of normativity, and specific ethical problems and questions. Topics may include euthanasia, abortion, animal rights, the family, sexuality, bioethics, crime and punishment and war. For BA Students: Society Sector Taught by: S.Meyer, Tan, Lord, M.Meyer One-term course offered either term Activity: Lecture 1 Course Unit

PHIL 003 History of Ancient Philosophy
"What is philosophy? How does it differ from science, religion, literature, and other modes of human discourse? This course traces the origins of philosophy as a discipline in the Western tradition, looking to thinkers of Ancient Greece and Rome. We will examine how natural philosophers such as Thales, Anaximander, and Heraclitus distinguished their inquiries from the teachings of poets such as Homer and Hesiod; how ancient atomism had its origins in a response to Parmenides' challenge to the assumption that things change in the world; how Socrates reoriented the focus of philosophy away from the natural world and toward the fundamental ethical question, how shall I live? We will also examine how his pupil, Plato, and subsequently Aristotle, developed elaborate philosophical systems that address the nature of reality, knowledge, and human happiness. Finally, we will examine the ways in which later thinkers such as the Epicureans and Stoics transformed and extended the earlier tradition."
For BA Students: History and Tradition Sector Taught by: S.Meyer Course usually offered in fall term Activity: Lecture 1 Course Unit

PHIL 004 History of Modern Philosophy
This course is an introduction to a few central themes in philosophy in the 17th and 18th centuries, and to some of the crucial thinkers who addressed those themes. Topics to be covered may include, among others, the nature of the human being (including the human mind), the relationship between God and the created world, the nature of freedom, and the relations among natural sciences, philosophy and theology in this rich period of human history. For BA Students: History and Tradition Sector Taught by: Hatfield, Detlefsen, Chignell Course usually offered in spring term Activity: Lecture 1 Course Unit

PHIL 005 Formal Logic I
This course provides an introduction to some of the fundamental ideas of logic. Topics will include truth functional logic, quantificational logic, and logical decision problems. Taught by: Domotor, Weinstein One-term course offered either term Activity: Lecture 1 Course Unit Notes: This is a Formal Reasoning course.

PHIL 006 Formal Logic II
An introduction to first-order logic including the completeness, compactness, and Lowenheim-Skolem theorems, and Godel's incompleteness theorems. Taught by: Weinstein Course usually offered in spring term Activity: Lecture 1 Course Unit

PHIL 007 Critical Thinking
This course will provide the student with informal techniques for identifying and analyzing arguments found in natural language. Special attention will be paid to developing the ability to assess the strength of natural language arguments, as well as statistical arguments. Course not offered every year Activity: Lecture 1 Course Unit

PHIL 008 The Social Contract
This is a critical survey of the history of western modern political philosophy, beginning from the Early Modern period and concluding with the 19th or 20th Century. Our study typically begins with Hobbes and ends with Mill or Rawls. The organizing theme of our investigation will be the idea of the Social Contract. We will examine different contract theories as well as criticisms and proposed alternatives to the contract idea, such as utilitarianism. Besides the above, examples of authors we will read are Locke, Rousseau, Hume, Mill and Marx. For BA Students: Society Sector Taught by: Tan Course usually offered in spring term Also Offered As: PPE 008 Activity: Lecture 1 Course Unit
PHIL 015 Logic and Formal Reasoning
This course offers an introduction to three major types of formal reasoning: deductive, inductive (probabilistic and statistical), and practical (decision-making). The course will begin with the study of classical sentential and predicate logics. It will move on to elementary probability theory, contemporary statistics, decision theory and game theory.
For BA Students: Formal Reasoning and Analysis
Taught by: Domotor
Course usually offered in spring term
Activity: Lecture
1 Course Unit

PHIL 024 Philosophy of Biology
An introductory course about conceptual and ethical issues in the life sciences. Topics may include the nature of species, adaptation, fitness, the evolution of altruism, and debates about human nature. No prior background about biology or its history are required.
Activity: Seminar
1 Course Unit

PHIL 025 Philosophy of Science
What counts as a scientific theory? What counts as evidence for a scientific theory? Are scientific inferences justified? Does science give us truths or approximate truths about a world that exists independently of us? How can we know? Does it matter? These are all perennial questions in the philosophy of science, and the goal of this course is to look at how philosophers have answered these questions since the scientific revolution. In addition to reading classic work by philosophers of science, we will read material from living and dead scientists in order to gain a deeper appreciation of the philosophical questions that have troubled the most brilliant scientists in Western science.
For BA Students: Natural Science and Math Sector
Taught by: Weisberg, Spencer
One-term course offered either term
Activity: Lecture
1 Course Unit

PHIL 026 Philosophy of Space and Time
This course provides an introduction to the philosophy and intellectual history of space-time and cosmological models from ancient to modern times with special emphasis on paradigm shifts, leading to Einstein’s theories of special and general relativity and cosmology. Other topics include Big Bang, black holes stellar structure, the metaphysics of substance, particles, fields, and superstrings, unification and grand unification of modern physical theories. No philosophy of physics background is presupposed.
Taught by: Domotor
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PHIL 028 Introduction to Feminist Philosophy
This course is an introduction to feminist thought, both in theory and in practice. We will consider how feminist thought emerged and evolved, as well as how feminist theories respond to various intellectual, social and political challenges. Questions we will address include: What exactly is feminism? How does one’s gender identity impact one’s lived experiences? How should we revise, reformulate, or rethink traditional answers to political and ethical issues in light of feminist theories? How can feminist analyses contribute to the development of better science, and our conceptions of knowledge?
Taught by: M. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Offered through the College of General Studies

PHIL 029 Philosophy of Sport
This is an introductory philosophy course that uses philosophical tools to understand and answer questions that arise in and about sports. Is there a principled basis for determining which methods of performance enhancement are acceptable? Developing a framework to answer this question will take us through: 1) questions about rules: what is their point in sports and what are appropriate reasons to change them; 2) questions about the point of participation in a sport; 3) questions about the kinds of virtues sports participants can demonstrate; and 4) questions about integrity of participants and a sport itself. A related set of questions concerns the appropriate competitors in sporting events: Should competition be restricted to single sex categories; Should competition be divided into disabled and non-disabled categories?
Taught by: M. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 030 Plato: Democracy and the Power of Rhetoric
If you aspired to a political career in ancient Athens, public speaking was an essential skill. Athens was a direct democracy, which meant that having the ability to win over your fellow citizens was tantamount to political success. Young, ambitious citizens would therefore pay handsomely to study with rhetoricians, who professed to teach this all-important skill. Plato, however, was famously wary of the power of rhetoric. In this class, we will read selections from Plato’s dialogues in which many of the most prominent rhetoricians are engaged in discussion with Socrates about the nature of rhetoric, as well as its potential benefits and pitfalls. Students will then assume the role of citizens charged with speaking before the Athenian Assembly on various subjects. This will likely include a recreation of the trial of Socrates, who was himself accused of using rhetoric to make the weaker argument the stronger. By examining democracy at its threshold, and the power wielded by rhetoricians within a democracy, this CWiC seminar aims to provide both the context and the perspective to consider its later evolution.
Grades will be based on at least two oral presentations, as well as general participation in other classroom activities.
Taught by: Reese
Activity: Seminar
1 Course Unit
PHIL 034 Philosophy of Religion
An introductory philosophical examination of questions regarding the nature of religious experiences and beliefs; arguments for and against the existence of God; the problem of evil; the relationships of faith, reason and science, the possibility of religious knowledge, the role of religious communities, etc. Readings from the history of philosophy, 20th century and contemporary philosophy.
Taught by: Steinberg
Course not offered every year
Activity: Lecture
1 Course Unit

PHIL 044 Introduction to Cognitive Science
Scope and limits of computer representation of knowledge, belief and perception, and the nature of cognitive processes from a computational perspective.
Taught by: Kearns, Liberman, Weinstein, Hatfield
Course usually offered in fall term
Also Offered As: CIS 140
Activity: Lecture
1 Course Unit
Notes: Formal Reasoning Course. All Classes

PHIL 050 Introduction to Indian Philosophy
This course will take the student through the major topics of Indian philosophy first introducing the fundamental concepts and terms that are necessary for a deeper understanding of themes that pervade the philosophical literature of India--arguments for and against the existence of God, for example the ontological status of external objects, the means of valid knowledge, standards of proof, the discourse on the aims of life. The readings will emphasize classical Hindu, Buddhist, and Jain philosophical articulations (from 700 B.E. to 16th century CE) but we will also supplement our study of these materials with contemporary or relatively recent philosophical writings to modern India.
For BA Students: History and Tradition Sector
Activity: Lecture
1 Course Unit

PHIL 051 Yoga and Philosophy
"Yoga" means to yoke in Sanskrit. Metaphorically, this is often interpreted as union, or integration. This course will explore central aspects of yogic philosophy and practice, and how they relate to, and might be integrated with, contemporary analytic philosophy, college life, and beyond. We will focus on three key issues: (1) What is yogic philosophy? How does it relate to the western philosophical tradition more commonly taught in philosophy departments in the U.S.? (2) What does the practice of yoga have to do with theoretical understanding? (3) Is it possible to integrate a yogic worldview and a scientific worldview? Is there scientific evidence that yoga "works"? What does that even mean? This course will contain both a theoretical component and a practice component. In addition to writing analytical essays on these topics, students will maintain a yoga practice and a reflective journal throughout the course. No prior experience with yoga is required.
Taught by: Miracchi
Activity: Seminar
1 Course Unit

PHIL 055 Existentialism
An introduction to the philosophy and literature of Existentialism. Readings from philosophers such as Nietzsche, Kierkegaard, Heidegger, de Beauvoir, Camus, Sarte, and writers such as Dostoyevsky, Ibsen, Kafka, and Beckett.
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 072 Biomedical Ethics
This course is an introduction to bioethics, focusing on ethical questions arising at the beginning and end of life. Topics will include reproductive responsibilities, the question of wrongful life, and prenatal moral status as well as questions of justice related to markets for sperm, eggs and gestation. We will also attend to dilemmas at the end of life, including the authority of advance directives, euthanasia and the allocation of life-saving therapies.
For BA Students: Society Sector
Course not offered every year
Also Offered As: PPE 072
Activity: Lecture
1 Course Unit

PHIL 073 Topics in Ethics
This course examines some of the central theoretical and applied questions of ethics. For example, what is the good life? By what measure or principles do we evaluate the rightness and wrongness of actions? How does ethical reasoning help us understand and address real world problems such as world hunger, social injustice, sex and race discrimination, allocation of scarce resources and the like. The course can be organized around an applied topic or practical issue such as global ethics, just war, biomedical ethics or environmental ethics.
Taught by: Gibbons, M.Meyer
Course not offered every year
Also Offered As: PPE 073
Activity: Seminar
1 Course Unit

PHIL 074 Business Ethics
We will examine practical ethical issues facing businesses, and the philosophical tools for addressing them. Topics may include corporate responsibility, shareholders vs. stakeholders, whistle blowing, raiding and restructuring, the morality of markets, fair hiring practices, workers rights, sexual harassment, environmental impact.
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 076 Political Philosophy
An introduction to some central issues in social and political philosophy: liberty, equality, property, authority, distributive justice. Readings may be from Hobbes, Locke, Mill, Marx, and more recent theorists such as Rawls and Nozick.
Taught by: Freeman
Course not offered every year
Activity: Lecture
1 Course Unit
PHIL 077 Philosophy of Law
This course is an introduction to some of the central philosophical problems of law. What is law? What makes law? What is the relationship between law and morality? Can laws be unjust? Is there a moral obligation to obey the law? We will look at different theories of law, such as positivism and natural law theory, and discuss topics like civil disobedience, liberty and the law, and punishment and the law. The third and final section of the course will consider an unusual and particularly significant kind of law: constitutional law. We will consider the purpose(s) of constitutions, how constitutionalism relates to democracy, and how constitutions ought to be understood and interpreted, in light of our answers to these first two questions. Throughout the course, we will engage with both classic and contemporary work, reading work by Michelle Alexander, Jeremy Bentham, Angela Davis, Ronald Dworkin, John Hart Ely, H.L.A. Hart, Thomas Hobbes, John Locke, John Stuart Mill, Robert Nozick, Martha Nussbaum, Richard Posner, Jeremy Waldron, and others.
For BA Students: Society Sector
Taught by: Hutler
Course not offered every year
Activity: Lecture
1 Course Unit

PHIL 079 Environmental Ethics
In this course we will investigate some of the ethical issues that arise from our relationship with the environment. Topics may include: What are our responsibilities toward the environment, as individuals and as members of institutions? How do our responsibilities toward the environment relate to other ethical considerations? Do non-human animals/species/ecosystems have intrinsic value? What should conservationists conserve?
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 080 Aesthetics
This course examines philosophical issues centering on the nature and value of the arts. Some questions we'll consider are: What is art? What does it mean to have an aesthetic experience? How are aesthetic experiences different from non-aesthetic ones? What is the relation between art and truth? How do the moral qualities in a work of art affect its aesthetic qualities? Why are emotions important in our interpretations of artworks? What is the relation between art and expression? Do forgeries necessarily have less aesthetic value than original artworks? What are aesthetic judgments, and are they merely expressions of taste? Lecture and discussion will center on both classical and contemporary works in aesthetics.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 155 Continental Philosophy
In this course we read various texts in the Enlightenment tradition and more recent ones critical of modern distortions of this tradition. Readings may include: Kant and Marx, two exemplars of this tradition, as well as the views of the Frankfurt School (e.g. Horkheimer and Adorno), Foucault, Derrida, Nietzsche and Saussure.
Taught by: Steinberg
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 203 Thinking with Models
When a flu pandemic strikes, who should get accinated first? What's our best strategy for minimizing the damage of global climate change? Why is Philadelphia racially segregated? Why do most sexually reproducing species have two sexes, in roughly even proportions? These and many other scientific and practical problems required us to get a handle on complex systems. And an important part of deepening our understanding and sharpening our intuitions requires us to think with models. Students in this laboratory-based course will learn about the varied practices of modeling, and will learn how to construct, analyze, and validate models.
For BA Students: Formal Reasoning and Analysis
Taught by: Weisberg
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 205 What is Meaning?
This course will survey several central topics in philosophy of mind and language, as well as investigate how these areas of philosophy interact with the scientific study of the mind. Questions addressed may include: What is it to have a mind? What is consciousness? What is it to think, to perceive, to act, to communicate, to feel emotions? What is the relationship between the mind and the brain? Can there be a science of the mind? Of language? What can it tell us? What can philosophy contribute to cognitive science? We will look for more precise ways of asking these questions, and we will study some canonical answers to them.
Course not offered every year
Activity: Lecture
1 Course Unit

PHIL 209 Introduction to Plato
A survey of selected dialogues of Plato, an Athenian philosopher of the fourth century BCE. Works read may include the Euthyphro, Crito, Gorgias, Laches, Charmides, Phaedo, Philebus, Statesman, and Plato's last dialogue, the Laws. The course will be run as a seminar. All works will be read in English translation. Topics to be discussed may include metaphysics, epistemology, psychology, ethics, and political theory.
Taught by: S. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 210 Introduction to Aristotle
Aristotle (384-323 BCE) was one of the most important philosophers in Classical Greece, and his legacy had unparalleled influence on the development of the Western philosophical thought through the medieval period. We will study a selection of his works in natural philosophy, metaphysics, epistemology, psychology, ethics and politics. All texts will be read in English translation. No background in Greek philosophy or knowledge of Greek is required.
Taught by: S. Meyer
Course not offered every year
Activity: Lecture
1 Course Unit
PHIL 211 Ancient Moral Philosophy
A survey of ethical philosophy in the Ancient Greek tradition. We will study the work of Plato, Aristotle, Epicurus, and the Stoics, including writings of later Roman authors such as Cicero, Seneca, Epictetus, and Marcus Aurelius. The class will be run as a seminar. All works will be read in English translation.
For BA Students: Society Sector
Taught by: S. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 221 Philosophy East and West
Our goal in this course is to bring Western Philosophy and Eastern Philosophy into dialogue. Topics we will cover include skepticism and knowledge, ethics and the good life, moral responsibility and personal relationships, and political obligations and justice. Do the Western and Eastern philosophical traditions approach these topics in the same way? Do they even share an understanding of what the problems and issues at stake are? And what can we learn from comparative philosophy? This freshman seminar does not presuppose prior knowledge of philosophy. Examples of authors we will study include Descartes, Aristotle, Mencius, and Confucius.
Taught by: Tan.
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 223 Philosophy and Visual Perception
In this course, we'll use the biology, psychology and phenomenology of vision to explore philosophical questions about color, such as these: Color vision helps us get around in our environments, but in what sense is it a window onto reality, if it is? Are colors properties of objects, or are they inherently private, subjective properties of minds? What can non-human forms of color vision teach us about the nature of color, and how should we empirically study color vision? Do we need to see in color to understand it? How do our ordinary ways of talking and thinking about colors relate to the experiences we have in color? How does color vision figure in aesthetic judgment? And to what degree can it be influenced by learning, or by social biases like sexist or racist prejudices?
Taught by: Hatfield, Connolly
Activity: Seminar
1 Course Unit

PHIL 225 Introduction to Philosophy of Science
A discussion of some philosophical questions that naturally arise in scientific research. Issues to be covered include: The nature of scientific explanation, the relation of theories to evidence, and the development of science (e.g., does science progress? Are earlier theories refuted or refined?).
Taught by: Domotor
One-term course offered either term
Activity: Seminar
1 Course Unit

PHIL 226 Philosophy of Biology
This course consists of a detailed examination of evolutionary theory and its philosophical foundations. The course begins with a consideration of Darwin's formulation of evolutionary theory and the main influences on Darwin. We will then consider two contemporary presentations of the theory: Richard Dawkins' and Richard Lewontin's. The remainder of the course will deal with a number of foundational issues including adaptation, the units of selection, the evolution of altruism, and the possibility of grounding ethics in evolutionary theory.
For BA Students: Natural Science and Math Sector
Taught by: Weisberg
Course not offered every year
Also Offered As: PPE 225
Activity: Seminar
1 Course Unit
Notes: Application required through Penn Global: https://global.upenn.edu/pennabroad/pgs

PHIL 228 Philosophy of Social Science
This course is about the foundations of contemporary social science. It focuses on the nature of social systems, the similarities and differences between social and natural sciences, the construction, analysis, and confirmation of social theories, and the nature of social explanations. Specific topics may include: What are social norms and conventions? What does it mean to have one gender rather than another, or one sexual orientation rather than another? Should social systems be studied quantitatively or qualitatively?
Taught by: Weisberg, Bicchieri
Course not offered every year
Also Offered As: PPE 314
Prerequisites: PPE 008, ECON 001, ECON 002, PSCI 182, PPE 153, PPE 201
Activity: Lecture
1 Course Unit

PHIL 231 Epistemology
Two basic assumptions of academic research are that there are truths and we can know them. Epistemology is the study how knowledge, what it is, how it is produced, and how we can have it. Metaphysics, the study of the basic constituents of reality, the study of being as such. In this introduction to metaphysics and epistemology, we will ask hard questions about the nature of reality and knowledge. No philosophy background is required for this course.
Taught by: Singer
Course not offered every year
Activity: Seminar
1 Course Unit
PHIL 233 Philosophy of Economics
In this course, general philosophy of science issues are applied to economics, and some problems specific to economics are tackled. While analytical questions like “What is economics?” or “What is an economic explanation” must be pursued, the ultimate goal is practical: What is good economics? How can economists contribute to a better understanding of society, and a better society? How can we make economics better? Topics to be discussed include: specific object and method of economics as a social science; its relation with other disciplines (physics, psychology and evolutionary theory); values in economics (welfare, freedom, equality and neutrality); the role of understanding and possible limits of a quantitative approach to human behavior (purposefulness, freedom, creativity, innovation); prediction, unpredictability and the pretension of prediction; causation in econometrics and in economic theory (equilibrium); selfishness and utility maximization (cognitive and behaviorist interpretations); economic models and unrealistic assumptions (realism and instrumentalism); empirical basis of economics (observation and experiment); microeconomics and macroeconomics (reductionism and autonomy); pluralism in economics (mainstream economics and heterodox schools).
Taught by: Pereira Di Salvo, Carlos
Course not offered every year
Also Offered As: PPE 233
Activity: Lecture
1 Course Unit

PHIL 234 Philosophy of Religion
This course will focus on arguments for and against the existence of God. It will begin by examining the ontological, cosmological, and design arguments for the existence of God. Included will be a discussion of purported evidence for the existence of God from modern biology and cosmology. It will then examine arguments against the existence of God based on human and animal suffering, followed by arguments against the existence of God arising from the scarcity of credible miracle claims.
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 243 Topics In Metaphysics
In this class we employ science fiction thought experiments as a means of reflecting on questions like: What is reality? What is the nature of the self and mind? Might you be in a computer simulation (e.g., as in The Matrix)? Is time travel possible? Can your mind survive the death of your brain by uploading? Is time real or is it merely an illusion?
Taught by: Domotor
Course not offered every year
Prerequisites: PHIL 001 or PHIL 003 or PHIL 004, or permission of instructor.
Activity: Seminar
1 Course Unit

PHIL 244 Introduction to Philosophy of Mind
This course will survey several central topics in philosophy of mind, as well as investigating how philosophy of the mind interacts with scientific study of the mind. Among the questions we’ll be asking are: What is it to have a mind? What is the relationship between the mind and the brain? Can there be a science of the mind? What can it tell us? What can philosophy contribute to a science of the mind? What is consciousness? What is it to think, to perceive, to act? How are perception, thought, and action related to one another?
Taught by: Domotor, Miracchi
One-term course offered either term
Also Offered As: PPE 244
Activity: Seminar
1 Course Unit

PHIL 247 Marx
Precious few, if any, communist states exist today as Karl Marx would have imagined them. Indeed, almost every part of the 19th-century culture Marx put under his philosophical microscope has in one way or another vanished or been radically transformed: the state, the school, even sex have been fundamentally altered during a long 20th century filled with revolutions of culture. This class asks: is there a future for a philosopher whose political projects seem so precarious—if they have not failed outright—in the face of global capitalism? We will try to answer this question by examining the origins and the implications of Marx’s writings, but also his complex legacy, from Lenin through Guevara to Foucault and Zizek. The course will conclude with a consideration of the role of the radical in today’s global politics and cultural sphere.
For BA Students: Humanities and Social Science S
Taught by: Jarosinski
Course not offered every year
Activity: Lecture
1 Course Unit

PHIL 249 Philosophy of Education
We sometimes see philosophy as an inaccessible subject and the philosopher a solitary academic musing about abstract concepts from her office chair. However, philosophical thinking lies at the heart of many aspects of human life. Anyone who has pondered over questions regarding goodness, value, personal identity, justice, how to live well, or how to determine the right course of action has thought philosophically. These issues are of great interest and importance not just to adults, but also to children and teenagers. Introducing younger students to philosophical thought consists, in part, of showing them the ways in which they are already thinking philosophically. In this course, we will study a variety of topics in philosophy with the aim of developing curricula and lesson plans for delivery in middle school (6th through 8th grades). Course participants will work with the instructor and with help from a curricular planner from Penn's Graduate School of Education to develop a series of one-hour lessons in philosophy, which participants will then teach to the middle school students in a local school. Part of the course will be held on Penn's campus, and part of the course will be held on site with one of our partner schools. This course is an Academically Based Community Service course. Registration in this class requires a permit, following an interview with the instructor.
Taught by: Detlefsen
Course not offered every year
Activity: Seminar
1 Course Unit
PHIL 271 Global Justice
This course is an introduction to some of the central problems in global justice. Samples of these topics include: What are our duties to respond to world poverty and what is the basis of this duty? Is global inequality in itself a matter of justice? How universal are human rights? Should human rights defer to cultural claims at all? Is there a right to intervene in another country to protect human rights there? Indeed can intervention to protect human rights ever be a duty? Who is responsible for the environment? We will read some influential contemporary essays by philosophers on these topics with the goal of using the ideas in these papers as a springboard for our own further discussion and analysis.
Taught by: Tan
Course not offered every year
Also Offered As: PPE 271
Activity: Seminar
1 Course Unit

PHIL 277 Justice, Law and Morality
The course will focus on the philosophical background to the individual rights protected by the U.S. Constitution, including 1st Amendment freedoms of religion, expression, and association; the 14th amendment guarantee of Due Process and the rights of privacy, abortion, assisted suicide, and marriage; the Equal Protection clause and equal political rights and the legitimacy of affirmative action; and the Takings and Contract clauses and their bearing on rights of private property and economic freedoms. In addition to Supreme Court decisions on these issues, we will read works by political philosophers and constitutional theorists, including J.S. Mill, Ronald Dworkin, Cass Sunstein, Martha Nussbaum, Katherine MacKinnon and others.
Taught by: Freeman, Allen
Course not offered every year
Also Offered As: PPE 277
Activity: Lecture
1 Course Unit

PHIL 280 Topics in Aesthetics
What is beauty? What is the relationship between beauty and goodness? What does aesthetic judgment tell us, if anything, about the world? This course addresses these and other questions by focusing predominantly on Kant's highly influential aesthetic theory. It situates this text in the context of other works on aesthetics. We begin with Plato's view expressed in The Symposium that beauty is a form to which humans gain (some) access through love. We then turn to essays by Shaftesbury and Hume that introduce key aesthetic notions that Kant will elaborate (and revise) – including those of taste, common sense, harmony, and aesthetic disinterest. We also read selections from the work of Friedrich Schiller, John Dewey, and A. K. Coomaraswamy who offer alternative accounts of the relationship between beauty and ethical life – a relationship that Kant acknowledges but considers to be importantly limited. The question of the relationship between ethics and aesthetics will form the backdrop for this semester's reading overall.
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 291 Philosophy of Race
Historically, philosophical questions about race have been about the nature and reality of race, the nature of racism, and social or political questions related to race or racism. In fitting with that history, the first part of the course will focus on the nature and reality of race, as understood in biology and as understood by ordinary people. We will begin by looking at biological race theories from Francois Bernier in 1684 to Pigliucci and Kaplan in 2003. Next, we will look at the philosophical work that has been done on the nature and reality of race as ordinarily understood in the contemporary United States. We will discuss racial anti-realism, social constructionism about race, and biological racial realism from well-known philosophers of race like Anthony Appiah, Sally Haslanger, and Joshua Glasgow. The second part of the course will focus on the nature of racism and social or political questions related to race or racism. In our discussion of racism, we will cover, at least, intrinsic racism, extrinsic racism, and institutional racism. In our discussion of social or political issues related to race or racism, we will look at whether any US racial groups should be used to diagnose, study, or treat genetic disorders.
Taught by: Spencer
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 295 Identity
The content of the course may include the following, and related, themes: what makes a human the same human over time? What constitutes our identities? Are gender, race, sexual orientation, and the like essential features of our identities, and if so, how do they become so? How do ethics, politics and identity interact? After learning this philosophical content, Penn students will develop lesson plans for introducing this content to Philadelphia public high school students. Mid way through the semester, Penn students will start to prepare the high school students to present their own original work on the philosophy of identity at a conference to be held at Penn in May 2017. Penn students will be assessed on their own written and other work for the course, and in no way on the written or oral work of the high school students. Enrollment by permit only. Please contact Professor Detlefsen detlefsen@sas.upenn.edu to schedule an interview for admission to the course.
Taught by: Detlefsen
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 299 Independent Study
Student arranges with a faculty member to pursue a program of reading and writing on a suitable topic. One-term course offered either term
Activity: Independent Study
1 Course Unit

PHIL 301 Directed Honors Research
Open only to senior majors in philosophy. Student arranges with a faculty member to do an honors thesis on a suitable topic. One-term course offered either term
Activity: Independent Study
1 Course Unit
PHIL 325 Topics in Philosophy of Science
The aim of this course is to explore the relationships between philosophy and physics, with a focus on prominent foundational issues in modern physics. The course is organized around four main areas. In the first part, we focus on the philosophy and (classical and relativistic) structure of space and time, including the proliferations of physical geometries (Lobachevskian and Riemannian) of curved space time. Are space and time real? If so, what kind of entities are they? Metaphysically, we have a choice between presentism and eternalism, and regarding the nature of physical objects in space-time, there is a choice between endurantism and perdurantism. Is time travel possible? In the second part, we concentrate on the basic metaphysical and epistemological questions posed by physics: causality, determinism, randomness, and the nature of physical laws. How is cause conveyed from one physical body to another? Are the laws of physics true? In the third part, we turn to the principal philosophical issues raised by quantum physics: structural realism and the interpretations of quantum mechanics, non-locality and Bell’s theorem, the infamous Schrodinger cat paradox, hidden variables, and quantum measurement. What is primary – particles or waves? Finally in the fourth part, we investigate the metaphysics underlying Big Bang and Ekpyrotic cosmological theories, and evidence for a parallel universe and baby universes. All these philosophical issues will be addressed by looking at some simple examples or episodes taken from modern physics. The bulk of the readings will come from two textbooks (available at the Barnes & Noble University Bookstore) and articles in journals.
PREREQUISITES: The course is entirely self-contained: All topics in physics that are necessary for understanding the pertinent philosophical problems will be reviewed in class.
Taught by: Weisberg
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 330 Philosophy of Perception
Taking our perceptual experience as a given, what causes it? In a realistic mood, we accept that objects in the environment, or in the "external world," cause us to have the perceptual experiences that we do (as of a table with food, or as of a garden with flowers in it). Yet on this realistic view, our perception is the result of a causal chain that leads from object to eye to brain to experiences, and we are only given the last element: the experience. So how do we really know how our experiences are caused, and where do we get the idea that they are caused by an external world of physical objects? The seminar will focus on the problem of the external world as examined by David Hume, Thomas Reid, G. E. Moore, and Bertrand Russell, along with recent authors.
Taught by: Hatfield
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 339 Topics in Theoretical Philosophy
This majors seminar will cover selected topics in metaphysics, epistemology, philosophy of mind, philosophy of science, or philosophy of language. Topics will vary from term to term.
Taught by: Spencer
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 361 Ancient Philosophical Figures
A study of selected topics, texts, and figures from classical Greek philosophy. Topics will vary from term to term.
Taught by: S.Meyer
Course not offered every year
Prerequisite: PHIL 003
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 362 Modern Philosophical Figures
A study of selected topics, texts, and figures from 17th and 18th century European philosophy. Figures studied may include Descartes, Leibniz, Locke, Berkley, Hume, or Kant. Topics will vary from term to term.
Taught by: Hatfield, Detlefsen
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 363 Topics in Ethics
This majors seminar will cover selected topics in ethics. The content will vary from semester to semester.
Taught by: Freeman
Course not offered every year
Prerequisite: PHIL 002 (or consent of the instructor)
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 366 Topics in Political Philosophy
This majors seminar will cover topics in political philosophy. Topics will vary from term to term.
Taught by: Pereira Di Salvo
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 371 Topics in Ancient Philosophy
A study of selected topics, texts, and figures from 17th and 18th century European philosophy. Figures studied may include Descartes, Leibniz, Locke, Berkley, Hume, or Kant. Topics will vary from term to term.
Taught by: Hatfield, Detlefsen
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 372 Topics in Political Philosophy
This majors seminar will cover selected topics in political philosophy. Topics will vary from term to term.
Taught by: Pereira Di Salvo
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 376 Justice
This majors seminar will focus on contemporary works on liberalism, democracy, capitalism, and distributive justice. Questions to be discussed may include: Which rights and liberties are fundamental in a constitutional democracy? What is equality and what requirements does it impose? Are economic rights of property and freedom of contract equally important as personal liberties of speech, religion, and association? Does capitalism realize a just distribution of income and wealth? What is socialism and is it potentially just, or necessarily unjust? Readings from works by John Rawls, Robert Nozick, Milton Friedman, and others.
Taught by: Freeman
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Department Majors Only

PHIL 379 Topics in Political Philosophy
This majors seminar will cover various topics in political philosophy. Topics will vary from term to term.
Taught by: Pereira Di Salvo
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Department Majors Only
PHIL 405 Philosophy of Language
This course provides an overview of 20th century analytic philosophy of language. Questions we will ask may include: How do words refer? How do they combine to express thoughts? How do words relate to concepts or to thoughts more generally? What do words and sentences mean? How do we use them to communicate with each other? How does word and sentence meaning depend on the contexts in which they are spoken or heard, or on stable features of environments of linguistic speakers?
Taught by: Miracchi
Course not offered every year
Prerequisite: PHIL 005 or PHIL 505 or permission of instructor
Activity: Seminar
1 Course Unit

PHIL 407 Aristotle
A study of Aristotle's main writings on language, reality, knowledge, nature and psychology. All texts will be read in English translation. No background in Greek philosophy or knowledge of Greek is required, although previous work in philosophy is strongly recommended.
Taught by: S. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 409 Plato's Selected Dialogues
A study of selected dialogues of Plato. All texts will be read in translation. No prior experience in Plato is required, but students should have some background in philosophy. Dialogues studied will vary from term to term.
Taught by: S. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 410 Introduction to Logic and Computability
Taught by: Weinstein
Course not offered every year
Prerequisite: Math 371 or Math 503
Activity: Lecture
1 Course Unit

PHIL 412 Topics in Logic
The course focuses topics drawn from the central areas of mathematical logic: model theory, proof theory, set theory, and computability theory.
Taught by: Weinstein
Course not offered every year
Also Offered As: CIS 518
Activity: Seminar
1 Course Unit

PHIL 414 Philosophy of Mathematics
The course will focus on the development of the foundations and philosophy of mathematics from the late nineteenth-century through the present day. Topics may include logicism, formalism, intuitionism, and the foundations of set theory. Ample consideration will be given to some of the fundamental results of mathematical logic, such as the Godel incompleteness theorems and the independence of the Continuum Hypothesis from Zermelo-Fraenkel set theory, that have had a profound impact on contemporary approaches to the philosophy of mathematics.
Taught by: Weinstein, Ewald
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 423 Philosophy and Visual Perception
Central issues in the philosophy of perception from the modern period, including: what we perceive, the meaningful content of perception, and its relation to a mind-independent external world. Additional topics may include: (1) color perception and color metaphysics; (2) object perception in its interplay between Gestalt organizational factors and background knowledge; (3) the role of ecological regularities in the formation of our visual system and in the ongoing tuning of the system to the environment; (4) the geometry of visual space and the phenomenology of visual appearances of size and shape; (5) the problem of how visual scenes are experienced by means of images. Readings from authors such as Bertrand Russell, R. W. Sellars, Tim Crane, Evan Thompson, Robert Swartz, Wolfgang Metzger, Nelson Goodman, Richard Wollheim, and William Hopp, among others.
Taught by: Hatfield
One-term course offered either term
Activity: Seminar
1 Course Unit

PHIL 425 Philosophy of Science
An advanced introduction to the central philosophical questions concerning the nature of scientific knowledge and its relation to experience, and the metaphysical assumptions underlying the natural sciences. Topics to be covered include: science versus pseudoscience, laws of nature, causation, determinism and randomness, theories and models in science, scientific explanation, underdetermination of theories by observation and measurement, realism and antirealism, reductionism and intertheory relations, objectivity and value judgments in science, hypothesis testing and confirmation of scientific theories, and classical paradoxes in scientific methodology.
Taught by: Domotor
One-term course offered either term
Prerequisites: Background in elementary logic and some rudiments of science
Activity: Seminar
1 Course Unit
PHIL 426 Philosophy of Psychology
An examination of major trends of thought in experimental psychology in relation to philosophy and the philosophy of science. What is the subject matter and object of explanation of experimental psychology? What is the relation between psychology and neuroscience? How is scientific psychology related to traditional philosophical investigations of the mental? The course covers the classical systems and schools of psychology (Wundt, James, behaviorism, Gestalt psychology, cognitive and perceptual psychology, and cognitive science) and such contemporary problems as consciousness, philosophical foundations of cognitive science; theories of the extended and embodied mind; and the relation between neuroscience and psychology.
Taught by: Hatfield
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 430 Philosophy of Mind
This course studies particular topics in contemporary philosophy of mind and cognitive science. Examples include: the nature of consciousness, naturalistic accounts of intentionality, the nature scope of scientific explanation in studying the mind, the intersection of philosophy of mind and epistemology, and theories of agency. Typically, readings include both philosophy and empirical work from relevant sciences.
Taught by: Miracchi
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 431 Theory of Knowledge
Selected topics in Epistemology such as: bridging the gap between mainstream and formal epistemology, the familiar tripartite definition of knowledge (knowledge as justified true belief), basic logical and probabilistic models of knowledge (Hintikka, Aumann, and Bayesian) and their multi-agent variants, logical omniscience and other problems (including the epistemic closure principle), attempts at formalizing joint and common knowledge, resource-bounded knowledge, knowledge under limited logical powers, and empirical knowledge obstructed by system complexity.
Taught by: Domotor
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 448 19th Century Philosophy
A study of selected figures in 19th century philosophy. Figures to be studied may include Hegel, Fichte, Schelling, Schopenhauer, Nietzsche and, Kierkegaard.
Taught by: Horstmann
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 450 African, Latin American and Native American Philosophy
This course is an introduction to philosophical work from Africa, Latin America, and the indigenous peoples of North America, covering topics in ethics, metaphysics, epistemology, philosophy of mind, aesthetics, social philosophy, and political philosophy. The course aims to give work from these traditions greater exposure and to provide a chance for students to encounter work that might spark an interest in future research. We will cover in some depth views held by Akan, Aztec, Blackfoot, Dogon, Iroquois, Lakota, Navajo, Ojibwa, and Yoruba peoples. We will also read work by a number of philosophers, including: Kwame Anthony Appiah, Kwame Gyekye, Julius Nyerere, Sor Juanna Ines de la Cruz, Simon Bolivar, Jose Marti, Jose Vasconcelos, Enrique Dussel, Gregory Cajete, Anne Waters, and many others. Throughout, we will also engage with related meta-philosophical issues that emerge with work from all these areas, allowing for interesting cross-discussion. Are these really proper subfields of philosophy? How do we make sense of the idea of African (or Latin American, or Native American) Philosophy as a field? Are there philosophically important differences between oral traditions and written traditions? How should we understand ethnophilosophy and cultural worldviews as philosophical contributions? How should we think of the "sage" figure in relation to philosophy? How do these traditions engage discussions of identity, autonomy, and post-colonialism? Should this work be incorporated into the mainstream philosophical canon?
Activity: Seminar
1 Course Unit

PHIL 465 Kant I
The course will concentrate on the Critique of Pure Reason and discuss in detail Kant's conception of knowledge and experience, his criticism of traditional metaphysics and the resulting project of a system of transcendental philosophy.
Taught by: Horstmann
Course not offered every year
Prerequisites: PHIL 004, one advanced Philosophy course, or permission of instructor
Activity: Seminar
1 Course Unit

PHIL 466 Kant II
This course is a study of Kant's moral and political philosophy. Texts may include Kant's Lectures on Ethics, Groundwork for the Metaphysics of Morals, Critique of Practical Reason, Religion within the Boundaries of Mere Reason, and Metaphysics of Morals.
Course not offered every year
Prerequisites: PHIL 002, PHIL 004, or permission of instructor
Activity: Seminar
1 Course Unit
PHIL 468 Hegel
A study of Hegel's philosophy, focusing primarily on his Phenomenology of Spirit, with attention to relevant passages in other works such as Hegel's Logic and Philosophy of Right. Topics may include: (1) Hegel's conception of philosophy, (2) the development of his system, (3) the problem of an introduction to his system (Phenomenology of Spirit), (4) Hegel's criticism of traditional metaphysics, (5) his notion of a 'concept' (Begriff), his theory of the Idea. The seminar will focus primarily on some of Hegel's early Jena writings, his Phenomenology of Spirit, on passages from different versions of Hegel's Logic and (maybe) on aspects of his Philosophy of Right. Topics that are dealt with include: (1) Hegel's conception of philosophy, (2) the development of his system, (3) the problem of an introduction to his system (Phenomenology of Spirit), (4) Hegel's criticism of traditional metaphysics, (5) his notion of a 'concept' (Begriff), his theory of the Idea. Other topics might become of interest as well.
Taught by: Horstmann
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 472 Survey of Ethical Theory
This course is an investigation of the main questions and problems in metaethics since the turn of the 20th century. We will investigate questions about the metaphysics of morality, the philosophy of language of moral talk, the philosophy of mind of moral thought, the epistemology of morality, and the objectivity of morality.
Taught by: Lord
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 479 Modern Political Philosophy
A survey of several works in modern political philosophy, including Thomas Hobbes's, Leviathan; John Locke's, Second Treatise on Government and Letter Concerning Toleration; David Hume's 'Of the Original Contract' and 'On Justice'; John Stuart Mill's Utilitarianism, On Liberty, and The Subjection of Women; excerpts from Karl Marx's Capital and other writings; and John Rawls's A Theory of Justice.
Taught by: Freeman
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 488 The Idea of Nationalism
Nationalism has been the most important geo-political phenomenon of the past two hundred years. This seminar course will explore the ideology of nationalism, what it means, its philosophical foundations, underlying assumptions about the nature of human identity, moral implications, and political consequences. What is a nation? Does every identifiable ethnic or national group have a valid claim to a nation-state of its own? How are claims to national self-determination justified? How do nations differ from states, peoples, groups, communities, and citizens? How does nationalism relate to notions of “chosenness” or ethnic and cultural superiority? Why do nationalist movements seem to so often engender political extremism and violent ethno-political conflicts? Is national self-determination compatible with our commitments to individualism, rationality, and universal human rights?
Taught by: Steinberg
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 489 Ethnicity, Identity and Nationhood
This MLA seminar will deepen our understanding of the role that political and cultural ideologies – such as liberalism, conservatism, nationalism, totalitarianism, fundamentalism, etc. – play in contemporary public discourse and the psychology of ideological thinking that makes political conflicts so difficult to resolve. Drawing on a series of case studies in contemporary political, social and cultural conflict such as recent political campaigns and nationalist movements around the globe, we will identify and examine the ideologies driving such conflicts, and from these we will draw out the common philosophical characteristics and psychological features of ideological thinking. We will begin by considering a series of case studies in contemporary political, social and cultural conflict, drawn from contemporary events such as the 2012 political campaigns, the 2011 debt ceiling debate in Congress, nationalist movements around the globe, etc. We will identify and examine the ideologies driving such conflicts, and from these we will draw out the common philosophical characteristics and psychological features of ideological thinking. Throughout, we will seek to understand the deep attraction of ideological commitments and why they tend to push public discourse and behavior to extremes and even violence. Finally, we will consider efforts to reduce or resolve ideological conflicts through strategies of political compromise, dialogue, toleration, and democratic deliberation.
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 505 Formal Logic I
This course provides an introduction to some of the fundamental ideas of logic. Topics will include truth functional logic, quantificational logic, and logical decision problems.
Taught by: Domotor, Weinstein
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 506 Formal Logic II
An introduction to first-order logic including the completeness, compactness, and Lowenheim-Skolem theorems, and Godel's incompleteness theorems. UNDERGRADUATES NEED PERMISSION
Taught by: Weinstein
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Undergraduates Need Permission.

PHIL 511 Aristotle's Ethics
A study of Aristotle's ethical works, with emphasis on the NICOMACHEAN ETHICS. Topics may include moral psychology, practical reasoning, the nature of good, emotion and reason, responsibility, and friendship.
Taught by: Meyer
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission
PHIL 521 Philosophy of Biology
This course consists of a detailed examination of evolutionary theory and its philosophical foundations. The course begins with a consideration of Darwin's formulation of evolutionary theory and the main influences on Darwin. We will then consider two contemporary presentations of the theory. Richard Dawkins' and Richard Lewontin's. The remainder of the course will deal with a number of foundational issues including adaption, the units of selection, the evolution of altruism, and the possibility of grounding ethics in evolutionary theory. UNDERGRADUATES NEED PERMISSION
Taught by: Weisberg
One-term course offered either term
Also Offered As: PPE 225
Activity: Lecture
1 Course Unit
Notes: Undergraduates need permission

PHIL 525 Topics in the Philosophy of Science
For the last four centuries, scientific research has provided our most reliable understanding of the world. Although the scientific revolution started modestly with attempts to understand stellar movement, we now know the age and constitution of the universe, the basis of heredity, and we can make and break chemical bonds at will. By all appearances, science seems to have made substantial progress from the scientific revolution to the global scientific enterprise of the 21st century. This course is about how science has generated this knowledge, and whether it has been as progressive and reliable as it seems. We will consider methodological issues such as the sources of scientific knowledge, objectivity, the growing importance of computation in the natural sciences, and the nature of modeling. We will examine products of scientific research: explanations, models, theories, and laws of nature. And we will discuss questions about science and values, including whether non-scientific values can and should enter scientific research, the relationship between science and religion, and the role of the public in guiding the scientific enterprise.
Taught by: Weisberg, Bicchieri
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 526 Philosophy of Psychology
More than a century after Sigmund Freud transformed -- for better or worse -- our understanding of what it means to be human, Freudian psychoanalysis still exerts a profound influence in our culture. This seminar course is an exploration of the philosophical issues raised by Freudian psychoanalysis as a theory of mind and culture. After a close reading of Freud's theoretical writings on the nature of the mind and human behavior, we will explore why Freud's theories -- despite more than a century of criticism remain highly influential as a framework for the interpretation of art, literature, religion, society, politics, and history. Readings from Freud's "meta-psychological," cultural, and social writings, Paul Ricoeur's Freud and Philosophy, and other contemporary authors in philosophy, psychoanalysis, and other fields.
Taught by: Steinberg
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 530 Philosophy of Mind
This course explores core issues in philosophy of mind, such as: the nature of mental states and events, the mind-body problem, and the relationship between philosophy of mind and related disciplines, such as cognitive science. We approach these issues through more specific topics, depending on the interests of the instructor. Topics may include: identity theories, grounding physicalism, functionalism, computationalism, disjunctivism and knowledge-first theories, internalism and externalism, consciousness, self-knowledge, perception, emotion, action, representationalism, mental causation, and intersections with psychology, artificial intelligence, linguistics, and neuroscience. For details in a specific year, consult with the instructor and/or department.
UNDERGRADUATES NEED PERMISSION.
Taught by: Hatfield, Miracchi
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 531 Social Norms
This is a graduate research seminar covering interdisciplinary research in psychology, philosophy, sociology and behavioral economics related to social norms. Social norms are informal institutions that regulate social life. We will devote particular attention to the following questions: 1. What is a good, operational definition of social norms? 2. Is there a difference between social and moral norms? 3. How can we measure whether a norm exists, and the conditions under which individuals are likely to comply with it? 4. Are behavioral experiments a good tool to answer questions 3? 5. How do norms emerge? 6. How are norms abandoned? 7. What is the role of trendsetters in norm dynamics?
Taught by: Bicchieri
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 532 Topics in Epistemology
This seminar will cover topics of interest to contemporary epistemologists. Possible topics may include skepticism, accounts of knowledge and justification, virtue epistemology, formal epistemology, social epistemology, feminist epistemology, meta-epistemology and epistemic normativity.
Taught by: Lord,Errol
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 536 Stoicism
A study of some major texts in Ancient Greek Stoicism, the school founded by Zeno of Citium in the post Aristotelian period. Topics may include: ethics, natural philosophy, epistemology, and metaphysics. Authors may include: Cicero, Seneca, Epictetus, and Marcus Aurelius. All works will be read in English translation. Against the Ethicists will be the other major texts studied in this course. All readings will be in English translation. No knowledge of Greek or Latin is required.
Taught by: S.Meyer
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission
PHIL 540 Topics in Philosophy of Language
This course explores core issues in philosophy of language, such as: meaning, reference, truth, communication, speech acts, the norms governing language use, and the relationship between philosophy of language and related disciplines, such as linguistics. We approach these issues through more specific topics, depending on the interests of the instructor. Topics may include: the nature of propositions, truth, context-sensitive expressions, the relationship between logical structure and linguistic structure, the relationship between mental and linguistic meaning, the mechanisms of communication, the semantic/pragmatic distinction, the norms of assertion, relativism, expressivism, injustice in linguistic communication. For details in a specific year, consult with the instructor and course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 551 Topics in Early Modern Philosophy
125 A seminar in philosophy of the early modern period (roughly 1600-1800), covering specific figures and/or topics. Examples of figures studied include (but are not limited to) Descartes Cavendish, Astell, Locke, Hume, Du Chatel, or Kant. Examples of topics studied include (but again are not limited to) substance, causation, freedom, natural philosophy, education, the human being, the private and the public, or political authority.
Taught by: Detlefsen, Chignell
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 547 Leibniz/Locke
This course focuses on topics in philosophy of the 17-18th centuries. Topics may include natural philosophy in the early modern period, the relation of metaphysics to the 'sciences' (including what is meant by "metaphysics"), and what falls under the scope of the various sciences, and the special role played by the life sciences. An examination of the development of a few topics in natural philosophy in the early modern period, such as: method (the evolution of hypotheses and their reception, the relation of theory to empirical work, and the importance of different kinds of empirical work, e.e. observation, experiment, use of instruments); the relation of metaphysics to the 'sciences' (including what is meant by "metaphysics", and what falls under the scope of the various sciences); and the special role played by the life sciences.
Taught by: Detlefsen
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 550 Topics in Philosophy of Education
In this course, we will examine problems in contemporary philosophy of education, including: how much control over a child's education ought to be allocated to parents and how much to the state; what role, if any, ought religion to play in education; how do race and gender impact individuals' educational experiences and how should such issues should be addressed in the classroom; what sort of (if any) civic education ought to be taught in schools (especially in wartime such as in the post 9-11 USA); and how should schools be funded? We will deal with a number of case studies, mostly recent, but some crucial historical cases as well. Our readings will be primarily philosophical texts, supplemented with those from other fields, such as psychology, history and sociology, in order to provide empirical context to the theoretical problems facing education today.
Taught by: Detlefsen
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 554 Contemporary Continental Philosophy
This course is an exploration of traditional philosophical questions concerning objectivity in science. We will start by addressing central questions in feminist philosophy of science, such as what is objective reality and what is objective knowledge? Next, we will explore whether science discovers objective real entities or relations, which is a central topic in the scientific realism debate. We will also explore whether scientific knowledge is objective. We will read mostly 20th and 21st century philosophers of science, such as Goodman, Kuhn, Psillos, and Longino. We will also apply what we learn to at least one case study.
Taught by: Detlefsen, Chignell
Course not offered every year
Notes: Undergraduates Need Permission
PHIL 572 Contemporary Ethics
A venerable idea throughout the history of ethics is that rationality is a fundamental or foundational part of the metaphysics of the normative. The course will be an investigation of several different strains of this rationalist idea. We'll discuss four rationalist views of the nature of normative reasons (Kantian, Humean, Aristotelian, and new-fangled constructivism). Our aim will be to investigate the plausibility of these rationalist views against the backdrop of a more recent hypothesis about the metaphysics of the normative—viz., the claim that normative reasons themselves are the fundamental constituents of the normative.
Taught by: Freeman, Meyer
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 576 Rationality, Morality and Law
This class will be dedicated to investigating topics related to rationality in its many forms. Potential areas of study are metaethics, epistemology, moral psychology, and the philosophies of mind, language and action. UNDERGRADUATES NEED PERMISSION.
Taught by: Freeman, Lord
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates need permission.

PHIL 577 Topics in Philosophy of Law
This seminar will examine leading academic theories of constitutional interpretation, starting with classic texts by (for illustration) Thayer, Wechsler, Ely, Bobbitt, Dworkin, and Scalia, and emphasizing current debates within originalism and between originalists and their critics. While the focus will be on American constitutional interpretation, we will also see how that literature is currently running up against, and possibly contributing to, more "philosophical" or "jurisprudential" accounts of the contents of law. Consistent with the nature of the material, the reading load is likely to be somewhat heavier and more demanding than in the average seminar. Students will be expected to read the assigned material carefully and to participate actively in class discussions; they will have the option of submitting either a single research paper or several shorter papers.
Taught by: Perry, Berman, Finkelstein
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 578 Topics in Political Philosophy
This is a topics-based graduate seminar in political philosophy. Examples of topics we can examine in this course include distributive justice, liberty, equality, and global justice. Course readings will be drawn from a combination of seminal and more recent works on the selected topics.
Taught by: Freeman, Tan
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Undergraduates Need Permission

PHIL 580 Independent Study
Directed readings in consultation with individual faculty members.
One-term course offered either term
Activity: Independent Study
1 Course Unit

PHIL 600 Proseminar
An intensive seminar for first-year doctoral students, with readings drawn from recent and contemporary eistemology and metaphysics, broadly construed. Students will develop their abilities to present and discuss philosophical texts, and to write and revise their own papers.
Taught by: Singer, Daniel
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Graduate Students Only

PHIL 601 Consortium Course
For graduate students taking courses at other institutions belonging to the Philadelphia area Philosophical Consortium.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Graduate Students Only

PHIL 612 Topics in Hellenistic Philosophy
The ancient Stoics famously rejected the tripartite psychology of Plato and the Aristotelian division of the psyche into rational and non-rational parts. Everything we think, say, feel, and do is an exercise of reason, specifically, an assent to an impression. This includes the pathe—emotions such as fear, anger, and pity and love. According to the Stoic doctrine of apatheia, we should eradicate the pathe from our lives. But there are some emotions of which the Stoics approve: the so-called “good feelings” (eupatheiai) which include joy, reverence, and goodwill. We will examine the difference between the pathe and the eupatheia in the context of their Stoic doctrine of “impulse” (horme), and of their ethical theory more generally. All texts will be read in translation, and will include selections from: Cicero: Tusculan Disputations, On Ends, On Duties, Cicero: Discourses, Seneca: Letters, Stobaeus: Eclogues, Galen: On the Doctrines of Hippocrates and Plato.
Taught by S. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 672 Topics in Ethics
Phil 672 will be a workshop on writing papers for submission to either conferences or journals. Papers may address any topic in value theory, broadly construed, and some participants may choose to revise papers written for previous seminars. All participants will be responsible for generating short bibliographies and then leading class discussions on their topics, providing drafts of their papers for critique by the class, and presenting their papers to the class. Students who have passed their prelins are encouraged to participate as auditors.
Taught by: S. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit

PHIL 699 Independent Study
Directed readings in consultation with individual faculty members.
One-term course offered either term
Activity: Independent Study
1 Course Unit
PHIL 700 Dissertation Workshop
Registration required for all third-year doctoral students. Third-year students and beyond attend and present their dissertation work or their preliminary exam prospectus. From time to time, topics pertaining to professional development and dissertation writing will be discussed.
Taught by: Weinstein, Scott
Two terms. Student must enter first term.
Activity: Seminar
1 Course Unit

PHIL 990 Masters Thesis
Taught by: Staff.
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

PHIL 995 Dissertation
Ph.D. candidates, who have completed all course requirements and have an approved dissertation proposal, work on their dissertation under the guidance of their dissertation supervisor and other members of their dissertation committee.
One-term course offered either term
Activity: Dissertation
1 Course Unit

PHIL 998 Teaching Practicum (Independent Study)
Supervised teaching experience. Four semesters are required of all Doctoral students in philosophy.
One-term course offered either term
Activity: Independent Study
1 Course Unit

PHIL 999 Independent Study
Directed readings in consultation with individual faculty members.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: May be repeated for credit
PHILOSOPHY, POLITICS, ECONOMICS (PPE)

PPE 008 The Social Contract
This is a critical survey of the history of western modern political philosophy, beginning from the Early Modern period and concluding with the 19th or 20th Century. Our study typically begins with Hobbes and ends with Mill or Rawls. The organizing theme of our investigation will be the idea of the Social Contract. We will examine different contract theories as well as criticisms and proposed alternatives to the contract idea, such as utilitarianism. Besides the above, examples of authors we will read are Locke, Rousseau, Hume, Mill and Marx.
For BA Students: Society Sector
Taught by: Freeman, Tan
Course usually offered in spring term
Activity: Lecture
1 Course Unit

PPE 036 Law and Economics
The relationship of economic principles to law and the use of economic analysis to study legal problems. Topics will include: property rights and intellectual property; analysis of antitrust and economic analysis of legal decision making.
Course usually offered in fall term
Prerequisite: ECON 001 or ECON 010
Activity: Lecture
1 Course Unit
Notes: Credit cannot be received for both ECON 036 and 234.

PPE 072 Biomedical Ethics
This course is an introduction to bioethics, focusing on ethical questions arising at the beginning and end of life. Topics will include procreative responsibilities, the question of wrongable life, and prenatal moral status as well as questions of justice related to markets for sperm, eggs and gestation. We will also attend to dilemmas at the end of life, including the authority of advance directives, euthanasia and the allocation of life-saving therapies.
For BA Students: Society Sector
Taught by: Gibbons
Course not offered every year
Activity: Lecture
1 Course Unit

PPE 073 Topics in Ethics
This course examines some of the central theoretical and applied questions of ethics. For example, what is the good life? By what measure or principles do we evaluate the rightness and wrongness of actions? How does ethical reasoning help us understand and address real world problems such as world hunger, social injustice, sex and race discrimination, allocation of scarce resources and the like. The course can be organized around an applied topic or practical issue such as global ethics, just war, biomedical ethics or environmental ethics.
Taught by: Gibbons, M. Meyer
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 153 Judgment and Decisions
Thinking, judgment, and personal and societal decision making, with emphasis on fallacies and biases.
One-term course offered either term
Prerequisite: One semester of statistics OR microeconomics
Activity: Lecture
1 Course Unit
Notes: An LPS section may be given

PPE 225 Philosophy of Biology
This course consists of a detailed examination of evolutionary theory and its philosophical foundations. The course begins with a consideration of Darwin's formulation of evolutionary theory and the main influences on Darwin. We will then consider two contemporary presentations of the theory: Richard Dawkins' and Richard Lewontin's. The remainder of the course will deal with a number of foundational issues including adaptation, the units of selection, the evolution of altruism, and the possibility of grounding ethics in evolutionary theory.
For BA Students: Natural Science and Math Sector
Taught by: Domotor, Spencer, Weisberg
Course not offered every year
Activity: Lecture
0 Course Units
Notes: Application required through Penn Global: https://global.upenn.edu/pennabroad/pgs

PPE 233 Philosophy of Economics
In this course, general philosophy of science issues are applied to economics, and some problems specific to economics are tackled. While analytical questions like "What is economics?" or "What is an economic explanation" must be pursued, the ultimate goal is practical: What is good economics? How can economists contribute to a better understanding of society, and a better society? How can we make economics better? Topics to be discussed include the following: specific object and method of economics as a social science; its relation with other disciplines (physics, psychology and evolutionary theory); values in economics (welfare, freedom, equality and neutrality); the role of understanding and possible limits of a quantitative approach to human behavior (purposefulness, freedom, creativity, innovation); prediction, unpredictability and the pretension of prediction; causation in econometrics and in economic theory (equilibrium); selfishness and utility maximization (cognitive and behaviorist interpretations); economic models and unrealistic assumptions (realism and instrumentalism); empirical basis of economics (observation and experiment); microeconomics and macroeconomics (reductionism and autonomy); pluralism in economics (mainstream economics and heterodox schools).
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PPE 244 Introduction to Philosophy of Mind
This course will survey several central topics in philosophy of mind, as well as investigating how philosophy of the mind interacts with scientific study of the mind. Among the questions we'll be asking are: What is it to have a mind? What is the relationship between the mind and the brain? Can there be a science of the mind? What can it tell us? What can philosophy contribute to a science of the mind? What is consciousness? What is it to think, to perceive, to act? How are perception, thought, and action related to one another?
Taught by: Domotor, Miracchi
Course not offered every year
Activity: Lecture
1 Course Unit
PPE 271 Global Justice
This course is an introduction to some of the central problems in global justice. Samples of these topics include: What are our duties to respond to world poverty and what is the basis of this duty? Is global inequality in itself a matter of justice? How universal are human rights? Should human rights defer to cultural claims at all? Is there a right to intervene in another country to protect human rights there? Indeed can intervention to protect human rights ever be a duty? Who is responsible for the environment? We will read some influential contemporary essays by philosophers on these topics with the goal of using the ideas in these papers as a springboard for our own further discussion and analysis. Taught by: Tan
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 272 Ethics and the Professions
Since Louise Brown, the first so-called "test tube baby" was born in 1978, reproductive technologies have generated many new ways to "make" babies. These technologies mean that a number of difficult ethical questions are inescapable, not only for individuals who otherwise couldn't have children (due to biological and/or social constraints) but for the larger society. This course will consider the prenatal moral status and identity of the fetus. It explores prenatal (and pre-implantation) genetic interventions and their possible effects on the autonomy of the child later in life as well as the possible eugenic implications of such interventions. It examines the potential conflict between a mother's autonomy and an infant's prenatal harm in the larger context created by new kinds of parents and new forms of kinship. Finally, it investigates the market for sperm, eggs, embryos and gestation and reflects on the questions of justice they imply. Taught by: Tan
Course not offered every year
Prerequisites: At Least one of PHIL 002, 008, 009 or equivalent.
Activity: Seminar
1 Course Unit

PPE 275 Introduction to Political Psychology
This course will explore psychological approaches to understanding political beliefs, attitudes, and actions at the levels of both individual citizens and national leaders. It will also explore the possibility that psychological science itself is not immune to the political debates swirling around it. Specific topics will include: the workings of belief systems (and their power to shape what we "see"), cognitive biases (and their power to cause miscalculations), sacred values and their role in stabilizing belief systems and social interaction, personality and ideology (the linkages between the personal and the political), and clashing conceptions of morality and distributive and corrective justice (striking variations among people in what they consider to be fair). We shall also explore some topics that have sparked controversy in the psychological research literature and that tend to polarize opinion along political lines, including work on intelligence and unconscious bias. Taught by: Tetlock
One-term course offered either term
Prerequisite: PSYC 001 or COGS 001
Activity: Lecture
1 Course Unit
Notes: NOTE: Students who are more interested in business-related issues may want Wharton 276x which is a modified version of this course specifically for Wharton undergraduates.

PPE 277 Justice, Law and Morality
The course will focus on the philosophical background to the individual rights protected by the U.S. Constitution, including 1st Amendment freedoms of religion, expression, and association; the 14th amendment guarantee of Due Process and the rights of privacy, abortion, assisted suicide, and marriage; the Equal Protection clause and equal political rights and the legitimacy of affirmative action; and the Takings and Contract clauses and their bearing on rights of private property and economic freedoms. In addition to Supreme Court decisions on these issues, we will read works by political philosophers and constitutional theorists, including J.S. Mill, Ronald Dworkin, Cass Sunstein, Martha Nussbaum, Katherine MacKinnon and others. Taught by: Freeman, Allen
Course not offered every year
Activity: Lecture
1 Course Unit

PPE 311 Strategic Reasoning
This course is about strategically interdependent decisions. In such situations, the outcome of your actions depends also on the actions of others. When making your choice, you have to think what the others will choose, who in turn are thinking what you will be choosing, and so on. Game Theory offers several concepts and insights for understanding such situations, and for making better strategic choices. This course will introduce and develop some basic ideas from game theory, using illustrations, applications, and cases drawn from business, economics, politics, sports, and even fiction and movies. Some interactive games will be played in class. There will be little formal theory, and the only pre-requisites are some high-school algebra and having taken Econ 1. However, general numeracy (facility interpreting and doing numerical graphs, tables, and arithmetic calculations) is very important. This course will also be accepted by the Economics department as an Econ course, to be counted toward the minor in Economics (or as an Econ elective). Taught by: Dillenberger
Course usually offered in fall term
Prerequisites: Some high school algebra, ECON 001.
Activity: Lecture
1 Course Unit
Notes: This course may NOT be taken concurrently with or after Econ 212.

PPE 312 Public Policy Process
This course introduces students to the theories and practice of the policy-making process. There are four primary learning objectives. First, understanding how the structure of political institutions matter for the policies that they produce. Second, recognizing the constraints that policy makers face when making decisions on behalf of the public. Third, identifying the strategies that can be used to overcome these constraints. Fourth, knowing the toolbox that is available to participants in the policy-making process to help get their preferred strategies implemented. While our focus will primarily be on American political institutions, many of the ideas and topics discussed in the class apply broadly to other democratic systems of government. Taught by: Levendusky, Meredith
Course usually offered in spring term
Activity: Recitation
1 Course Unit
PPE 313 Behavioral Economics and Psychology
Our understanding of markets, governments, and societies rests on our understanding of choice behavior, and the psychological forces that govern it. This course will introduce you to the study of choice, and will examine in detail what we know about how people make choices, and how we can influence these choices. It will utilize insights from psychology and economics, and will apply these insights to domains including risky decision making, intertemporal decision making, and social decision making.
Taught by: Bhatia
Course usually offered in fall term
Prerequisites: ECON 001.
Activity: Lecture
1 Course Unit
Notes: Prerequisite: ECON 1

PPE 314 Philosophy of Social Science
This course is about the foundations of contemporary social science. It focuses on the nature of social systems, the similarities and differences between social and natural sciences, the construction, analysis, and confirmation of social theories, and the nature of social explanations. Specific topics may include: What are social norms and conventions? What does it mean to have one gender rather than another, or one sexual orientation rather than another? Should social systems be studied quantitatively or qualitatively?
Taught by: Bicchieri, Weisberg
Course usually offered in spring term
Prerequisites: ECON 001, ECON 002, and PHIL 008.
Activity: Lecture
1 Course Unit

PPE 401 Independent Study
Student arranges with a faculty member to pursue a research project on a suitable topic. For more information about research and setting up independent studies, visit: https://ppe.sas.upenn.edu/study/curriculum/independent-studies
One-term course offered either term
Activity: Independent Study
1 Course Unit

PPE 402 Research in Philosophy, Politics & Economics
Led by fellows in the Philosophy, Politics and Economics program, this course teaches students how to conduct research in PPE with an emphasis on creating a well-formed research question, determining what kinds of data or scholarly research bears on that question, and how to carry out an interdisciplinary, research-driven project on that question.
Taught by: Fellows in PPE
One-term course offered either term
Activity: Seminar
1 Course Unit

PPE 460 Experiments in Behavioral Ethics
In reality, our understanding of different mechanisms and (economic) relationships is hampered by the lack of data. More often than not, either the observation itself is difficult or the data is not reliable. Over the last decades, economic experiments have become a vital part of the scientific discourse, facilitating our understanding of the world we live in (much like in Biology, Chemistry, Physics or the like). Economic experiments allow exploring economic behavior under controlled conditions by generating observations under different experimental designs and controlled conditions. Pioneering this field of research, Daniel Kahneman and Vernon Smith were awarded the Nobel memorial prize in recognition of their work on behavioral and experimental economics. In this course, we provide you with the methodology of how to develop a research idea and a proper experimental design that allows to explore this idea. Essentially, you will learn how to think about ideas, generate predictions, and how to use economic experiments to test them.
Taught by: Bicchieri, Dimant
Activity: Seminar
1 Course Unit

PPE 470 Capstone: Social Policy
Social policy is the study of human wellbeing and is concerned with the effects in areas of health care, criminal justice, inequality, and education, among others. As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission). For more see: https://ppe.sas.upenn.edu/study/curriculum/advanced-interdisciplinary-courses
Taught by: Dimant
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 471 Capstone: Political Economy
Political Economy studies the relationships between individuals and society and between markets and the state. As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission). For more see: https://ppe.sas.upenn.edu/study/curriculum/advanced-interdisciplinary-courses
Taught by: Sontuoso
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 472 Capstone: Networks
Network Theory studies graphs as a representation of the structure of relationships between social entities. It can be used to examine how the behavior of individuals in a socio-economic system affects - and is affected by - the structure of connections of the system. As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission). For more see: https://ppe.sas.upenn.edu/study/curriculum/advanced-interdisciplinary-courses
Taught by: Sontuoso
Course not offered every year
Activity: Seminar
1 Course Unit
PPE 473 Capstone: Modeling
Modeling provides a way to identify and analyze the salient features of complex problems or dynamic social situations. Using models can further provide a way to see what strategies may be rational over time. As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission). For more see: https://ppe.sas.upenn.edu/study/curriculum/advanced-interdisciplinary-courses
Taught by: Funcke
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 474 Capstone: Judgment and Decision Making
The interdisciplinary study of individual's and groups' judgments and decisions, including normative, descriptive, and prescriptive theories. As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission). For more see: https://ppe.sas.upenn.edu/study/curriculum/advanced-interdisciplinary-courses
Taught by: Hart
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 476 Philosophy, Politics and Economics
This is an integrative senior seminar (open to others by departmental permission). The following website will give descriptions of the specific capstone courses that will be offered each semester: http://www.sas.upenn.edu/ppe/Courses/general
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission).

PPE 477 Capstone: Social Psychology
Social psychology explores how an individual's judgments and behaviors can be influenced or determined by others and their social context.
Taught by: Royzman
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission).

PPE 481 Capstone: Political Science
A PPE capstone offered by faculty in Political Science. As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission). For more see: https://ppe.sas.upenn.edu/study/curriculum/advanced-interdisciplinary-courses
Taught by: Berger
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 483 Capstone: Economics
A PPE Capstone seminar offered by faculty in Economics. As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission). For more see: https://ppe.sas.upenn.edu/study/curriculum/advanced-interdisciplinary-courses
Taught by: Dillenberger
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 484 Capstone: Philosophy
A PPE Capstone seminar offered by faculty in Philosophy. As a PPE Capstone, this is an integrative senior seminar (open to others by departmental permission). For more see: https://ppe.sas.upenn.edu/study/curriculum/advanced-interdisciplinary-courses
Taught by: Bicchieri
Course not offered every year
Activity: Seminar
1 Course Unit

PPE 498 Directed Honors Research
Student arranges with a faculty member to do research and write a thesis on a suitable topic. For more information on honors visit: https://ppe.sas.upenn.edu/study/curriculum/honors-theses
One-term course offered either term
Activity: Independent Study
1 Course Unit

PPE 499 Advanced Research
This course may be taken by a PPE student for advanced research. Enrollment by permit only.
Course not offered every year
Activity: Independent Study
1 Course Unit
PHYSICS (PHYS)

PHYS 008 Physics for Architects I
An introduction to the classical laws of mechanics, including static equilibrium, elasticity, and oscillations, with emphasis on topics most relevant to students in architecture. Credit is awarded for only one of the following courses: PHYS 008, PHYS 101, PHYS 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 091 or 093 who complete PHYS008 will thereby surrender the AP or Transfer Credit.
For BA Students: Physical World Sector
Course offered fall; odd-numbered years
Prerequisites: Entrance credit in algebra and trigonometry.
Activity: Lecture
1 Course Unit
Notes: Credit is awarded for only one of the following courses: PHYS 008, PHYS 101, PHYS 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 091 or 093 who complete PHYS 008 will thereby surrender the AP or Transfer Credit.

PHYS 009 Physics for Architects II
Briefly reviews Newton's laws, then introduces waves, sound, light, fluids, heat, electricity, magnetism, and circuits, with emphasis on topics most relevant to students in architecture. Illustrates physics principles using examples drawn from architecture. Students with a strong high-school physics background may take PHYS 008 and PHYS 009 in either order. Credit is awarded for only one of the following courses: PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 092 or 094 who complete PHYS008 will surrender the AP or Transfer Credit.
For BA Students: Physical World Sector
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit
Notes: Credit is awarded for only one of the following courses: PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 092 or 094 who complete PHYS 008 will thereby surrender the AP or Transfer Credit.

PHYS 016 Energy, Oil, and Global Warming
An introduction to the classical laws of mechanics, including static equilibrium, elasticity, and oscillations, with emphasis on topics most relevant to students in architecture. Credit is awarded for only one of the following courses: PHYS 008, PHYS 101, PHYS 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 091 or 093 who complete PHYS 008 will thereby surrender the AP or Transfer Credit.
For BA Students: Natural Science and Math Sector
Course offered fall; odd-numbered years
Prerequisites: Entrance credit in algebra and trigonometry.
Activity: Lecture
1 Course Unit
Notes: Credit is awarded for only one of the following courses: PHYS 008, PHYS 101, PHYS 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 091 or 093 who complete PHYS 008 will thereby surrender the AP or Transfer Credit.

PHYS 050 Physics Laboratory I
Experiments in classical mechanics.
One-term course offered either term
Prerequisites: AP score of 5 on the Physics B or Physics C - Mechanics exam, or transfer credit for PHYS 91 or PHYS 93. Only for students with above prerequisites.
Activity: Laboratory
0.5 Course Units
Notes: Course carries .5 course unit and student receives grade. Permit required. Only for students with above prerequisites.

PHYS 051 Physics Laboratory II
Experiments in electromagnetism and optics.
One-term course offered either term
Prerequisites: AP score of 5 on the Physics B or Physics C - Electricity and Magnetism exam, or transfer credit for PHYS 92 or PHYS 94.
PHYS 050. Only for students with above prerequisites.
Activity: Laboratory
0.5 Course Units
Notes: Course carries .5 course unit and student receives grade. Permit required. Only for students with above prerequisites.

PHYS 080 Physics and Consciousness
We will explore the link between physics, physical models and quantitative thinking to areas of consciousness and brain research. This will include examples and phenomena in classical and quantum physics, the nature of physical measurements, observation, the role of the observer, the role of the human mind in interpreting reality and consciousness. Brain imaging studies enabled by physical phenomena may be used to support certain theories of how we process information. The course will be based on cutting edge physical phenomena and as quantitative as possible. We will explore related areas of psychology including the area of emotions and try to explore new links between them and the limits of quantitative approaches in these topics. We will explore decision making and links to quantum theories. For example, the making of a decision has been hypothesized to collapse "a thought wave into a particle". Much of human thinking is probabilistic in nature and we will link this to physics. We will explore topics of quantum entanglement, quantum computing, information, and free will. We will explore other work showing that quantum models were able to predict effects shown in national surveys. We will explore how the brain works, how this is linked to physics, physicists' ways of thinking, as well as psychology (and develop useful methods for rational living).
For BA Students: Natural Science and Math Sector
Activity: Lecture
1 Course Unit
PHYS 101 General Physics: Mechanics, Heat and Sound
An introduction to the classical laws of motion, including kinematics, forces in nature, Newton's laws of motion, conservation of energy and momentum, fluid statics and dynamics, oscillations, and waves. Suggested for students in a pre-health program. Credit is awarded for only one of the following courses: PHYS 008, PHYS 101, PHYS 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 91 or PHYS 93 who complete PHYS 101 will thereby surrender the AP or Transfer Credit.
For BA Students: Physical World Sector
Course offered summer, fall and spring terms
Prerequisites: Entrance credit in algebra and trigonometry.
Corequisite: PHYS 101 LAB
Activity: Lecture
1.5 Course Unit
Notes: Credit is awarded for only one of the following courses: PHYS 008, PHYS 101, PHYS 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 91 or PHYS 93 who complete PHYS 101 will thereby surrender the AP or Transfer Credit.

PHYS 102 General Physics: Electromagnetism, Optics, and Modern Physics
A continuation of PHYS 101 emphasizing an introduction to classical electricity and magnetism, light and optics, special relativity, the quantum theory of matter, and nuclear physics. Suggested for students in a pre-health program. Credit is awarded for only one of the following courses: PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 92 or PHYS 94 who complete PHYS 102 will thereby surrender the AP or Transfer Credit.
For BA Students: Physical World Sector
Course offered summer, fall and spring terms
Prerequisites: PHYS 101, 150, or 170, entrance credit in algebra and trigonometry.
Corequisite: PHYS 102 LAB
Activity: Lecture
1 Course Unit
Notes: Credit is awarded for only one of the following courses: PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 92 or PHYS 94 who complete PHYS 102 will thereby surrender the AP or Transfer Credit.

PHYS 137 Community Physics Initiative
This is an Academically Based Community Service Course (ABCS). It will be aligned to the Philadelphia School District curriculum in introductory physics at University City High School (UCHS). The UCHS curriculum roughly parallels the contents of first semester introductory physics (non-calculus) at Penn.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PHYS 140 Principles of Physics I (without laboratory)
The topics of this calculus-based course are: Classical laws of motions; interactions between particles; conservation laws and symmetry principles; particle and rigid body motion; gravitation, harmonic motion, and applications of mechanics to real-world problems. Engineering students only.
One-term course offered either term
Corequisite: MATH 104
Activity: Lecture
1 Course Unit
Notes: For Engineering students whose course of study does not require a physics laboratory course. Those who are enrolled in a dual degree program with the College must register for the lab-based version of this course, PHYS 150.

PHYS 141 Principles of Physics II (without laboratory)
The topics of this calculus-based course are: Electric and magnetic fields; Coulomb's, Gauss's, Ampere's, and Faraday's laws; DC and AC circuits; Maxwell's equations and electromagnetic radiation. Engineering students only.
Course offered summer, fall and spring terms
Prerequisite: PHYS 140
Corequisite: MATH 114
Activity: Lecture
1 Course Unit
Notes: For Engineering students whose course of study does not require a physics laboratory course. Those who are enrolled in a dual degree program with the College must register for the lab-based version of this course, PHYS 151.

PHYS 150 Principles of Physics I: Mechanics and Wave Motion
This calculus-based course is recommended for science majors and engineering students. Classical laws of motion; interactions between particles; conservation laws and symmetry principles; particle and rigid body motion; gravitation, harmonic motion, and applications of mechanics to real-world problems. Credit is awarded for only one of the following courses: PHYS 008, PHYS 101, PHYS 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 91 or PHYS 93 who complete PHYS 150 will thereby surrender the AP or Transfer Credit.
For BA Students: Physical World Sector
One-term course offered either term
Prerequisites: Students in PHYS 150 should already have taken MATH 104 or the equivalent, or be taking it simultaneously with PHYS 150
Corequisite: PHYS 150 LAB
Activity: Lecture
1.5 Course Unit
Notes: Credit is awarded for only one of the following courses: PHYS 008, PHYS 101, PHYS 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 91 or PHYS 93 who complete PHYS 150 will thereby surrender the AP or Transfer Credit.
PHYS 151 Principles of Physics II: Electromagnetism and Radiation
The topics of this calculus-based course are electric and magnetic fields; Coulomb's, Gauss's, Ampere's, and Faraday's laws; DC and AC circuits; Maxwell's equations and electromagnetic radiation. Credit is awarded for only one of the following courses. PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 92 or PHYS 94 who complete PHYS 151 will thereby surrender the AP or Transfer Credit. For BA Students: Physical World Sector
Course offered summer, fall and spring terms
Prerequisites: PHYS 150; Students in PHYS 151 should already have taken MATH 114 or the equivalent, or be taking it simultaneously with PHYS 151
Corequisite: PHYS 151 LAB
Activity: Lecture
1.5 Course Unit
Notes: Credit is awarded for only one of the following courses. PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 92 or PHYS 94 who complete PHYS 151 will thereby surrender the AP or Transfer Credit.

PHYS 170 Honors Physics I: Mechanics and Wave Motion
This course parallels and extends the content of PHYS 150, at a significantly higher mathematical level. Recommended for well-prepared students in engineering and the physical sciences, and particularly for those planning to major in physics. Classical laws of motion: interaction between particles; conservation laws and symmetry principles; rigid body motion; non-inertial reference frames; oscillations. Credit is awarded for only one of the following courses: PHYS 008 PHYS 101, 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 91 or PHYS 93 who complete PHYS 170 will thereby surrender the AP or Transfer Credit. For BA Students: Physical World Sector
Course usually offered in fall term
Prerequisite: MATH 104 or permission of instructor
Corequisites: MATH 114 or MATH 116, PHYS 170 lab
Activity: Seminar
1.5 Course Unit
Notes: Benjamin Franklin Seminar. Credit is awarded for only one of the following courses: PHYS 008 PHYS 101, 150, or PHYS 170. Students with AP or Transfer Credit for PHYS 91 or PHYS 93 who complete PHYS 170 will thereby surrender the AP or Transfer Credit.

PHYS 171 Honors Physics II: Electromagnetism and Radiation
This course parallels and extends the content of PHYS 151, at a somewhat higher mathematical level. Recommended for well-prepared students in engineering and the physical sciences, and particularly for those planning to major in physics. Electric and magnetic fields; Coulomb's, Ampere's, and Faraday's laws; special relativity; Maxwell's equations, electromagnetic radiation. Credit is awarded for only one of the following courses: PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 92 or PHYS 94 who complete PHYS 171 will thereby surrender the AP or Transfer Credit. For BA Students: Physical World Sector
Course usually offered in spring term
Prerequisites: Math 114 or Math 116 and Phys 150 or Phys 170, or permission of the instructor
Corequisites: MATH 240, MATH 260 or permission of instructor
Activity: Seminar
1.5 Course Unit
Notes: Benjamin Franklin Seminar. Credit is awarded for only one of the following courses: PHYS 009, PHYS 102, PHYS 151, or PHYS 171. Students with AP or Transfer Credit for PHYS 92 or PHYS 94 who complete PHYS 171 will thereby surrender the AP or Transfer Credit.

PHYS 230 Principles of Physics III: Thermal Physics and Waves
Laws of thermodynamics, gas laws and heat engines. Waves on a string, electromagnetic waves including optical phenomena such as refraction, interference and diffraction. Introduction to special relativity including time dilation, length contraction, simultaneity, Lorentz transforms and relativistic energy and momentum. Students are encouraged but not required to take Math 240 concurrently or in advance. Course usually offered in fall term
Prerequisites: PHYS 150/151 or PHYS 170/171 and MATH 104, MATH 114 or 116
Corequisite: MATH 240
Activity: Lecture
1 Course Unit

PHYS 240 Principles of Physics IV: Modern Physics (without laboratory)
An introduction to the experimental basis for and principles of quantum mechanics, properties of electrons, protons, neutrons, and the elements of atomic structure and nuclear structure. Electromagnetic radiation and photons; interaction of photons with electrons, atoms, and nuclei. Students are encouraged but not required to take Math 241 concurrently or in advance. Course usually offered in spring term
Prerequisite: PHYS 150/151 or PHYS 170/171
Corequisite: MATH 240 (Note: MATH 240 will become a prerequisite in Spring 2019)
Activity: Lecture
1 Course Unit

PHYS 250 Principles of Physics IV: Modern Physics
An introduction to the experimental basis for and principles of quantum mechanics, properties of electrons, protons, neutrons, and the elements of atomic structure and nuclear structure. Electromagnetic radiation and photons; interaction of photons with electrons, atoms, and nuclei. Students are encouraged but not required to take Math 241 concurrently or in advance. Course usually offered in spring term
Prerequisite: PHYS 150/151 or PHYS 170/171
Corequisites: MATH 240. (Note: MATH 240 will become a prerequisite in Spring 2019)
Activity: Lecture
1.5 Course Unit
Notes: PHYS 250 students take a two-hour lab

PHYS 280 Physical Models of Biological Systems
Classic case studies of successful reductionistic models of complex phenomena, emphasizing the key steps of making estimates, using them to figure out which physical variables and phenomena will be most relevant to a given system, finding analogies to purely physical systems whose behavior is already known, and embodying those in a mathematical model, which is often implemented in computer code. Topics may include bacterial genetics, genetic switches and oscillators; systems that sense or utilize light; superresolution and other newmicroscopy methods; and vision and other modes of sensory transduction. Course usually offered in fall term
Prerequisites: PHYS 101 (or higher), MATH 104-MATH 114 or MATH 104-MATH 115 or MATH 116. Recommended: previous or concurrent PHYS 102; basic background in chemistry and biology.
Activity: Lecture
1 Course Unit
PHYS 299 Independent Study
Special projects and independent study under the direction of faculty member.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Repetitive credit

PHYS 314 Ocean-Atmosphere Dynamics and Implications for Future Climate Change
This course covers the fundamentals of atmosphere and ocean dynamics, and aims to put these in the context of climate change in the 21st century. Large-scale atmospheric and oceanic circulation, the global energy balance, and the global energy balance, and the global hydrological cycle. We will introduce concepts of fluid dynamics and we will apply these to the vertical and horizontal motions in the atmosphere and ocean. Concepts covered include: hydrostatic law, buoyancy and convection, basic equations of fluid motions, Hadley and Ferrel cells in the atmosphere, thermohaline circulation, Sverdrup ocean flow, modes of climate variability (El-Nino, North Atlantic Oscillation, Southern Annular Mode). The course will incorporate student led discussions based on readings of the 2007 Intergovernmental Panel on Climate Change (IPCC) report and recent literature on climate change. Aimed at undergraduate or graduate students who have no prior knowledge of meteorology or oceanography or training in fluid mechanics. Previous background in calculus and/or introductory physics is helpful. This is a general course which spans many subdisciplines (fluid mechanics, atmospheric science, oceanography, hydrology).
Taught by: Marinov
Prerequisites: MATH 114 or permission of the instructor.
Activity: Lecture
1 Course Unit

PHYS 351 Analytical Mechanics
An intermediate course in the statics and dynamics of particles and rigid bodies. Lagrangian dynamics, central forces, non-inertial reference frames, and rigid bodies.
Course usually offered in spring term
Prerequisites: PHYS 150/151 or PHYS 170/171, MATH 104/114, and MATH 240, or permission of instructor.
Activity: Lecture
1 Course Unit

PHYS 360 Statistics, Data Mining, and Machine Learning
This is a practical course on computing, numerical methods, statistics, and data analysis techniques with particular emphasis on data mining and machine learning applied to large datasets. Topics include basic numerical methods and algorithms, probability theory, classical and Bayesian statistical inference, model fitting, Monte Carlo methods, and classification. We will be using Python for the exercises. Prior experience in programming (in any language) is required.
Prerequisites: MATH240, CIS110 or prior experience in programming
Activity: Lecture
1 Course Unit

PHYS 361 Electromagnetism I: Electricity and Potential Theory
First term course in intermediate electromagnetism. Topics include electrostatics, static potential theory, multipole expansions, Laplace equation, image solutions, fields in polarized matter.
Course usually offered in fall term
Prerequisites: PHYS 151 or 171, and MATH 241
Activity: Lecture
1 Course Unit

PHYS 362 Electromagnetism II: Magnetism, Maxwell's Equations, and Electromagnetic Waves
Second term course in intermediate electromagnetism. Topics include magnetostatic forces and fields, magnetized media, Maxwell’s equations, Poynting and stress theorems, free field solutions to Maxwell’s equations, and radiation from separable and nonseparable time dependent charge and current distributions.
Course usually offered in spring term
Prerequisite: PHYS 361
Activity: Lecture
1 Course Unit

PHYS 364 Laboratory Electronics
A laboratory-intensive survey of analog and digital electronics, intended to teach students of physics or related fields enough electronics to be effective in experimental research and to be comfortable learning additional topics from reference textbooks. Analog topics include voltage dividers, impedance, filters, operational amplifier circuits, and transistor circuits. Digital topics may include logic gates, finite-state machines, programmable logic devices, digital-to-analog and analog-to-digital conversion, and microcomputer concepts. Recommended for students planning to do experimental work in physical science.
One-term course offered either term
Prerequisites: Familiarity with electricity and magnetism at the level of PHYS 102, 141, 151 or 171.
Activity: Lecture
1 Course Unit

PHYS 401 Thermodynamics and the Introduction to Statistical Mechanics and Kinetic Theory
Entropy, temperature, and introduction to ensemble theory, distribution functions, and phase transitions.
Course usually offered in fall term
Prerequisite: PHYS 240 or 250
Activity: Lecture
1 Course Unit

PHYS 411 Introduction to Quantum Mechanics I
An introduction to the principles of quantum mechanics designed for physics majors and graduate students in physics-related disciplines. The Schrodinger equation operator formalism, central field problem, angular momentum, and spin. Application to one-dimensional and central field problems.
Course usually offered in fall term
Prerequisites: PHYS 150 or 170, 240 or 250, and MATH 240 or MATH 260
Activity: Lecture
1 Course Unit

PHYS 412 Introduction to Quantum Mechanics II
Perturbation theory, variational principle, application of the quantum theory to atomic, molecular, and nuclear systems, and their interaction with radiation.
Course usually offered in spring term
Prerequisite: PHYS 411
Activity: Lecture
1 Course Unit
PHYS 414 Laboratory in Modern Physics
In this course you will have the opportunity to do a variety of experiments, ranging from "classic experiments" such as measuring $G$ with a torsion balance, determining the relativistic mass of the electron, and muon lifetime, to experiments studying atomic spectroscopy, NMR, Optical pumping, Mossbauer effect, nuclear energy levels, interaction of gamma rays with matter, single photon interference, and magnetic susceptibility. There are also experiments using a High-Tc superconducting tunnel junction and a PET scanner. You will learn basic statistics, become proficient in analysis using Python, acquire an understanding of systematic errors, and learn how to write a professional report. Many of the laboratories provide excellent opportunities to exercise, and expand upon, the knowledge you have gained in your physics courses.
Course usually offered in spring term
Prerequisite: PHYS 411
Activity: Lecture
1 Course Unit

PHYS 421 Modern Optics
Course not offered every year
Prerequisites: PHYS 240 or 250 and 362, or permission of instructor
Activity: Lecture
1 Course Unit

PHYS 433 Order of Magnitude Physics
This course focuses on the art of estimating physical quantities to within the nearest factor of ten. Problem solving techniques such as dimensional analysis and scaling relations will be covered and applied to a wide range of topics including fluid mechanics, waves and sound, atomic physics, material properties, astrophysics, everyday life, and more. The course is intended for advanced undergraduate students.
One-term course offered either term
Prerequisite: Prerequisites: PHYS 411 or permission from instructor
Activity: Lecture
1 Course Unit

PHYS 499 Senior Honor Thesis
Experimental and theoretical research projects in various areas of physics planned by student in consultation with a member of faculty. A written thesis and an oral presentation and defense are required.
One-term course offered either term
Prerequisites: PHYS 412 and 414
Activity: Independent Study
1 Course Unit

PHYS 500 Mathematical Methods of Physics
A discussion of those concepts and techniques of classical analysis employed in physical theories. Topics include complex analysis, Fourier series and transforms, ordinary and partial equations, Hilbert spaces, among others.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PHYS 501 Introduction to Research
Introduction to research in particle, nuclear, condensed matter and astrophysics. Selected current topics from journals.
One-term course offered either term
Activity: Lecture
0 Course Units
Notes: Taken by all first-year graduate students. This is a required seminar that does not carry credit or a grade.

PHYS 503 General Relativity
This is a graduate level, introductory course in general relativity. The basics of general relativity will be covered with a view to understanding the mathematical background, the construction of the theory, and applications to the solar system, black holes, gravitational waves and cosmology. The latter part of the course will cover some of the basic modern topics in modern cosmology, including the current cosmological model, the accelerating universe, and open questions driving current research.
One-term course offered either term
Activity: Lecture
1 Course Unit

PHYS 505 Introduction to Cosmology
Introduction to physical cosmology emphasizing recent ideas on the very early evolution of the universe. The course will introduce standard big bang cosmology, new theories of the very early universe, and the key observations that have tested and will be testing these ideas. No prior knowledge of astrophysics, cosmology, general relativity, or particle physics will be assumed, although aspects of each will be introduced as part of the course. The course is intended for graduate students and advanced undergraduates.
Course offered spring; odd-numbered years
Prerequisite: Graduate standing in physics or permission of instructor
Activity: Lecture
1 Course Unit

PHYS 516 Electromagnetic Phenomena
Survey of electrodynamics, focusing on applications to research done in the Department. Topics include mathematical structure and relativistic invariance properties of Maxwell equations, tensor methods, and the generation and scattering of radiation, in vacuum and in materials. Applications vary from year to year but include optical manipulation, astrophysical phenomena, and the generalizations from Maxwell's theory to those of other fundamental interactions (strong, electroweak, and gravitational forces).
Course usually offered in spring term
Activity: Lecture
1 Course Unit

PHYS 517 Particle Cosmology
This introduction to cosmology will cover standard big bang cosmology, formation of large-scale structure, theories of the early universe and their observational predictions, and models of dark energy. It is intended for graduate students or advanced undergraduates. No prior knowledge of general relativity or field theory will be assumed, although aspects of each will be introduced as part of the course.
One-term course offered either term
Activity: Lecture
1 Course Unit
PHYS 518 Introduction to Condensed Matter Physics
An introduction to condensed matter physics designed primarily for advanced undergraduate and graduate students desiring a compact survey of the field. Band theory of solids, phonons, electrical magnetic and optical properties of matter, and superconductivity.
Course usually offered in spring term
Prerequisites: Undergraduate training in quantum mechanics and statistical thermodynamics
Activity: Lecture
1 Course Unit

PHYS 521 Advanced Laboratory
In this course you will have the opportunity to do a variety of experiments, ranging from "classic experiments" such as measuring G with a torsion balance, determining the relativistic mass of the electron, and muon lifetime, to experiments studying atomic spectroscopy, NMR, Optical pumping, Mossbauer effect, nuclear energy levels, interaction of gamma rays with matter, single photon interference, and magnetic susceptibility. There are also experiments using a High-Tc superconducting tunnel junction and a PET scanner. You will learn basic statistics, become proficient in analysis using Python, acquire an understanding of systematic errors, and learn how to write a professional report. Many of the laboratories provide excellent opportunities to exercise, and expand upon, the knowledge you have gained in your physics courses.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

PHYS 522 Introduction to Elementary Particle Physics
An introduction to elementary particles (photons, leptons, hadrons, quarks), their interactions, and the unification of the fundamental forces.
Course not offered every year
Prerequisites: Permission of instructor required.
Activity: Lecture
1 Course Unit

PHYS 526 Astrophysical Radiation
This is a course on the theory of the interaction of light and matter designed primarily for graduate and advanced undergraduate students to build the basic tools required to do research in astrophysics. Topics to be discussed include structure of single- and multi-electron atoms, radiative and collisional processes, spectral line formation, opacity, radiation transfer, analytical and numerical methods, and a selection of applications in astrophysics based on student research interest.
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit

PHYS 528 Introduction to Liquid Crystals
Overview of liquid crystalline phases, their elasticity, topology, and dynamics.
One-term course offered either term
Activity: Lecture
1 Course Unit

PHYS 529 Modern Optics
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit

PHYS 530 Modern Optical Physics and Spectroscopy
Introduction to contemporary optics. Topics include propagation and guiding of light waves, interaction of electromagnetic radiation with matter, lasers, non-linear optics, coherent transient phenomena, photon correlation spectroscopies and photon diffusion.
Course not offered every year
Prerequisites: Working knowledge of electricity and magnetism and quantum mechanics. For example, at least at the level of Physics 362, PHYS 411.
Activity: Lecture
1 Course Unit
Notes: Graduate level course designed for beginning or intermediate graduate students in physics, but it is likely to be of use to a broader community including beginning graduate students whose research involves light scattering in electrical engineering, chemistry, and biophysics, and advanced undergraduates.

PHYS 531 Quantum Mechanics I
Graduate-level introduction to quantum theory. Topics covered include the postulates of quantum mechanics, unitary operators, time evolution and Schrodinger’s equation, theory of angular momentum, density matrices, and Bell’s inequalities. Other topics may include semi-classical (WKB) approximation, bound state techniques, periodic potentials and resonance phenomena.
Course usually offered in fall term
Prerequisites: A minimum of one semester of quantum mechanics at the advanced undergraduate level.
Activity: Lecture
1 Course Unit

PHYS 532 Quantum Mechanics II
Continuation of PHYS 531. Topics covered include the path integral formulation, symmetries in quantum mechanics, scattering theory, and decoherence. Other topics may include time independent and time dependent perturbation theory, and atomic and molecular systems.
Course usually offered in spring term
Prerequisite: PHYS 531
Activity: Lecture
1 Course Unit

PHYS 533 Topics in Cosmology
This course aims to survey three or four topics of current research interest in cosmology, mostly at the level of review articles. The topics will be covered in greater depth and with more connections to ongoing research than the introductory cosmology course, ASTR 525. The course will be largely accessible to first and second year graduate students. Some exposure to cosmology and general relativity will be helpful but the first two weeks will attempt to bridge that gap. The topic selection will be done in part with input from the students.
Course not offered every year
Activity: Lecture
1 Course Unit
PHYS 535 Topics in Theory of Living Systems
The goal of this course is to discuss broad conceptual theories that address complex phenomena of living systems. Example questions include: what is the molecular architecture of information processing in cells and developing organisms? What is the functional architecture of cooperative organization from molecules in a cell to whole organism social interactions? How is complex multi-factorial information represented in organisms? The course will meet once a week and students will research relevant papers, lead discussions, and generate synopsis of group discussions. At the end of the semester, faculty and students are expected to co-author a review report of the discussed topics.
Taught by: Kim, Goulian, Akcay, Balasubramanian, Raj, Mossel
Course not offered every year
Prerequisite: Permission of instructor
Activity: Seminar
0.5 Course Units

PHYS 561 Electromagnetism I
First term course in intermediate electromagnetism. Topics include electrostatics, static potential theory, multipole expansions, Laplace equation, image solutions, fields in polarized matter.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PHYS 562 Electromagnetism II: Magnetism, Maxwell's Equations, and Electromagnetic Waves
Second term course in intermediate electromagnetism. Topics include magnetostatic forces and fields, magnetized media, Maxwell's equations, Poynting and stress theorems, free field solutions to Maxwell's equations, and radiation from separable and nonseparable time dependent charge and current distributions.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

PHYS 564 Laboratory Electronics
A laboratory-intensive survey of analog and digital electronics, intended to teach students of physics or related fields enough electronics to be comfortable learning additional topics on their own from a reference such as Horowitz and Hill. Specific topics will vary from year to year from the selection of topics listed below. Analog topics may include voltage dividers, impedance, filters, operational amplifier circuits, and transistor circuits. Digital topics may include logic gates, finite-state machines, programmable logic devices, digital-to-analog and analog-to-digital conversion, and microcomputer concepts. Recommended for students planning to do experimental work in physical science.
One-term course offered either term
Activity: Lecture
1 Course Unit

PHYS 580 Biological Physics
The course will explore the basic physical principles behind the structure and function of life across many length and time scales (molecule, cell, organism, population). Emphasis will be given on overarching physical themes such as entropy and biological noise, and how they affect the organization of living matter and its emergent properties. Topics may include biopolymers and single molecule biophysics, molecular motors, gene and transcription networks, pattern formation in biological systems, phyllotaxis, neural computing and evolution.
Course not offered every year
Prerequisites: MATH 240 and MATH 241 (or equivalent preparation), PHYS 401 or familiarity with statistical mechanics and thermodynamics.
Activity: Lecture
1 Course Unit
Notes: Recommended: Basic background in biology.

PHYS 581 Thermodynamics
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PHYS 582 Medical Radiation Engineering
This course in medical radiation physics investigates electromagnetic and particulate radiation and its interaction with matter. The theory of radiation transport and the basic concept of dosimetry will be presented. The principles of radiation detectors and radiation protection will be discussed.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PHYS 585 Theoretical and Computational Neuroscience
This course will develop theoretical and computational approaches to structural and functional organization in the brain. The course will cover: (i) the basic biophysics of neural responses, (ii) neural coding and decoding with an emphasis on sensory systems, (iii) approaches to the study of networks of neurons, (iv) models of adaptation, learning and memory, (v) models of decision making, and (vi) ideas that address why the brain is organized the way that it is. The course will be appropriate for advanced undergraduates and beginning graduate students. A knowledge of multi-variable calculus, linear algebra and differential equations is required (except by permission of the instructor). Prior exposure to neuroscience and/or Matlab programming will be helpful.
Course usually offered in spring term
Also Offered As: BE 530, NGG 594
Activity: Lecture
1 Course Unit

PHYS 601 Introduction to Field Theory
Elementary relativistic quantum field theory of scalar, fermion, and Abelian gauge fields. Feynman Diagrams.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PHYS 611 Statistical Mechanics
Course usually offered in fall term
Prerequisites: PHYS 401, 531, or equivalent
Activity: Lecture
1 Course Unit
PHYS 612 Advanced Statistical Mechanics
In depth study of classical and quantum lattice spin models, perturbation techniques, and the renormalization group.
Course not offered every year
Prerequisite: PHYS 611 or equivalent
Activity: Lecture
1 Course Unit

PHYS 622 Introduction to Elementary Particle Physics
Introduction to the phenomenology of elementary particles, strong and weak interactions, symmetries.
Course not offered every year
Prerequisite: PHYS 601
Activity: Lecture
1 Course Unit

PHYS 632 Relativistic Quantum Field Theory
Advanced topics in field theory, including renormalization theory.
Course not offered every year
Prerequisite: PHYS 601
Activity: Lecture
1 Course Unit

PHYS 633 Relativistic Quantum Field Theory
A continuation of PHYS 632, dealing with non-Abelian gauge theories.
Course not offered every year
Prerequisite: PHYS 632
Activity: Lecture
1 Course Unit

PHYS 661 Solid State Theory I
This course is intended to be an introductory graduate course on the physics of solids, crystals and liquid crystals. There will be a strong emphasis on the use and application of broken and unbroken symmetries in condensed matter physics. Topics covered include superconductivity and superfluidity.
Course not offered every year
Activity: Lecture
1 Course Unit

PHYS 662 Solid State Theory II
A continuation of PHYS 661.
Course not offered every year
Activity: Lecture
1 Course Unit

PHYS 696 Advanced Topics in Theoretical Physics
Course not offered every year
Activity: Lecture
1 Course Unit

PHYS 990 Masters Thesis
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

PHYS 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit

PHYS 999 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
POLITICAL SCIENCE (PSCI)

PSCI 010 Freshman Seminars
Freshmen seminars are small, substantive courses taught by members of the faculty and open only to freshmen. These seminars offer an excellent opportunity to explore areas not represented in high school curricula and to establish relationships with faculty members around areas of mutual interest. See www.college.upenn.edu/admissions/freshmen.php
One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 107 Introduction to Data Science
Understanding and interpreting large, quantitative data sets is increasingly central in political and social science. Whether one seeks to understand political communication, international trade, inter-group conflict, or other issues, the availability of large quantities of digital data has revolutionized the study of politics. Nonetheless, most data-related courses focus on statistical estimation, rather than on the related but distinctive problems of data acquisition, management and visualization—in a term, data science. This course addresses that imbalance by focusing squarely on data science. Leaving this course, students will be able to acquire, format, analyze, and visualize various types of political data using the statistical programming language R. This course is not a statistics class, but it will increase the capacity of students to thrive in future statistics classes. While no background in statistics or political science is required, students are expected to be generally familiar with contemporary computing environments (e.g. know how to use a computer) and have a willingness to learn a variety of data science tools. You are encouraged (but certainly not required) to register for both this course and PSCI 338 at the same time, as the courses cover distinct, but complimentary material.
Taught by: Hopkins
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 110 Introduction to Comparative Politics
This course is designed to introduce students to comparative political analysis. How can the political behavior, circumstances, institutions, and dynamic patterns of change that people experience in very different societies be analyzed using the same set of concepts and theories? Key themes include nationalism, political culture, democratization, authoritarianism, and the nature of protracted conflict.
For BA Students: Society Sector
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 116 Political Change in the "Third World"
This is a comparative politics course that examines political and socio-economic change in the so-called "Third World," defined here as post-colonial developing areas in Asia, Africa and Latin America. The course is not as concerned with keeping up with current events as with analyzing the relationships between colonial legacies, the initial challenges of post-colonial political and socioeconomic development, and how these interact with contemporary problems and global trends. Although chiefly concerned with "political change" within countries, it will also devote substantial attention to economic, socio-cultural and international factors. The course is divided into three parts. The first examines the common and distinctive features of colonial rule in different regions as well as the varying challenges of political and economic development in diverse post-colonial settings. The second part focuses on elaborating on the themes developed in the first by looking more closely at the developmental experiences of Brazil, India, Algeria, Iran, Nigeria, and South Korea (with passing references to other countries as comparative referents). The third part focuses on trends and challenges that have emerged over the last two decades - including market reforms, democratization, and problems related to gender and the environment. For BA Students: Society Sector
Taught by: Sil
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 130 Introduction to American Politics
This course is intended to introduce students to the national institutions and political processes of American government. What are the historical and philosophical foundations of the American Republic? How does American public policy get made, who makes it, and who benefits? Is a constitutional fabric woven in 1787 good enough for today? How, if at all, should American government be changed, and why? What is politics and why bother to study it? If these sorts of questions interest you, then this course will be a congenial home. It is designed to explore such questions while teaching students the basics of American politics and government.
For BA Students: Society Sector
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 131 American Foreign Policy
This course analyzes the formation and conduct of foreign policy in the United States. The course combines three elements: a study of the history of American foreign relations; an analysis of the causes of American foreign policy such as the international system, public opinion, and the media; and a discussion of the major policy issues in contemporary U.S. foreign policy, including terrorism, civil wars, and economic policy.
Taught by: Horowitz, Vitalis
One-term course offered either term
Activity: Recitation
1 Course Unit
PSCI 135 The Politics of Food and Agriculture
Students will use course readings and their community service to analyze the institutions, ideas, interests, social movements, and leadership that shape the “politics of food” in different arenas. Service opportunities include work with the Urban Nutrition Initiative, Community School Student Partnerships, and the possibility of other placements as approved by the professors.
Taught by: Summers
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 136 Urban Politics in the United States
This course explores the political character of contemporary urban American life. Particular attention is given to the relationship between urban politics and policymaking – including the structural and ideological factors (e.g., dynamics of political economy, race, ethnicity, pluralism and gender) that constrain the policy context and shape the urban environment as a terrain for commingling, competition and conflict over uses of space. It makes considerable use of case studies to throw into relief the complex and sometimes subtle processes that shape urban life.
For BA Students: Society Sector
Taught by: Reed
Course usually offered in spring term
Activity: Lecture
1 Course Unit

PSCI 139 Politics Of Poverty & Development
This academically based community service seminar will explore the ideas and theories, alliances and opposition that have shaped policy and organizing efforts addressed to the problems associated with urban poverty in the United States. There will be a special focus on the issues of increasing inequality, education, low wage work, health and nutrition, welfare reform and social security. Students will evaluate contemporary policy debates and programs in the light of selected case studies, readings, and their own experience working with community groups, institutions, and federal programs in West Philadelphia.
For BA Students: Humanities and Social Science Sector
Taught by: Summers
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 144 Communism
The rise and fall of Communism dominated the history of the short twentieth century from the Russian revolution of 1917 to the collapse of the Soviet Union in 1991. As a system of government, Communism is more or less dead, but its utopian ideals of liberation from exploitation and want live on. Communism remains the one political-economic system that presented, for a time, an alternative to global capitalism. In this course, students will gain an introduction to socialist and Communist political thought and explore Communist political and economic regimes - their successes and failures, critics and dissidents, efforts at reform, and causes of collapse. We will learn about the remnants of Communism in China, North Korea, and Cuba and efforts of contemporary theorists to imagine a future for Communism.
For BA Students: Society Sector
Taught by: Orenstein
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 150 Introduction to International Relations
This course is an introduction to the major theories and issues in international politics. The goals of the course are to give students a broad familiarity with the field of international relations, and to help them develop the analytical skills necessary to think critically about international politics. The course is divided into four parts: 1) Concepts and Theories of International Relations; 2) War and Security; 3) The Global Economy; and 4) Emerging Issues in International Relations.
For BA Students: Society Sector
Taught by: Mansfield
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 151 International Security
This lecture course introduces students to the subfield of international security or strategic studies. In order to grasp the usefulness of the theoretical ideas presented in readings and lectures, abstract concepts are linked with a study of the national security policies states have adopted in the decades following World War II. Topics include current debates about nuclear proliferation, terrorism, the Iraq war, Europe’s changing international role, the rise of China, Asian “flashpoints” (Korea, the Taiwan Strait), and US security policy for the 21st century - considering some of the main strategic alternatives to the US as well as their implications for the types of forces deployed (the impact of the “revolution in military affairs;” the future of missile defense, and the economic burden to be shouldered).
Taught by: Goldstein
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 152 International Political Economy
This course examines the politics of international economic relations. The course will analyze the interplay between politics and economics in three broad areas: international trade, international finance, and economic development. In each section, we will first discuss economic theories that explain the causes and consequences of international commerce, capital flows, and economic growth. We will then explore how political interests, institutions, and ideas alter these predictions, examining both historical examples and current policy debates.
Taught by: Gray,Brutger
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 150 Introduction to International Relations
This course is an introduction to the major theories and issues in international politics. The goals of the course are to give students a broad familiarity with the field of international relations, and to help them develop the analytical skills necessary to think critically about international politics. The course is divided into four parts: 1) Concepts and Theories of International Relations; 2) War and Security; 3) The Global Economy; and 4) Emerging Issues in International Relations.
For BA Students: Society Sector
Taught by: Mansfield
One-term course offered either term
Activity: Recitation
1 Course Unit
PSCI 153 International Law & Institutions
This lecture course examines the role that international law and institutions play in international relations. The course begins by exploring broad theoretical questions - questions about why states create international law and international institutions; how states design institutions; the impact that institutional design may have on the effectiveness of international institutions; and the conditions under which states are likely to comply with the rules set out by international institutions and the dictates of international law. Specific topics include collective security institutions such as the League of Nations, the United Nations, and NATO; human rights law; the laws of war; international intervention and peacekeeping; international justice and the International Criminal Court; environmental law; international trade law and the World Trade Organization; economic development and the World Bank; and international finance and the role of the International Monetary Fund.
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 180 Ancient Political Thought
Through reading texts of Plato (Socrates), Aristotle, Augustine and Aquinas, the student encounters a range of political ideas deeply challenging to--and possibly corrosive of--today's dominant democratic liberalism. Can classical and medieval thinking offer insight into modern impasses in political morality? Is such ancient thinking plausible, useful, or dangerous?
For BA Students: History and Tradition Sector
Taught by: Norton, Green
Course not offered every year
Activity: Recitation
0 Course Units

PSCI 181 Modern Political Thought
This course will provide an overview of major figures and themes of modern political thought. We will focus on themes and questions pertinent to political theory in the modern era, particularly focusing on the relationship of the individual to community, society, and state. Although the emergence of the individual as a central moral, political, and conceptual category arguably began in earlier eras, it is in the seventeenth century that it takes firm hold in defining the state, political institutions, moral thinking, and social relations. The centrality of "the individual" has created difficulties, even paradoxes, for community and social relations, and political theorists have struggled to reconcile those throughout the modern era. We will consider the political forms that emerged out of those struggles, as well as the changed and distinctly "modern" conceptualizations of political theory such as freedom, responsibility, justice, rights and obligations, as central categories for organizing moral and political life.
For BA Students: History and Tradition Sector
Taught by: Hirschmann, Norton, Goldman
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 182 Contemporary Political Thought
This course is intended as a general introduction to political theory since 1900, examining prominent theorists of politics including Max Weber, Hannah Arendt, Carl Schmitt, Isaiah Berlin, Jurgen Habermas, John Rawls, Michel Foucault, and Jacques Derrida. Our theme for the Fall 2012 course will be: The Disenchantment of the World? Topics include: the nature of the the political and the concern, particular to the last century, that politics is itself under attack; the spread of liberal democracy across the globe and a critical appraisal of the moral meaning of this regime; contemporary theories of social justice; and an exploration of various issues pertaining to violence and the politics of security.
Taught by: Green, Hirschmann
Course usually offered in fall term
Activity: Recitation
1 Course Unit

PSCI 183 American Political Thought
Whether America begins with the Puritans and the Mayflower Compact, or with the Declaration of Independence and the Revolution, it is founded in resistance to empire. In the generations between, Americans have desired, dreaded and debated empire. This course will focus on empire and imperialism in American political thought. We will read primary texts addressing empire: from the departure and dissent of the Puritans, and Burke's Speech on Conciliation with the Colonies, to twentieth and twenty-first century debates over America's role in the world. These texts will include political pamphlets and speeches, poetry, novels, policy papers and film.
For BA Students: Humanities and Social Science Sector
Taught by: Norton, Hirschmann
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 198 Selected Topics in Political Science
Consult department for detailed descriptions. More than one course may be taken in a given semester. Recent titles have included: The Analysis of Presidential Elections, Conservative Political Economy, and Political Geography.
One-term course offered either term
Activity: Seminar
1 Course Unit
PSCI 208 International Organizations in Latin America
International Organizations play a powerful role in mitigating conflict at the global level. What role do they play in solving problems related to global politics, economic development, corruption, inequality and civil society in Latin America? How much power, influence and control do they possess in the region? This course examines the role and impact of international organizations over the past seventy years of Latin America's history. Students will explore the formation of international organizations such as the IMF, World Bank, UN, OAS and IC and their influence on political, economic, and social change. The course will delve into the rise of communism in 1817, the evolution of Latin American politics and society in the region, and the tensions between ideology and practice over the seventy years of communist rule up until 1985. The second part of the course will examine the confrontation accompanying the adoption of a new constitution, the emergence of competing ideologies and parties, the struggle over economic privatization, the question of federalism and nationalism, and the role of international organizations in economic reform and prospects for Russia's future in the Putin and post-Putin era.
Taught by: O'Leary
Activity: Recitation
1 Course Unit

PSCI 210 Contemporary African Politics
This course provides an introduction to contemporary African politics. The core questions that motivate the course are: (i) What extent are political outcomes in contemporary Africa a consequence of its history, culture, and geography? (ii) Why are state structures and institutions weaker in Africa than elsewhere? (iii) What accounts for Africa's relatively slow economic growth? Why have some African countries been plagued by high levels of political violence while others have not? (iv) What explains the behavior of key African actors: parties or politicians? (v) How do the opportunities for democracy exist in Africa? (vi) What role do women play in African politics? (vii) What are the prospects for democracy in the post-Cold War era? (viii) What role do civil society organizations, such as human rights organizations and the International Olympic Committee, play in Africa?
Taught by: Grossman
Activity: Lecture
1 Course Unit

PSCI 211 Politics in the Contemporary Middle East
This course is an introduction to the most prominent historical, cultural, institutional, and ideological features of Middle Eastern politics. Typical of the questions we shall address are: why processes of modernization and economic change have not produced liberal democracies, why Islamic movements have gained enormous strength in some countries and not others, why conflicts in the region—between Israel and the Arabs, Iran and Iraq, or inside of Lebanon—have been so bitter and protracted; why the era of military coups was brought to an end but transitions to democracy have been difficult to achieve; why Arab unity has been so elusive and yet so persistent a theme; and why oil wealth in the Gulf, in the Arabian Peninsula, and in North Africa, has not produced industrialized or self-sustaining economic growth.
Taught by: Vitalis or Lustick
Activity: Recitation
1 Course Unit

PSCI 213 Latin American Politics
This course examines the dynamics of political and economic change in twentieth-century Latin America, with the goal of achieving an understanding of contemporary politics in the region. We will analyze topics such as the incorporation of the region to the international economy and the consolidation of oligarchic states (1880s to 1930s), corporatism, populism, and elite pacts (1930s and 1940s), social revolution, democratic breakdown, and military rule (1960s and 1970s), transitions to democracy and human rights advocacy (1980s), market-oriented reforms (1990s), and the turn to the left of current governments (2000s). The course will draw primarily from the experiences of Argentina, Brazil, Colombia, Chile, and Mexico. No prior knowledge of the region is required.
Taught by: Falleti
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 215 The European Union
This lecture course, after introductory sessions which outline the EU's core institutions, is built on an exposition of the works of major thinkers who have reflected on the European Union's origins, outcomes, and significance. It critically reviews their arguments, especially their relevance to major recent crises, notably the failure of the European Constitution, the current crisis of credibility facing the Euro. Whether the European Union is a confederation, a federation, an empire, or a novel political formation shall be examined. Whether its recent major widening signals an end to its institutional deepening will be discussed. Whether the Union has "a democratic deficit" is examined, as is the claim that in external relations it represents a novel form of soft power.
Taught by: O'Leary
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 217 Russian Politics
This course will present an in-depth examination of political, economic, and social change in post-Soviet Russia within a historical context. After a brief discussion of contemporary problems in Russia, the first half of the course will delve into the rise of communism in 1917, the evolution of the Soviet regime, and the tensions between ideology and practice over the seventy years of communist rule up until 1985. The second part of the course will begin with an examination of the Gorbachev period and the competing interpretations of how the events between 1985 and 1991 may have contributed to the collapse of the Soviet Union. We will then proceed to make sense of the continuities and changes in politics, economics, and society in contemporary Russia. Important topics will include the confrontations accompanying the adoption of a new constitution, the emergence of competing ideologies and parties, the struggle over economic privatization, the question of federalism and nationalism, and the role of international organizations in economic reform.
Taught by: Sil
Course usually offered in spring term
Activity: Recitation
1 Course Unit
PSCI 218 Politics of Post War Western Europe
This course examines political institutions, processes and events in postwar Western Europe. The focus will be a comparative analysis of such topics as political parties and systems, electoral behavior, as well as social and economic policy. We will also examine the way in which domestic processes and policies interact with membership in the European Union.
Taught by: Lynch
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 219 Contemporary Chinese Politics
This lecture course introduces students to the politics of the Peoples Republic of China. Complementing offerings in other departments, this course emphasizes events in the period since the Chinese Communist Party established its regime in 1949. In addition to surveying the political history of contemporary China, we will assess the meaning of these events by drawing upon theories about the nature and significance of ideology and organization in communist regimes, factionalism and its relationship to policy formulation and implementation, and general issues of political and economic development. Although the principal focus is on the domestic politics of the PRC, the course includes several lectures examining Chinas international relations.
Taught by: Goldstein
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 221 Comparative Health Politics
This course examines the relationship between politics and the health of populations in the worlds rich democracies, including the Unites States. The key questions the course addresses are how and why countries differ in their health care policies, public health policies, and policies that affect the social determinants of health. There are no prerequisites, but prior coursework in comparative politics at the 100 or 200 level will be helpful.
Taught by: Lynch
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 223 Issues Comp Pol/Gender
Struggles over gender roles and rights have been prominent in the Middle East and North Africa since the 19th century and continue to mark contemporary political and social discourses. Since the colonial period, gender categories and sexualities have been critiqued and negotiated on behalf of empire, the nation, modernity, personal freedom; today debates and struggles over global rights, islamic law, and modernity continue to mark politics. Despite the particularity of ideas and events in the region, a comparative framework helps to overcome exoticization of the region and develop a more acute understanding. The topics of the course include engagement with the discourse of the Exotic Other, the effects of modernity, the role of nationalism and the state, state-society negotiation, islamic formulations, and continuously, the question: where does change come from? Issues of the veil and islamic dress the expansion of anti-gay laws, the disciplining of bodies in state and social settings - these issues of gender and sexuality extend the realm of the political into intimate spaces. Assignments include a midterm and a short paper that develops research and analytical skills. The course is 200 level. While background in the study of the Middle East or gender is not necessary, an introductory political science or social science course is required.
Taught by: Harrold
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 224 Political Economy of Development
The course surveys some of the principal themes in the political economies of lower income countries. The questions we shall seek to address cover a broad terrain. Who are the key actors? What are their beliefs, interests and motivations? What are their constraints? How are these being affected by closer economic linkages between national economies? While there is no single integrative framework or paradigm into which these themes neatly fit, a common thread is the changing dynamics and interplay between the local, the national, and the global. A familiarity with basic economic concepts will be helpful, but is not necessary.
Taught by: Kapur
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 225 Sex and Power
Gender has been a primary way of organizing power relations throughout history. This class asks how transformations in the global economy, technological change, new patterns of household formation, and social movements, have influenced women's access to economic and political positions over the past two centuries. We will examine how women's mobilization contributed to the abolition of slavery, reform of property and franchise laws, and to the formation of the welfare state. Next, we turn to thinking about how women's increasing labor force participation was hindered by institutions like marriage bars and union policy. Third, we look at cross-national patterns of women's political participation and descriptive representation including whether and how the adoption of electoral quotas influences gender equality more generally. Finally we study how institutional norms and gender stereotypes affect political representation. This class will draw on examples from around the world, and will look a experiences of women from all economic, social, and ascriptive backgrounds.
Taught by: Teele
Course not offered every year
Activity: Lecture
1 Course Unit
PSCI 227 China: Inst & the Econ
The rise of China since its economic reform starting from 1978 is one of the most important developments the world witnessed in the twenty first century. In this seminar course, we explore topics including the political logic of China's economic reform, the institutional foundations of the Chinese economic growth miracle, as well as detailed analysis of Chinese financial markets, housing markets, fiscal reform, corruption/anti-corruption, labor market transitions, China's integration into the world economy, village democracy and its impact on resource allocation, the impact of population ageing, the impact of China on US economy and politics, among others. The discussions will focus on China, but will relate broadly to emerging and developed economies. The course will be based on reading and discussing research articles and books selected by the instructors.
Course not offered every year
Prerequisite: psci 110 recommended
Activity: Lecture
1 Course Unit

PSCI 228 Education for Democracy in Latin America and the U.S.
Taught by: Bartch
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 229 China's Domestic Politics
This is an advanced course on the main issues of contemporary Chinese politics, economy and social change. There is a strong focus on the reform period (post 1978). We will spend considerable time and energy on understanding the major themes and challenges of China's reforms, including the political system, the legal system, the inequality, foreign direct investment, village elections, lawmaking, environmental degradation, social opposition, corruption, and religion. We also investigate the many political and social consequences of reform and changing landscape of Chinese politics. A prior course on Chinese politics (for example, PSCI219) is highly recommended.
Taught by: Hou
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 231 Race and Ethnic Politics
This course examines the role of race and ethnicity in the political discourse through a comparative survey of recent literature on the historical and contemporary political experiences of the four major minority groups (Blacks or African Americans, American Indians, Latinos or Hispanic Americans, and Asian Americans). A few of the key topics will include assimilation and acculturation seen in the Asian American community, understanding the political direction of Black America in a pre and post Civil Rights era, and assessing the emergence of Hispanics as the largest minority group and the political impact of this demographic change. Throughout the semester, the course will introduce students to significant minority legislation, political behavior, social movements, litigation/court rulings, media, and various forms of public opinion that have shaped the history of racial and ethnic minority relations in this country. Readings are drawn from books and articles written by contemporary political scientists.
Taught by: Gillion
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 232 Introduction to Political Communications
This course is an introduction to the field of political communication, conceptual approaches to analyzing communication in various forms, including advertising, speech making, campaign debates, and candidates’ and office-holders’ uses of news. The focus of this course is on the interplay in the U.S. between television and politics. The course includes a history of televised campaign practices from the 1952 presidential contest onward.
Taught by: Jamieson
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 233 Introduction to African American Politics
This course is an historical survey of the main bases and substances of politics among black Americans and the relation of black politics to the American political order. Its two main objectives are: 1) to provide a general sense of pertinent historical issues and relations as a way of helping to make sense of the present and 2) to develop criteria for evaluating political scientists' and others' claims regarding the status and characteristics of black American political activity.
Taught by: Reed
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 234 Changing American Electorate
In 1960, a Democratic candidate won a very narrow Presidential victory with just 100,000 votes; in 2000, the Democratic candidate lost but received 500,000 more votes than his opponent. Still, contemporary scholars and journalists have made a variety of arguments about just how much the American political landscape changed in the intervening 40 years, often calling recent decades a transform ation. This course explores and critically evaluates those arguments. Key questions include: how, if at all, have Americans political attitudes and ideologies changed? How have their connections to politics changed? What has this meant for the fortunes and strategies of the two parties? How have the parties base voters and swing voters changed? What changes in American society have advantaged some political messages and parties at the expense of others? Focusing primarily on mass-level politics, we consider a wide range of potential causes, including the role of race in American politics, suburbanization, economic transformations, the evolving constellation and structure of interest groups, declining social capital, the changing role of religion, immigration, and the actions of parties and political elites. For three weeks in the semester, we will take a break from considering broader trends to look at specific elections in some depth.
Taught by: Hopkins
Course not offered every year
Activity: Recitation
1 Course Unit
PSCI 236 Public Policy Process
This course introduces students to the theories and practice of the policy-making process. There are four primary learning objectives. First, understanding how the structure of political institutions matter for the policies that they produce. Second, recognizing the constraints that policy makers face when making decisions on behalf of the public. Third, identifying the strategies that can be used to overcome these constraints. Fourth, knowing the toolbox that is available to ticipants in the policy-making process to help get their preferred strategies implemented. While our focus will primarily be on American political institutions, many of the ideas and topics discussed in the class apply broadly to other democratic systems of government.
Taught by: Levendusky, Meredith
Course usually offered in fall term
Also Offered As: PPE 312
Activity: Recitation
1 Course Unit

PSCI 237 The American Presidency
This course surveys the institutional development of the American presidency from the Constitutional convention through the current administration. It examines the politics of presidential leadership, and how the executive branch functions. An underlying theme of the course is the tensions between the presidency, leadership, and democracy.
Taught by: Gottschalk
Course usually offered in fall term
Activity: Recitation
1 Course Unit

PSCI 241 Polarization
Are ordinary Americans polarized? What about political elites? Is there any connection between mass and elite polarization? What do we even mean when we say some group is "polarized"? This class will explore these questions in some detail, and try to sort out all of the discussions about polarizations, red states and blue states, and the like.
Taught by: Levendusky
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 243 Dilemmas of Immigration
Beneath the daily headlines about refugees blocked entry, and undocumented migrants deported there is a set of hard questions which deserve closer attention: Should countries have borders? If countries have borders, how should they decide who is kept out and who is allowed in? How many immigrants is "enough"? Are immigrants equally desirable? What kinds of obligations do immigrants have to their receiving society? What kinds of obligations do host societies have to immigrants? Should there be "pathways" to citizenship? Can citizenship be earned? Should citizenship be automatic? This course explores these and other dilemmas raised by immigration.
Taught by: Jones-Corra
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 250 C.I.A. Assassinations and Coups in Latin America
Why has the United States government participated in political assassinations and coups d'etat in Latin America? How have these interventions affected Latin American political and economic outcomes? How have they helped or hurt U.S. interests in the region? This lecture course provides an introduction to the history and politics of U.S.-led assassinations and coups in Latin America since 1949. For each event, the course will help students understand (1) the goals of the U.S. government; (2) the historical and political context of the intervention; and (3) the outcomes and consequences, both in Latin America and for the United States. Knowledge of the history of U.S. involvement in regime change is critical for understanding contemporary foreign policy.
Taught by: Kronick
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit

PSCI 251 Arab Israeli Relations
In this course the Arab-Israeli dispute from 1948 to the present will serve as a vehicle for understanding how domestic and global political processes interact to shape, contain, or aggravate Middle Eastern wars between states and non-state actors. Particular stress will be placed on understanding how wars affect international politics in states and political organizations and how ideological and structural features of states and organizations find expression in wars and complicate or enable the search for peace. In addition, the key features of the conflict will be interpreted as both a clash between the political interests of national and/or religious groups and as a reflection of global political power struggles. Attention will be given toward the end of the course to alternative ideas about possible resolution of the conflict as well as to the increasingly prominent argument that, in this case, there is no solution.
Taught by: Lustick
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 252 War, Strategy and Politics
This class examines the strategy and politics of warfare, focusing on the way actors plan military campaigns and the factors that are likely to lead to victory and defeat. The course readings center in particular on the factors driving changes in warfare and civil-military relations. The course will cover a wide range of topics from theories of war-fighting to historical military campaigns to insurgency warfare, terrorism, and the future of war.
Taught by: Horowitz
One-term course offered either term
Activity: Recitation
1 Course Unit
PSCI 253 International Politics of the Middle East
This course will focus primarily on episodes of external intervention by Great Powers in the politics of Middle Eastern states. We shall begin by examining the emergence of the Middle Eastern state system after the disappearance of the Ottoman Empire in the early part of the 20th century. This discussion will provide opportunities to develop key concepts in the study of international politics and will serve as crucial historical background. We shall then turn our attention to the primary concern of the course - a systematic consideration of the motives, operational results, and long-term implications of a number of important examples of intervention by Great Powers in the Middle East. Among the episodes to be considered will be British policies toward the end of World War I, in Palestine in the 1930s, and, along with the French, in Suez in 1956. Soviet intervention in the first Arab-Israeli war, in 1948, will be analyzed along with Soviet policies toward Egypt in the early 1970s. American intervention in Iran in 1953 and in the Gulf War in 1991 will also be examined.
Taught by: Lustick
Course usually offered in spring term
Activity: Recitation
1 Course Unit

PSCI 255 The Causes of War & Peace
The existence and endurance of war provides one of the most important puzzles of politics: why is it that people keep making use of such a destructive and painful way of resolving their disputes? This course addresses this question and the related question of what factors contribute to peace, focusing on both academic and popular explanations for conflict, including among others anarchy, over-optimism, shifting power, diversionary war, the malevolent influence of war profiteers, and a variety of explanations grounded in culture, religion and other ideational variables. In this discussion, we will focus on both interstate and civil wars, and on both the onset and the eventual termination of war. At various points in the course we will discuss a wide range of historical and contemporary cases, including the World Wars, Vietnam, the Gulf War, the Iraq War, the various Arab-Israeli wars, the India-Pakistan rivalry, and a number of recent civil conflicts such as the wars in Yugoslavia, Congo, and Sudan. The course concludes with a discussion of strategies for managing ongoing conflicts and for securing peace in post war settings.
Taught by: Weisiger
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 258 International Human Rights
What exactly should be considered a fundamental "human right"? What is the basis for something is a fundamental human right? This course will examine not only broad conceptual debates, but will also focus on specific issue areas (e.g., civil rights, economic rights, women's rights), as well as the question of how new rights norms emerge in international relations.
Taught by: Doherty-Sil
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 259 Chinese Foreign Policy
This seminar examines the influences on and patterns of China's international relations. Topics to be covered include the following: theoretical approaches to analyzing foreign policy; the historical legacy and evolution of China's foreign policy; contemporary China's foreign policy on traditional national security concerns as well as economic, environmental, and humanitarian issues; China's military modernization; China's foreign policy in Asia, Africa, Europe, and Latin America; China's rise and its implications for relations with the United States. The class is a seminar in which student preparation and participation will be essential. Students planning to enroll in the course must have taken PSCI 219 (or, with the instructor's permission, its equivalent). You are expected to complete all required readings each week and come to seminar meetings prepared to discuss them.
Taught by: Goldstein
Course not offered every year
Prerequisite: MUST HAVE TAKEN PSCI 219 OR EQUIVALENT
Activity: Seminar
1 Course Unit

PSCI 260 Ethics & Ir
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 261 Emerging Technologies and the Future of the World
Technological change is always occurring, but the rate of change seems to be accelerating. Advances in robotics, artificial intelligence, cyber, biotechnology, and other arenas generate promise as well as peril for humanity. Will these emerging technologies unleash the innovative capacity of the world, generating new opportunities that help people live meaningful lives? Alternatively, are automation and other technologies chipping away at the labor market in a way that could create severe generational dislocation at best, and national and international turmoil at worst? These questions are important, and have consequences for how we live our lives, how nations interact, and the future of the world writ large. Emerging technologies could shape public policy at the local, national, and international level, and raise questions of fairness, ethics, and transparency. This course takes a unique approach, combining insights from engineering, political science, and law in an interdisciplinary way that will expose students both to the key technologies that could shape the future and ways to think about their potential politics, and society.
Taught by: Horowitz
Also Offered As: EAS 261
Activity: Seminar
1 Course Unit

PSCI 267 Russia and Eastern Europe in International Affairs
For BA Students: Society Sector
Activity: Lecture
1 Course Unit
PSCI 271 Constitutional Law: Public Power & Civil Rights to 1912
This course explores the creation and transformations of the American constitutional system's structures and goals from the nation's founding through the period of Progressive reforms, the rise of the Jim Crow system, and the Spanish American War. Issues include the division of powers between state and national governments, and the branches of the federal government; economic powers of private actors and government regulators; the authority of governments to enforce or transform racial and gender hierarchies; and the extent of religious and expressive freedoms and rights of persons accused of crimes. We will pay special attention to the changing role of the Supreme Court and its decisions in interpreting and shaping American constitutionalism, and we will also read legislative and executive constitutional arguments, party platforms, and other influential statements of American constitutional thought.
Taught by: Smith
One-term course offered either term
Activity: Recitation
1 Course Unit

PSCI 272 American Constitutional Law II
This course examines American constitutional development from the eve of WWI through the second Obama administration. Topics include the growth of the New Deal and a Great Society regulatory and redistributive state, struggles for equal rights for racial and ethnic minorities, women and GLBT Americans, contests over freedoms of religion and expression, criminal justice issues, the Reagan Revolution and the revival of federalism, and property rights, and issues of national security powers after September 11, 2001. Lectures are on videos and class time is devoted to in-depth discussions.
Taught by: Smith
Activity: Recitation
1 Course Unit

PSCI 280 Feminist Political Thought
This course is designed to provide an overview of the variety of ideas, approaches, and subfields within feminist political thought. Readings and divided into three sections: contemporary theorizing about the meaning of "feminism"; women in the history of Western political thought; and feminist theoretical approaches to practical political problems and issues, such as abortion and sexual assault.
For BA Students: Society Sector
Taught by: Hirschmann
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 282 Lying, Cheating, Stealing, and Killing: How to Think About Professional Ethics
Professionals - in business, medicine, law, and politics - face myriad ethical dilemmas in their daily work life that challenge, and sometimes conflict with, the moral commitments that guide their everyday life. This course systematically examines the ethical dimensions of these four professional roles, asking questions such as: Are there limits to what we should sell? How far should competitors go to "win"? Who should get ventilators in a flu pandemic? Is it morally permissible for physicians to assist in suicide? Should lawyers represent terrorists or child killers? How far does attorney-client privilege go? Is it morally justifiable to torture enemy combatants? Should politicians lie?
Taught by: Allen/Emanuel/Hirschmann/Strudler
Activity: Lecture
1 Course Unit

PSCI 298 Selected Topics in Political Science
Consult department for detailed descriptions. More than one course may be taken in a given semester. Recent titles have included: Leadership & Democracy, Conservative Regimes.
One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 314 Democracy in Latin America
Since the inception of the twenty first century, Latin America has undergone major economic, social, and political transformations. Many of the neoliberal policies of the last quarter of the twentieth century were reversed or revisited, economic inequality decreased significantly across the region, and anumber of governments turned to the left of the political spectrum, often instituting major public policy and constitutional reforms. How have those changes affected citizenship and democracy in the region? In particular, have citizens' channels for representation and participation changed in the recent past? What has happened to local participatory institutions since the return to the right in some countries of the region? The course will explore these and related questions. Students will develop their own research projects throughout the semester. While not a requirement, the ability to read Spanish or Portuguese will significantly enhance students' learning experience.
Taught by: Falleti
One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 320 Who Gets Elected and Why? The Science of Politics
What does it take to get elected to office? What are the key elements of a successful political campaign? What are the crucial issues guiding campaigns and elections in the U.S. at the beginning of the 21st century? This class will address the process and results of electoral politics at the local, state, and federal levels. Course participants will study the stages and strategies of running for public office and will discuss the various influences on getting elected, including: Campaign finance and fundraising, demographics, polling, the media, staffing, economics, and party organization. Each week we will be joined by guest speakers who are nationally recognized professionals, with expertise in different areas of the campaign and election process. Students will also analyze campaign case studies and the career of the instructor himself. Edward G. Rendell is the former Mayor of Philadelphia, former Chair of the Democratic National Committee, and former Governor of Pennsylvania.
Taught by: Rendell
One-term course offered either term
Activity: Lecture
1 Course Unit
PSCI 327 Modern India
This course attempts to examine the experience of representative democracy in India and the country's development record in a historical framework. It will ask questions such as: How did representative democracy emerge in India and what explains its persistence? What are the sources of its vulnerability? What kind of a sense of nationhood does this democratic experience rest upon? What are the exclusions built into this conception of nationhood? What is the relationship between India's development experience and its democratic experiment? How have India's "traditional" institutions adapted or failed to adapt to modern circumstances? Why has India performed well in certain economic sectors such as IT even while its record in providing basic social services has been poor? How has India's self-perception about its place in the world changed in recent years and what are its implications?
Taught by: Kapur
Activity: Seminar
1 Course Unit

PSCI 328 Democracy in Trouble: OAS to the Rescue?
Democracy in the Americas is in trouble. Entrenched political, economic, and social inequality, combined with environmental degradation, weak institutions, pervasive health epidemics, weapon proliferation, and other pressing issues pose formidable challenges for strengthening democratic ideals and institutions. The Organization of American States (OAS), is uniquely poised to confront and purposively focused to strengthen peace, security, democracy, and human rights. In this community based course, students will study the role and history of the OAS while working directly with area public high school students in preparation for the OAS annual high model OAS simulation in Washington, DC.
Taught by: Bartch
Activity: Seminar
1 Course Unit

PSCI 330 PIW Semester Core Seminar: Conducting Public Policy Research in Washington DC
This seminar is taught in Washington, DC for students enrolled in the Washington Semester Program. It includes an orientation to observation and research in the Washington Community and a major independent research project on the politics of governance.
Taught by: Martinez
One-term course offered either term
Activity: Seminar
2 Course Units

PSCI 332 Survey Research & Design
Survey research is a small but rich academic field and discipline, drawing on theory and practice from many diverse fields including political science and communication. This course canvasses the science and practice of survey methods, sampling theory, instrument development and operationalization, and the analysis and reporting of survey data. Major areas of focus include measurement and research on survey errors, application to election polling, new frontiers in data collection, overall development of data management and introductory statistics.
Taught by: Dutwin
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 333 Political Polling
Political polls are a central feature of elections and are ubiquitously employed to understand and explain voter intentions and public opinion. This course will examine political polling by focusing on four main areas of consideration. First, what is the role of political polls in a functioning democracy? This area will explore the theoretical justifications for polling as a representation of public opinion. Second, the course will explore the business and use of political polling, including media coverage of polls, use by politicians for political strategy and messaging, and the impact polls have on elections specifically and politics more broadly. The third area will focus on the nuts and bolts of election and political polls, specifically with regard to exploring traditional questions and scales used for political measurement; the construction and considerations of likely voter models; measurement of the horserace; and samples and modes used for election polls. The course will additionally cover a fourth area of special topics, which will include exit polling, prediction markets, polling aggregation, and other topics. It is not necessary for students to have any specialized mathematical or statistical background for this course.
Taught by: Dutwin
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 334 Emergency Response
Activity: Seminar
1 Course Unit

PSCI 335 Healthy Schools
This Fox Leadership and academically based community service seminar will use course readings and students' own observations and interviews in their service learning projects in West Philadelphia schools to analyze the causes and impact of school health and educational inequalities and efforts to address them. Course readings will include works by Jonathan Kozol, studies of health inequalities and their causes, and studies of No Child Left Behind, the CDC's School Health Index, recess, school meal, and nutrition education programs. Course speakers will help us examine the history, theories, politics and leadership behind different strategies for addressing school-based inequalities and their outcomes. Service options will focus especially on the West Philadelphia Recess Initiative. Other service options will include work with Community School Student Partnerships and the Urban Nutrition Initiative.
Taught by: Summers
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 336 Congress, Elections and American Democracy
Taught by: Lapinski
Activity: Seminar
1 Course Unit
PSCI 338 Statistical Methods PSCI
The goal of this class is to expose students to the process by which quantitative political science research is conducted. The class will take us down three separate, but related tracks. Track one will teach some basic tools necessary to conduct quantitative political science research. Topics covered will include descriptive statistics, sampling, probability and statistical theory, and regression analysis. However, conducting empirical research requires that we actually be able to apply these tools. Thus, track two will teach us how to implement some of these basic tools using the computer program R. However, if we want to implement these tools, we also need to be able to develop hypotheses that we want to test. Thus, track three will teach some basics in research design. Topics will include independent and dependent variables, generating testable hypotheses, and issues in causality. You are encouraged to register for both this course and PSCI 107 at the same time, as the courses cover distinct but complementary material. But there are no prerequisites nor is registering for PSCI 107 necessary, in order to take this course. The class satisfies the College of Arts and Sciences Quantitative Data Analysis (QDA) requirement.

Taught by: Meredith
Course not offered every year
Activity: Recitation
1 Course Unit

PSCI 354 Forced Migration & Education
Activity: Seminar
1 Course Unit

PSCI 355 Topics in Race and International Relations
This seminar focuses on issues of race in international relations. The specific focus of the course will vary by semester.

Taught by: Vitalis
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 358 International Law
This course intends to familiarize the student with the concept of “law”, its use as a constitutive and regulative force in the international arena, and the expanding scope of international law through the inclusion of transnational law and human rights.

Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 374 Communication & Congress
Taught by: Felzenberg
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 395 Power Sharing in Deeply Divided Places - BFS
This course examines conceptual, explanatory and normative debates over power-sharing systems. We explore the circumstances in which federal, consociational and other power-sharing institutions and practices are proposed and implemented to regulate deep national, ethnic, religious or linguistic divisions. We evaluate these systems, seeking to explain why they are formed or attempted, and why they may endure or fail, paying special attention to bi- and multi-national, multi-ethnic, multi-religious and multi-lingual environments.

Taught by: O'Leary
Course not offered every year
Corequisites: Benjamin Franklin Scholars, seniors and juniors in Political Science, seniors in PPE; others by permission.
Activity: Seminar
1 Course Unit

PSCI 398 Selected Topics in Political Science
Consult department for detailed descriptions. More than one course may be taken in a given semester. Recent titles have included: Sustainable Environmental Policy & Global Politics; Shakespeare and Political Theory. One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 402 Us-Latin American Rel
Course not offered every year
Activity: Lecture
1 Course Unit

PSCI 404 Media and Politics
Media and Politics will examine multiple issues specific to the past and present political media environment in the United States. Focus will be primarily, though not exclusively on the contemporary news media (as opposed to political advertising and other marketing-oriented communications). Topics will include the rise of partisan media, selective exposure, news as entertainment, etc. Reading expectations will be relatively heavy, and under the supervision of the professor, students will be expected to write a research paper on a topic not directly a part of the course material.

Taught by: Mutz
One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 412 Comparative Politics
This seminar focuses on comparative political systems. Themes include political participants, leadership, institutions, instability, and system transformation in developed and less developed countries.

Course not offered every year
Activity: Lecture
1 Course Unit
PSCI 413 Evidence Based Policies of Economic and Political Development
This class provides a "hands-on" introduction to the promises and limitations of using Randomized Control Trials (RCTs) to inform policy makers, practitioners, and academics of the conditions under which policies likely would have a positive effect on economic and political outcomes, in the context of international development. This course has three parts: the first is devoted to understanding the "nuts and bolts" of running field experiments / RCTs in developing countries. In part, we will be reading Glennester and Takavarasha's Running Randomized Evaluations: A Practical Guide. In addition, we will discuss core behavioral concepts from both behavioral economics and social psychology (prospect theory). The second part of the course will be devoted to demonstrating how schools have used RCTs to inform core policy debates (e.g. What are some effective ways to reduce corruption? How can we improve the performance of frontline service providers? How can politicians be more responsive to their constituents?) In the third part, students will be presenting their own research proposals, explicitly designed to address either a core policy question in the developing world or—for those interested—in the USA. Here students will have an opportunity to partner with the Social and Behavioral Sciences Team (https://sbst.gov), which is under the National Science and Technology Council. Taught by: Grossman
One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 418 Evolution, Politics and Computer Simulation
In this course we shall explore how recent developments in evolutionary theory relate to larger questions raised by students of complexity and complex adaptive systems. We shall study how they together provide a basis for important critiques of standard approaches in political science and enable fascinating and powerful understandings of politics and political phenomena -- including national identity and identity change, state formation, revolution, globalization, and leadership. An important vehicle for the application of these insights for understanding politics is computer simulations featuring agent-based modeling. Students will use "PS-I" an agent based computer simulation platform, to develop their own models, conduct experiments, test hypotheses, or produce existence proofs in relation to popular theoretical positions in contemporary political science. No knowledge of computer programming is required. Taught by: Lustick
One-term course offered either term
Also Offered As: PPE 476
Activity: Seminar
1 Course Unit

PSCI 433 Social Movements
Social movements and political protest have become some of the most effective tools for citizens and non-citizens to influence the political system. This course is designed to introduce students to the theoretical and methodological approaches taken in understanding these behaviors. Analyzing social movements that range from civil discontent to contentious political protest, the course will address a variety of questions: What is the origin of movement behavior and why do individuals turn to these actions in lieu of simply engaging in institutional modes of political action such as voting? What were the strategies of these movements? What are the political conditions that allow social movements to resonate with the American public? In addition to addressing these topics, this course surveys the policy successes of major social and political movements. From the Civil Rights and Women's Right Movement to the recent Tea Party movement and Hong Kong demonstrations over democracy, this course explores the various public policies that have resulted from citizens' protest actions. While state level and local level government responsiveness will be addressed, special attention will be given to how political protest influences public policy in all three branches of the federal government. Taught by: Gillion
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 434 Advanced Topics in American Politics
This seminar is designed to serve as a "capstone" experience for advanced undergraduates interested in American politics. It exposes students to some of the issues currently being studied and debated by the leading scholars in the field. For each topic we will read works that take competing or opposing positions on an issue; for example we will examine the current controversy over the causes and and consequences of divided government. Students will write a research paper analyzing one of the debates. Taught by: Gillion
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 436 Political Psychology
How do campaign advertisements influence voters' perceptions and behavior? What roles do emotions play in politics? Do we all harbor some measure of racism, sexism, or homophobia, and what role do these stereotypes play in political behavior? How and why do ideologies form, and how does partisanship influence the way that voters understand the political world? How do people perceive threat, and what are the psychological consequences of terrorism? These questions, and many others, are the province of political psychology, an interdisciplinary field that uses experimental methods and theoretical ideas from psychology as tools to examine the world of politics. In this course, we will explore the role of human thought, emotion, and behavior in politics and examine the psychological origins of citizens' political beliefs and actions from a variety of perspectives. Most of the readings emphasize politics in the United States, though the field itself speaks to every aspect of political science. Taught by: Margolis
Course not offered every year
Activity: Seminar
1 Course Unit
PSCI 437 Race & Criminal Justice
Why are African Americans and some other minority groups disproportionately incarcerated and subjected to penal sanctions? What are the political, social and economic consequences for individuals, communities, and the wider society of mass incarceration in the United States? What types of reforms of the criminal justice system are desirable and possible? This advanced seminar analyzes the connection between race, crime, punishment, and politics in the United States. The primary focus is on the role of race in explaining why the country’s prison population increased six-fold since the early 1970s and why the United States today has the highest incarceration rate in the world. The class will likely take field trips to a maximum-security jail in Philadelphia and to a state prison in the Philadelphia suburbs.
Taught by: Gottschalk
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 439 Experimental Methods of Inquiry
The main goal of this course is to familiarize students with experiments, quasi-experiments, population-based survey experiments and field experiments as they are widely used in the social sciences. By the end of the course, students will be expected to understand what it is about a study that allows for a strong causal inference. Whether one is reading about studies in a newspaper or reading academic journal articles, it is important to know how to distinguish convincing versus unconvincing evidence of any given claim. As a final project, students will be expected either to develop their own original experimental design or to analyze the evidence pertaining to a causal claim of their own choosing based on what they have learned in class. Throughout the course of the semester, we will also consider how to deal with the issue of causality as it occurs in observational studies, and draw parallels between experimental and observational research.
Taught by: Mutz
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 484 Meaning of Democracy
This course provides a broad, humanistic survey to some of the most important ideas, debates, and problems connected to the study of democracy. The course is divided into three segments: the democratic citizen (in which we explore ethical issues pertaining to the experience of democracy as a way of life); the democratic People (in which we examine some of the best and most recent attempts to come to grips with the difficult, yet fundamental, notion of the People); and the democratic world (in which we investigate issues pertaining to democratization and development, including the tension between democracy and individual liberty and the relationship between democracy and global capitalism).
Taught by: Green
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 496 Dcc Research Seminar: Democracy, Citizenship & Constitutionalism Research Seminar
Course not offered every year
Activity: Seminar
0.5 Course Units

PSCI 497 Political Science Honors
This is a mandatory seminar for all students planning to submit an honors thesis for the purpose of possibly earning distinction in Political Science upon graduation. The course is aimed at helping students identify a useful and feasible research question, become familiar with the relevant literatures and debates pertaining to that question, develop a basic understanding of what might constitute "good" and "original" research in different subfields, and set up a plan for conducting and presenting the research. The course is also aimed at building a community of like-minded student researchers, which can complement and enrich the honor student’s individual experience of working one-on-one with a dedicated faculty thesis advisor. Students apply in the spring of their junior year for admissions to the honors program and enrollment in PSCI497.
Taught by: Doherty-Sil
One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 498 Selected Topics in Political Science
Consult department for detailed descriptions. Recent topics include: Globalization; Race & Criminal Justice; Democracy & Markets in Postcommunist Europe.
One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 499 Independent Study - Honors
Individual research to be taken under direction of faculty member. Students wishing to complete work on an honors paper should contact the Political Science Department.
One-term course offered either term
Activity: Independent Study
1 Course Unit

PSCI 511 Society and Politics in India
This course examines the experience of representative democracy in India and the country’s development record in a historical framework. It will ask questions such as: How did representative democracy emerge in India, and what explains its persistence? What are the sources of its vulnerability? What kind of a sense of nationhood does this democratic experience rest upon? What are the exclusions built into this conception of nationhood? What is the relationship between India’s development experience and its democratic experiment? How have India’s “traditional” institutions adapted or failed to adapt to modern circumstances? Why has India performed well in certain economic sectors even while its record in providing basic social services has been dismal? How have the Indian State and its public institutions managed and coped with these changes? And how has India’s self-perception about its place in the world changed in recent years, and what are its implicatons?
Taught by: Kapur, Frankel
Course not offered every year
Activity: Seminar
1 Course Unit
PSCI 517 Russian Politics
This course will present an in-depth examination of political, economic and social change in post-Soviet Russia within a historical context. After a brief discussion of contemporary problems in Russia, the first half of the course will delve into the rise of communism in 1917, the evolution of the Soviet regime, and the tensions between ideology and practice over the seventy years of communist rule up until 1985. The second part of the course will begin with an examination of the Gorbachev period and the competing interpretations of how the events between 1985 and 1991 may have contributed to the collapse of the Soviet Union. We will then proceed to make sense of the continuities and changes in politics, economics and society in contemporary Russia. Important topics will include the confrontations accompanying the adoption of a new constitution, the emergence of competing ideologies and parties, the struggle over economic privatization, the question of federalism and nationalism, social and political impacations of economic reform, and prospects for Russia's future in the post-Yeltsin era. This course may also be taken as a graduate seminar (PSCI 517) with the permission of the instructor and the completion of additional requirements.
Taught by: Sil
Course usually offered in spring term
Activity: Recitation
1 Course Unit

PSCI 525 Introduction to Political Communication
Activity: Seminar
1 Course Unit

PSCI 531 Public Opinion & Elections
This course is designed to give advanced undergraduates and graduate students exposure to the literature on political behavior in American politics (the course is part of the departments 3-course graduate sequence in American politics). The course will cover both the classics of public opinion and political behavior from the Columbia, Michigan, and Rochester schools, as well as more current topics and debates in the literature. Topics include (but are not limited to) the early voting studies, the role of partisanship, the nature and origins of ideology, mass-elite interactions, heuristics and low information rationality, the nature of the survey response, campaign and media effects, framing effects, and the role of institutions in structuring behavior. Undergraduates are welcome in the class, but they should know that the class assumes familiarity with quantitative approaches to studying politics.
Taught by: Levendusky
Activity: Seminar
1 Course Unit

PSCI 534 Political Culture and American Cities
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 535 Inequality & Race Policy
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 545 Politics & Education
Activity: Seminar
1 Course Unit

PSCI 550 International Politics
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 552 Game Theory
This course provides an introduction to non-cooperative game theory and its applications to political science. The goal of the course is to provide students with the background and understanding necessary to read published game-theoretic work in political science journals. To that end, the course covers the basic concepts of game theory, including Nash equilibrium and its main refinements, simultaneous and sequential games, repeated games, evolutionary game theory, and games of incomplete and private information. In addition, we will cover some of the central models used in political science, notably models of public choice (such as the median voter theorem) and models of bargaining.
Taught by: Weisiger
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 558 Human Rights
This course will examine the theoretical, historical and political foundations of contemporary human rights debates. The course will cover not only broad conceptual issues, but also specific issue areas (e.g., civil rights, economic rights, women's rights, business and human rights), as well as the question of how new rights norms emerge and diffuse in the international arena. The course is open to students in the Master of Liberal Arts Program, as well as students who are actively pursuing the Graduate Certificate in Interdisciplinary Studies in Global Human Rights.
Taught by: Doherty-Sil
Activity: Recitation
1 Course Unit

PSCI 584 Political Philosophy
An examination of basic theoretical problems of political science divided into three parts. First, specific features of social sciences will be examined and three most important general orientations of social sciences (analytical, interpretative and critical) will be compared and analyzed. Second, basic concepts of social and political sciences will be studied: social determination, rationality, social change, politics, power, state, democracy. Third, the problem of value judgments will be considered: Is there a rational, objective method for the resolution of conflicts in value judgments? Is morality compatible with politics?
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 598 Selected Topics
Consult department for detailed descriptions. More than one course may be taken in a given semester. Recent titles have included: Race Development and American International Relations, Hegel and Marx, and Logic of the West.
One-term course offered either term
Activity: Seminar
1 Course Unit
PSCI 600 International Relations Theory
This purpose of this course is two-fold. First, the survey course is designed to introduce students to a wide range of theories of international politics. During the course of the semester we will examine neo-realism, power transition theory, hegemonic stability theory, the modern world system, international regimes and interdependence, the democratic peace, bureaucratic politics, organizational theory, constructivism, and decision making theory. Second, the course will sharpen students' research design skills. The written assignments require students to take the often abstract theories presented in the readings and develop practical research designs for testing hypotheses derived from the theories. The papers will not include data collection or the execution of actual tests. Rather, they will focus on the conceptual problems of designing tests which eliminate competing hypotheses, operationalizing variables, and identifying potential sources of data. Student's grades will be based on five short research designs and discussion leadership.

Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 605 Great Books Comp Pol
Activity: Seminar
1 Course Unit

PSCI 610 Comparative Political Analysis
This seminar is aimed primarily at graduate students planning to take doctoral exams in comparative politics. It provides a critical survey of the field of comparative politics, tracing the intellectual history of the field, examining shifts in conceptual frameworks and research traditions, and comparing alternative methodological approaches. The first half of the course generally examines how processes of political, economic, and social change have been theorized in the social sciences from the mid-19th century to the present. In this process, particular attention is paid to the bifurcation between theories that emphasize the "universal" (e.g. the homogenizing effects of specific processes or variables) and the "particular" (e.g. the persistence of distinctive historical legacies and trajectories). Since this bifurcation is reinforced by distinct styles and methods of research, the seminar also probes the recent battles between rational-choice, cultural, and structuralist scholars, while considering the trade-offs between varieties of formal, quantitative, and qualitative methods. In the second half, the focus shifts to the range of substantive problems investigated by scholars in the field of comparative politics. These topics cover the complex relations among nations, states and societies; the origins, consolidation, and patterns of democratic governance; political economy in relation to development processes and social policies; the intersection of international/global economy and domestic politics; the dynamics of revolutions and social movements; and alternative problematiques constructed from the point of view of real actors such as workers, women, and local communities. In all cases, as a whole, the course is designed to provide an introduction to important issues and debates that comparativists have regularly engaged in; to help you understand the assumptions behind, and differences between, particular approaches, methods, and styles of research; to examine whether current debates are spurring new or better research in a given field in light of past approaches; and to gauge whether there has been progress, fragmentation, or stagnation in the field of comparative politics as a whole.

Taught by: Sil
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 614 Political Identity & Political Institution
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 615 Political Economy of Development
This course examines the debate in development studies arising from recognition that economic models, theories, methods, and strategies abstracted from the specific experience of western societies and cultures do not have general applicability. A broader social science approach is adopted, which emphasizes the need to understand the social structures and cultures of the developing countries, the capabilities of weak versus strong states, and the links with the international system that influence transformative processes to which industrializing economies are subjected. The readings offer an overview of the most influential theories of development and underdevelopment that structured debate from the 1960's through the 1990's and focus on the elements of these approaches that advance understanding of development and stagnation in several key countries, including Brazil, Mexico, India and selected countries in East and Southeast Asia.

Taught by: Grossman
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 618 International Political Economy
Examination of the relationship between the international, political, and economic systems from a variety of theoretical perspectives that have emerged in the postwar period, including liberalism, transnationalism, statism, Marxism, and dependency.

Taught by: Mansfield
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 619 Strategic Studies Seminar
This seminar offers graduate students an introduction to the subfield of international relations labeled strategic studies (or security studies). In addition to exploring key theoretical issues, we consider their usefulness for understanding relevant events in international politics since World War II. Although the course emphasizes the distinctive features of great power strategy in the nuclear age, we also look at the continuing role of conventional forces, the strategic choices of lesser powers, and selected security problems in the post-Cold War world (e.g., proliferation, terrorism).

Taught by: Goldstein
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 631 American Political Development
PSCI 631 examines the debate in development studies arising from recognition that economic models, theories, methods, and strategies abstracted from the specific experience of western societies and cultures do not have general applicability. A broader social science approach is adopted, which emphasizes the need to understand the social structures and cultures of the developing countries, the capabilities of weak versus strong states, and the links with the international system that influence transformative processes to which industrializing economies are subjected. The readings offer an overview of the most influential theories of development and underdevelopment that structured debate from the 1960's through the 1990's and focus on the elements of these approaches that advance understanding of development and stagnation in several key countries, including Brazil, Mexico, India and selected countries in East and Southeast Asia.

Taught by: Grossman
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 632 Comparative Politics
This seminar is aimed primarily at graduate students planning to take doctoral exams in comparative politics. It provides a critical survey of the field of comparative politics, tracing the intellectual history of the field, examining shifts in conceptual frameworks and research traditions, and comparing alternative methodological approaches. The first half of the course generally examines how processes of political, economic, and social change have been theorized in the social sciences from the mid-19th century to the present. In this process, particular attention is paid to the bifurcation between theories that emphasize the "universal" (e.g. the homogenizing effects of specific processes or variables) and the "particular" (e.g. the persistence of distinctive historical legacies and trajectories). Since this bifurcation is reinforced by distinct styles and methods of research, the seminar also probes the recent battles between rational-choice, cultural, and structuralist scholars, while considering the trade-offs between varieties of formal, quantitative, and qualitative methods. In the second half, the focus shifts to the range of substantive problems investigated by scholars in the field of comparative politics. These topics cover the complex relations among nations, states and societies; the origins, consolidation, and patterns of democratic governance; political economy in relation to development processes and social policies; the intersection of international/global economy and domestic politics; the dynamics of revolutions and social movements; and alternative problematiques constructed from the point of view of real actors such as workers, women, and local communities. In all cases, as a whole, the course is designed to provide an introduction to important issues and debates that comparativists have regularly engaged in; to help you understand the assumptions behind, and differences between, particular approaches, methods, and styles of research; to examine whether current debates are spurring new or better research in a given field in light of past approaches; and to gauge whether there has been progress, fragmentation, or stagnation in the field of comparative politics as a whole.

Taught by: Sil
Course not offered every year
Activity: Seminar
1 Course Unit
An important strain within contemporary political science has been the attempt to explain how power is exercised through the manipulation or exploitation of consciousness, habits, and cultural predispositions. One of the key concepts in the study of these issues is that of “hegemony” -- the establishment of particular beliefs as commonsensical presumptions of political life. In this course that notion will be systematically explored. Of particular interest will be how authors who conduct hegemonic analysis cope with the problem of analyzing the effect of what the objects of their analysis, by definition, do not and, in some sense, cannot, think about. Illustrations of hegemonic phenomena and attempts to analyze them will be drawn from a variety of fields, such as political theory, historiography, comparative politics, American politics, rational choice theory, agent based modeling, and epistemology.

Taught by: Lustick
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 635 Exp Design & Iss Causal
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 637 Survey American Institut
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 638 Race & Criminal Justice
Taught by: Gottschalk
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 655 Democracy in Comparative Perspective
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 692 Advanced Statistical Analysis
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 696 Qualitative Methods
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 710 The Politics of Africa and the African Diaspora After World War II
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 711 Fascism and Racism: A Love Story
Course not offered every year
Activity: Seminar
1 Course Unit

PSCI 798 Selected Topics in Political Science
Consult department for detailed descriptions. More than one section may be given in a semester. Recent titles have included: Interpreting the Canon; State, Self, & Society; U.S. Policy in Europe; and Dissertation Writing.
One-term course offered either term
Activity: Seminar
1 Course Unit

PSCI 805 Analysis Election Data
Course not offered every year
Activity: Seminar
1 Course Unit
PORTUGUESE (PRTG)

PRTG 110 Elementary Portuguese I
Portuguese 110 is a first-semester introductory language course for students who have not studied Portuguese before, or who have had little exposure to the language. The course will emphasize the development of foundational reading, writing, listening and speaking abilities within a cultural context. Students will participate in paired and group activities designed to elicit meaningful and accurate exchanges of information. The course will introduce students to Portuguese and Lusophone culture through a variety of authentic materials, including texts, songs, films and other audio and video material. Classes will be conducted in Portuguese.
For BA Students: Language Course
Course usually offered in fall term
Activity: Seminar
1 Course Unit

PRTG 114 Portuguese for Spanish Speakers I
Portuguese 114 is designed for students who have studied Spanish. The course begins with exposure to basic vocabulary and structures, advancing at an accelerated pace. Classroom activities will emphasize pronunciation, spoken production as well as language structures and vocabulary. Students will participate in pairs, small-groups and whole-class activities that focus on the meaningful and accurate exchange of information. The class will be conducted in Portuguese.
One-term course offered either term
Activity: Seminar
1 Course Unit

PRTG 120 Elementary Portuguese II
This class continues the development of a basic proficiency that will help reinforce the student’s abilities and confidence. A broad range of lively, high-interest readings such as newspaper and magazine articles in current events on Brazilian culture will allow the student to gain a genuine sense of current usage. A Brazilian movie is presented and discussed in groups. Daily homework assignments involve writing exercises, short compositions and group projects.
For BA Students: Language Course
Course usually offered in spring term
Prerequisite: PRTG 110 or instructor’s permission
Activity: Seminar
1 Course Unit

PRTG 130 Intermediate Portuguese I
This is a third-semester intermediate course, in a four-course strand, designed for students who have taken at least two semesters of Portuguese. Classroom activities will emphasize pronunciation, spoken production, language structures and vocabulary, as students explore movies, music and other authentic media to further develop their ability to communicate in Portuguese. The course will be conducted in Portuguese.
For BA Students: Language Course
Course usually offered in fall term
Prerequisite: PRTG 120 or instructor’s permission
Activity: Seminar
1 Course Unit

PRTG 134 Portuguese for Spanish Speakers II
Portuguese 134 is an accelerated intermediate course designed for students who have taken Portuguese for Spanish Speakers I, or its equivalent. Classroom activities will emphasize the development of pronunciation and spoken production, the use of language structures and vocabulary at the intermediate level. In addition, students will explore movies, music, short stories, and other media as they further develop reading, speaking and interpretive skills in Portuguese. The course will be conducted in Portuguese.
One-term course offered either term
Prerequisite: PRTG 114
Activity: Seminar
1 Course Unit

PRTG 140 Intermediate Portuguese II
This is a forth-semester intermediate course, in a four-course strand, designed for students who have taken at least three semesters of Portuguese. Classroom activities will emphasize pronunciation, spoken production, grammar and language structures, and vocabulary at the advanced intermediate level. Students will explore movies, readings, news, music and other media as they further develop speaking, writing, reading and interpretive skills in Portuguese. The course will be conducted in Portuguese.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisite: PRTG 130 or instructor’s permission
Activity: Seminar
1 Course Unit

PRTG 202 Advanced Portuguese
This course is designed for students who have already taken basic and intermediate levels of Portuguese. It complements students’ knowledge of Portuguese by emphasizing the use of advanced grammatical structures and vocabulary. Classes will focus on practicing such advanced language structures by reading a diverse range of texts, including short stories by different authors of the Lusophone countries, and one novel; speaking and writing about a variety of contemporary texts; watching movies and documentaries; and listening to news, songs and other authentic audio material. The emphasis will be on language usage and culture. This course will be conducted in Portuguese.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: PRTG 134, PRTG 140 or instructor’s permission
Activity: Seminar
1 Course Unit

PRTG 215 Portuguese for the Professions
Portuguese for the Professions is designed for advanced-level students to develop their ability to use a wide technical vocabulary. The course will cover an array of topics in the areas of Economy, Politics, Science, Technology, Law and others as they pertain to the societies and cultures of the Lusophone countries, with particular emphasis placed on Brazil. Through readings, movies, discussions, essays and presentations, students will enhance their ability to write about and discuss these topics while employing the appropriate technical vocabulary.
One-term course offered either term
Prerequisite: Portuguese 202
Activity: Seminar
1 Course Unit
**PRTG 217 Portuguese for the Professions II**
Portuguese for the Professions II is a second-semester course designed to provide advanced-level students with exposure to, and practice in, a wide variety of technical vocabulary, and to develop their communicative skills on topics related to Brazil's economic, social and historical context. Classroom activities will be based on the readings and discussions of articles, papers, the viewing of documentaries and other visual media, covering an array of topics within the proposed themes. The course will be conducted in Portuguese.

For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: Portuguese 202
Activity: Seminar
1 Course Unit

**PRTG 221 Perspectives in Brazilian Culture**
Topics vary. For current course description, please see department's webpage: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Taught by: Mercia Flannery
Course not offered every year
Prerequisite: Portuguese 202
Activity: Seminar
1 Course Unit

**PRTG 240 Topics in Brazilian Culture**
Topics vary. For current course description, please see department's webpage: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
One-term course offered either term
Activity: Seminar
1 Course Unit
PROFESSIONAL WRITING (PROW)

PROW 100 Fundamentals of Professional Writing
Using an immersive, case-based teaching style, this course introduces the basic concepts and vocabulary students build upon throughout the remainder of the certificate and draw upon in all future writing tasks. Students become equipped with a deep understanding of how to analyze any writing situation and make their writing a purposeful act of communication. Students engage with a series of authentic writing scenarios and a range of activities that provide hands-on practice and instructor coaching and feedback, as well as targeted exercises for improving grammar, mechanics, clarity, precision and persuasiveness. This collaborative, problem-based learning approach provides students with the strategies and flexibility they need to adapt to an ever-changing multimedia communication environment.
Activity: Online Course
1 Course Unit

PROW 101 Writing For Specialized Audiences: Private Sector
Using case studies and other real-world examples, this course provides an introduction to writing for audiences in the private sector, including business, technical and professional organizations. Students learn to identify the different purposes, genres and specialized audiences one encounters when writing in the private sector, as well as methods for effectively reaching and persuading these audiences. The course also provides practical simulations to aid students as they adapt their processes and styles to specialized situations, expanding their writers repertoire while deepening their understanding of writing for a specific context. Genres to be studied include e-mail, letters (for example sales, job applications, rejection letters, responses to complaints), mission/vision/goal statements, biographical notes, organization descriptions and reports. PROW 100 is a prerequisite for students who are enrolled in the PROW certificate.
Activity: Online Course
1 Course Unit

PROW 102 Writing Studio
This is an intensive, hands-on, guided practice to writing intended for those who would like to work on their basic writing skills or on a particular type of writing—for instance, targeting practice to real-world examples from their workplace. Receiving extensive individualized attention, students draft and revise their writing as well as engage in targeted exercises to address particular areas that need improvement. Students may focus on grammar and mechanics, as well as deeper structure, content and stylistic issues. PROW 100 is a prerequisite for students who are enrolled in the PROW certificate.
Activity: Online Course
1 Course Unit
PSYCHOLOGY (PSYC)

PSYC 001 Introduction to Experimental Psychology
This course provides an introduction to the basic topics of psychology including our three major areas of distribution: the biological basis of behavior, the cognitive basis of behavior, and individual and group bases of behavior. Topics include, but are not limited to, neuropsychology, learning, cognition, development, disorder, personality, and social psychology.
For BA Students: Living World Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

PSYC 070 Psychology of Food
Taught by: Rozin
Activity: Seminar
1 Course Unit
Notes: Does not count for the Psych major. To apply: https://www.curf.upenn.edu/spring-2018-bfs-seminars

PSYC 097 Decision Theory
One-term course offered either term
Activity: Lecture
1 Course Unit

PSYC 109 Introduction to Brain and Behavior
Introduction to the structure and function of the vertebrate nervous system, including the physiological bases of sensory activity, perception, drive, motor control and higher mental processes. The course is intended for students interested in the neurobiology of behavior. Familiarity with elementary physics and chemistry will be helpful.
For BA Students: Living World Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

PSYC 111 Perception
How the individual acquires and is guided by knowledge about objects and events in their environment.
One-term course offered either term
Prerequisite: PSYC 001 or COGS 001
Activity: Lecture
1 Course Unit

PSYC 127 Physiology of Motivated Behaviors
This course focuses on evaluating the experiments that have sought to establish links between brain structure (the activity of specific brain circuits) and behavioral function (the control of particular motivated and emotional behaviors). Students are exposed to concepts from regulatory physiology, systems neuroscience, pharmacology, and endocrinology and read textbook as well as original source materials. The course focuses on the following behaviors: feeding, sex, fear, anxiety, the appetite for salt, and food aversion. The course also considers the neurochemical control of responses with an eye towards evaluating the development of drug treatments for: obesity, anorexia/cachexia, vomiting, sexual dysfunction, anxiety disorders, and depression.
Taught by: Grill
One-term course offered either term
Prerequisite: PSYC 001
Activity: Lecture
1 Course Unit

PSYC 149 Cognitive Neuroscience
The study of the neural systems that underlie human perception, memory and language; and of the pathological syndromes that result from damage to these systems.
Taught by: Epstein or Mackey
One-term course offered either term
Prerequisite: PSYC 001 or COGS 001
Activity: Lecture
1 Course Unit

PSYC 151 Language and Thought
This course describes current theorizing on how the human mind achieves high-level cognitive processes such as using language, thinking, and reasoning. The course discusses issues such as whether the language ability is unique to humans, whether there is a critical period to the acquisition of a language, the nature of conceptual knowledge, how people perform deductive reasoning and induction, and how linguistic and conceptual knowledge interact.
Taught by: Trueswell
One-term course offered either term
Prerequisites: PSYC 001, COGS 001, LING 105, or PSYC 207
Activity: Lecture
1 Course Unit

PSYC 160 Personality and Individual Differences
This course provides an introduction to the psychology of personality and individual differences. Many psychology courses focus on the mind or brain; in contrast to those approaches of studying people in general, the focus in this course is on the question “How are people different from each other?” It will highlight research that take a multidimensional approach to individual differences and attempts to integrate across the biological, cognitive-experimental, and social-cultural influences on personality.
One-term course offered either term
Prerequisite: PSYC 001
Activity: Lecture
1 Course Unit

PSYC 162 Abnormal Psychology
The concepts of normality, abnormality, and psychopathology; symptom syndromes; theory and research in psychopathology and psychotherapy.
Taught by: Ruscio
One-term course offered either term
Prerequisite: PSYC 001
Activity: Lecture
1 Course Unit

PSYC 170 Social Psychology
An overview of theories and research across the range of social behavior from intra-individual to the group level including the effects of culture, social environment, and groups on social interaction.
For BA Students: Society Sector
One-term course offered either term
Prerequisite: PSYC 001
Activity: Lecture
1 Course Unit
PSYC 181 Intro to Developmental Psychology
The goal of this course is to introduce both Psychology majors and non-majors majors to the field of Developmental Psychology. Developmental Psychology is a diverse field that studies the changes that occur with age and experience and how we can explain these changes. The field encompasses changes in physical growth, perceptual systems, cognitive systems, social interactions and much more. We will study the development of perception, cognition, language, academic achievement, emotion regulation, personality, moral reasoning, and attachment. We will review theories of development and ask how these theories explain experimental findings. While the focus is on human development, when relevant, research with animals will be used as a basis for comparison.
Taught by: Brannon
One-term course offered either term
Prerequisite: PSYC 001
Activity: Lecture
1 Course Unit

PSYC 207 Introduction to Cognitive Science
Cognitive Science is founded on the realization that many problems in the analysis of human and artificial intelligence require an interdisciplinary approach. The course is intended to introduce undergraduates from many areas to the problems and characteristic concepts of Cognitive Science, drawing on formal and empirical approaches from the parent disciplines of computer science, linguistics, neuroscience, philosophy and psychology. The topics covered include Perception, Action, Learning, Language, Knowledge Representation, and Inference, and the relations and interactions between such modules. The course shows how the different views from the parent disciplines interact, and identifies some common themes among the theories that have been proposed. The course pays particular attention to the distinctive role of computation in such theories, and provides an introduction to some of the main directions of current research in the field. It is a requirement for the BA in Cognitive Science, the BAS in Computer and Cognitive Science, and the minor in Cognitive Science, and it is recommended for students taking the dual degree in Computer and Cognitive Science.
Taught by: Brainerd/Ungar
One-term course offered either term
Also Offered As: CIS 140
Prerequisites: An Introductory Course in Computer Science, Linguistics, Neuroscience, Philosophy, or PSYC 001
Activity: Lecture
1 Course Unit

PSYC 217 Visual Neuroscience
An introduction to the scientific study of vision, with an emphasis on the biological substrate and its relation to behavior. Topics will typically include physiological optics, transduction of light, visual thresholds, color vision, anatomy and physiology of the visual pathways, and the cognitive neuroscience of vision.
Taught by: Stocker
Course usually offered in spring term
Prerequisite: PSYC 109
Activity: Lecture
1 Course Unit

PSYC 225 Drugs, Brain, and Mind
The course will begin with a review of basic concepts in pharmacology: routes of drug administration, drug metabolism, the dose response curve, tolerance, and sensitization. Following a brief overview of cellular foundations of neuropharmacology (cell biology, synaptic and receptor function), the course will focus on various classes of drugs used to treat neuropsychiatric disorders including, among others, depression, schizophrenia, and anxiety. We will additionally consider mechanisms mediating the mind-altering, addictive and neurotoxic effects of abused drugs.
Taught by: Kane
Course usually offered in spring term
Prerequisite: PSYC 109 or BIBB 109
Activity: Lecture
1 Course Unit

PSYC 231 Evolution of Behavior: Animal Behavior
The evolution of social behavior in animals, with special emphasis on group formation, cooperation among kin, mating systems, territoriality and communication.
One-term course offered either term
Prerequisite: PSYC 001 or BIOL 102 or COGS 001
Activity: Lecture
1 Course Unit

PSYC 235 Psychology of Language
This course describes the nature of human language, how it is used to speak and comprehend, and how it is learned. The course raises and discusses issues such as whether language ability is innate and unique to humans, whether there is a critical period for the acquisition of a language, and how linguistic and conceptual knowledge interact.
Taught by: Dahan
One-term course offered either term
Prerequisite: PSYC 151 or LING 001
Activity: Lecture
1 Course Unit

PSYC 239 Neuroendocrinology
This course is designed to examine the various roles played by the nervous and endocrine systems in controlling both physiological processes and behavior. First, the course will build a foundation in the concepts of neural and endocrine system function. Then we will discuss how these mechanisms form the biological underpinnings of various behaviors and their relevant physiological correlates.
Taught by: Flanagan-Cato
One-term course offered either term
Prerequisite: PSYC 109
Activity: Lecture
1 Course Unit
PSYC 247 Neuroscience and Society
Cognitive, social, and affective neuroscience have made tremendous progress in the last two decades. As this progress continues, neuroscience is becoming increasingly relevant to all of the real-world endeavors that require understanding, predicting, and changing human behavior. In this course we will examine the ways in which neuroscience is being applied in law, criminal justice, national defense, education, economics, business, and other sectors of society. For each application area we will briefly review those aspects of neuroscience that are most relevant, and then study the application in more detail.
Taught by: Gerstein
One-term course offered either term
Prerequisite: PSYC 001 or COGS 001
Activity: Lecture
1 Course Unit

PSYC 253 Judgment and Decisions
Thinking, judgment, and personal and societal decision making, with emphasis on fallacies and biases.
One-term course offered either term
Also Offered As: PPE 153
Prerequisite: One semester of statistics or microeconomics
Activity: Lecture
1 Course Unit

PSYC 265 Behavioral Economics and Psychology
This course will introduce you to the study of choice, and will examine in detail what we know about how people make choices, and how we can influence these choices. It will utilize insights from psychology and economics, and will apply these insights to domains including consumer choice, risky decision making, and prosocial decision making.
Taught by: Bhatia
One-term course offered either term
Also Offered As: PPE 313
Prerequisites: Microeconomics and PSYC 001
Activity: Lecture
1 Course Unit

PSYC 266 Introduction to Positive Psychology
An introduction to the study of positive emotions, positive character traits, and positive institutions. The positive emotions consist of emotions about the past (e.g., serenity, satisfaction, pride), about the future (e.g., hope, optimism, faith), and emotions about the present (pleasure and gratification). The distinction among the pleasant life, the good life, and the meaningful life is drawn. The positive traits include wisdom, courage, humanity, justice, temperance, and spirituality, and the classification of these virtues is explored. The positive institutions are exemplified by extended families, free press, humane leadership, and representative government.
Course usually offered in spring term
Prerequisite: PSYC 001
Activity: Lecture
1 Course Unit

PSYC 272 Evolutionary Psychology
This course introduces the field of evolutionary psychology, which is an approach to the study of human behavior. We will consider the theoretical underpinnings of the field, including evolutionary theory, development, kinship, and adaptations for social life, and will sample some of the recent empirical contributions to this growing area.
Taught by: Kurzban
One-term course offered either term
Prerequisite: PSYC 001
Activity: Lecture
1 Course Unit

PSYC 275 Introduction to Political Psychology
This course will explore psychological approaches to understanding political beliefs, attitudes, and actions at the levels of both individual citizens and national leaders. It will also explore the possibility that psychological science itself is not immune to the political debates swirling around it. Specific topics will include: the workings of belief systems (and their power to shape what we “see”), cognitive biases (and their power to cause miscalculations), sacred values and their role in stabilizing belief systems and social interaction, personality and ideology (the linkages between the personal and the political), and clashing conceptions of morality and distributive and corrective justice (striking variations among people in what they consider to be fair). We shall also explore some topics that have sparked controversy in the psychological research literature and that tend to polarize opinion along political lines, including work on intelligence and unconscious bias.
Taught by: Tetlock
One-term course offered either term
Also Offered As: PPE 275
Prerequisite: PSYC 001 or COGS 001
Activity: Lecture
1 Course Unit
Notes: NOTE: Students who are more interested in business-related issues may want Wharton 276x which is a modified version of this course specifically for Wharton undergraduates.

PSYC 276 Developmental Psychology: Social and Emotional Development
This course will cover theory and research related to the development of attachment, emotional regulation, peer and intimate relationships, personality, moral reasoning, and emotional and behavioral disorders. The course will emphasize the degree to which family, peer, and community contexts influence development from infancy into adulthood. Efforts will be made to integrate biological and environmental accounts of development across the lifespan.
One-term course offered either term
Prerequisite: PSYC 001
Activity: Lecture
1 Course Unit

PSYC 281 Cognitive Development
What infants and young children come to know about the world, and how they learn it. Topics will include changes in children’s thinking, perceptual development, language acquisition, and current theories of cognitive development.
Taught by: Swingley
One-term course offered either term
Prerequisite: PSYC 001 or COGS 001
Activity: Lecture
1 Course Unit
PSYC 311 Research Experience in Perception
In this research course, students will begin by first replicating earlier experiments to measure human visual memory capacity. After several class discussions to discuss ideas, each student will design and conduct their own experiment to further investigate visual and/or familiarity memory.
Taught by: Rust
One-term course offered either term
Prerequisites: One semester of statistics, and one of the following: PSYC 111, 149, 151, 217, or permission of instructor.
Activity: Seminar
1 Course Unit
Notes: Dept permission required. Undergraduates only.

PSYC 351 Research Experience in Cognitive Psychology
Students will work in small groups to develop, empirically test, and report on a research question in the field of cognitive psychology. Through this process, students will learn how to conduct and report a psychological study, including the appropriate statistical tests. Class discussions will help students craft their projects, and in-class presentations will provide the opportunity to develop and refine presentation skills. Psychology majors only. Class size is limited to 16 students.
Taught by: Weisberg
One-term course offered either term
Prerequisites: One semester of statistics.
Activity: Seminar
1 Course Unit
Notes: Dept permission required. Psych majors only.

PSYC 362 Research Experience in Abnormal Psychology
PSYC 362-301 is a two-semester course starting in the Fall. Class size limited to 8 students.
Taught by: Dr. Melissa Hunt
Prerequisites: PSYC 162 and one semester of statistics. Psych majors only. Instructor permission required.
Activity: Seminar
1 Course Unit
Notes: PSYC 362-301 is a two-semester course starting in the Fall.

PSYC 370 Research Experience in Social Psychology
In this course students will work in small groups to develop, empirically test, and report on a research question within one of the domains of social psychology. Depending on the nature of the project, students will employ survey experimental, or observational research methodology, and learn how to conduct and report the appropriate statistical tests with Excel and/or SPSS (typically, correlations, t-tests, ANOVA and ANCOVA, multiple regression, factor analysis, and measures of reliability). Class discussions will help students craft their projects, and in-class presentations will provide the opportunity to develop and refine presentation skills. Psychology majors only. Class size is limited to 12 students.
Taught by: Royzman
Prerequisites: PSYC 170 AND one semester of statistics.
Activity: Seminar
1 Course Unit
Notes: Dept permission required. Psychology majors only.

PSYC 380 Research Exp Develop Psy
Activity: Seminar
1 Course Unit

PSYC 399 Individual Empirical Research
Individual research involving data collection. Students do independent empirical work under the supervision of a faculty member, leading to a written paper. Normally taken in the junior or senior year.
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: Dept permission required

PSYC 400 Senior Honors Seminar in Psychology
Open to senior honors candidates in psychology. A two-semester sequence supporting the preparation of an honors thesis in psychology. Students will present their work in progress and develop skills in written and oral communication of scientific ideas.
Taught by: Thompson-Schill
Prerequisite: acceptance into the Honors Program in Psychology
Activity: Seminar
0.5 Course Units
Notes: Dept permission required

PSYC 407 Behavioral Genetics
This course will cover basic principles of human and animal behavior genetics, including the genetics of normal variation as well as extreme phenotypes represented by behavioral, psychiatric and neurologic disorders. The course will focus on methods necessary to critically evaluate research findings on normal and abnormal human behavior. Animal models will also be reviewed.
Taught by: Price
One-term course offered either term
Prerequisite: Basic statistics or permission of instructor
Activity: Seminar
1 Course Unit

PSYC 421 Neurobiology of Learning and Memory
This advanced course focuses on the current state of our knowledge about neurobiological basis of learning and memory. Students will explore the molecular and cellular basis of learning in invertebrates and vertebrates from a behavioral and neural perspective.
Taught by: Gerstein
One-term course offered either term
Also Offered As: NGG 575
Activity: Seminar
1 Course Unit
PSYC 429 Big Data, Memory, and the Human Brain
Advances in brain recording methods over the last decade have generated vastly more brain data than had been collected by neuroscientists during the previous century. To understand the human brain, scientists must now use computational methods that exploit the power of these huge data sets. This course will introduce you to the use of big data analytics in the study of human memory and its neural basis. Through hands-on programming projects, we will analyze multi-terabyte data sets both to replicate existing phenomena and to make new discoveries. Although the course has no formal neuroscience or psychology prerequisites it does require CIS121 and Python experience. Because of the heavy computing resources required to perform the assignments enrollment is limited to 15 students and there is a required course application. http://psychology.sas.upenn.edu/undergraduate/forms
Taught by: Kahana
Prerequisite: CIS121 & Python experience
Activity: Seminar
1 Course Unit
Notes: Instructor permission required. Application form can be found here: http://psychology.sas.upenn.edu/undergraduate/forms

PSYC 431 Seminar in Animal Cognition
The aim of this course will be to provide advanced undergraduates with a detailed review of a number of research areas in behavioral ecology.
One-term course offered either term
Prerequisite: PSYC 231/Biol 231/ BIBB 231
Activity: Seminar
1 Course Unit

PSYC 435 Psycholinguistics
Taught by: Dahan
Prerequisites: PSYC 151, or PSYC 235, or LING 001, or permission of instructor.
Activity: Seminar
1 Course Unit

PSYC 439 Neuroendocrinology Seminar
This course is designed to examine the various roles played by the nervous and endocrine systems in controlling both physiological processes and behavior. First, the course will build a foundation in the concepts of neural and endocrine system function. Then, we will discuss how these mechanisms form the biological underpinnings of various behaviors and their relevant physiological correlates. We will focus on sexual and parental behaviors, stress, metabolism, neuroendocrine-immune interactions, and mental health.
Taught by: Flanagan-Cato
One-term course offered either term
Prerequisite: PSYC 109
Activity: Seminar
1 Course Unit

PSYC 440 Sleep and Sleep Disorder
Activity: Lecture
1 Course Unit

PSYC 447 Seminar in Neuroscience Neurology
Taught by: Gottfried
One-term course offered either term
Prerequisite: PSYC 109
Activity: Seminar
1 Course Unit
Notes: Undergraduates only.

PSYC 449 Seminar in Cognitive Neuroscience
Topics vary each semester. PSYC 449 (Gerstein) Neuroscience for Policymakers: This seminar will provide an overview of the neuroscience behind some of the most relevant issues in public health policy today. We will examine the primary scientific literature as well as delve into lay articles about the science and policy surrounding each issue. /PSYC 449 (Epstein) Consciousness: Consciousness is our subjective experience of the world, including both perceptions and felt internal states. In this seminar, we will explore the the burgeoning scientific literature on the neural basis of consciousness. We will focus in particular on three topics: What are the neuronsystems underlying visual awareness? What are the mechanisms that control the progression of conscious contents to create our stream of thought? What is the relationship between consciousness and behavior? /PSYC 449 (Jenkins) The Social Brain: This seminar examines the cognitive and neural mechanisms that enable humans to predict and understand people's behavior. We will be propelled throughout the course by fundamental questions about the human social brain. For example, why are humans so social? Does the human brain have specialized processes for social thought? Consideration of these questions will involve advanced treatment of a range of topics.
Prerequisite: PSYC 149
Activity: Seminar
1 Course Unit
Notes: PSYC 449-601 is an LPS course. PSYC 449-301, 302 and -303 are Psych Dept. courses.

PSYC 453 Seminar in Decision Making: Judgment and Decisions
This seminar will be a series of engaging discussions on a variety of topics that are important to the field of behavioral decision theory. We'll cover issues such as constructed preferences, loss aversion, nudging, emotions, well-being, other-oriented decisions, intuitive predictions, unethical choices, and more. Students will be asked to present papers and generate ideas for potential research projects each week. Grades will be based on class contributions and a paper that is either a literature review or a careful and detailed proposal for a research project.
Taught by: Mellers
One-term course offered either term
Prerequisite: PSYC 253 or PSYC 265
Activity: Seminar
1 Course Unit
Notes: Undergraduates only.

PSYC 460 Body Image: Etiology, Psychopathology and Treatment
Course not offered every year
Activity: Seminar
1 Course Unit

PSYC 462 Seminar in Abnormal Psychology
Topics vary each semester.
Prerequisite: PSYC 162
Activity: Seminar
1 Course Unit
Notes: Undergraduates only. 462-601 is an LPS course.

PSYC 470 Seminar in Social Psychology
Topics vary each semester.
One-term course offered either term
Prerequisite: PSYC 170
Activity: Seminar
1 Course Unit
Notes: Undergraduates only.
PSYC 472 Behavioral Biology of Women
A course that explores female behavior focusing on evolutionary, physiological, and biosocial aspects of women’s lives from puberty, through reproductive processes such as pregnancy, birth, lactation to menopause and old age. Examples are drawn from traditional and modern societies and data from nonhuman primates are also considered.
Taught by: Apicella
One-term course offered either term
Prerequisites: PSYC 272 or permission of instructor.
Activity: Seminar
1 Course Unit

PSYC 473 Neuroeconomics
This course will review recent research that combines psychological, economic and neuroscientific approaches to study human and animal decision-making. A particular focus will be on how evidence about the neural processes associated with choices might be used to constrain economic and psychological theories of decision-making. Topics covered will include decisions involving risk and uncertainty, reinforcement learning, strategic interactions and games, and social preferences.
Taught by: Kable
One-term course offered either term
Also Offered As: NGG 706
Prerequisites: PSYC 149, 253, or 265
Activity: Seminar
1 Course Unit

PSYC 474 PSYC 474-301: Being Human; PSYC 474-601: Cultural Psychology
Taught by: Platt (PSYC 474-301); Abiola (PSYC 474-601)
Prerequisite: PSYC 001
Activity: Seminar
1 Course Unit
Notes: Undergraduates only. PSYC 474-601 is an LPS course.

PSYC 477 Seminar in Political Psychology: Terrorism, Radicalization, Martyrdom and Revolution
Seminar will focus on rare events that change history: terrorism; revolution, and martyrdom (not to be confused with suicide bombing). Applying theory and research from social psychology, evolutionary psychology and behavioral economics we will try to understand these phenomena from the inside out: from individual psychology of terrorists, revolutionaries and martyrs to mass psychology of large publics moved by these individuals.
Taught by: Moskalenko
One-term course offered either term
Prerequisite: PSYC 170
Activity: Seminar
1 Course Unit
Notes: Undergraduates only.

PSYC 478 CAPSTONE: SOCIAL PSYCHOLOGY
Though almost half a century old, Milgram’s 1961-1962 studies of "destructive obedience" continue to puzzle, fascinate, and alarm. In this seminar, we will take an in-depth look at these famous studies (along with the more recent replications) and explore their various psychological, historical, and philosophical ramifications. This course has a number of intellectual goals that go beyond simply rarifying one's understanding of a particular content area (important and generative as it may be). One such a goal is to enable you to think critically (though not disparagingly) about other people’s research and theoretical claims that ensue from it, all with the hope that you can then apply the self-same critical acumen to your own future work. Second, this course will offer a hospitable environment for developing (and exchanging) creative ideas of your own. Your work on your individual reaction papers and on the term paper in particular will be a key element in achieving this goal.
Taught by: Royzman
Also Offered As: PPE 477
Prerequisite: PSYC 170
Activity: Seminar
1 Course Unit
PSYC 482 Inside the Criminal Mind
This seminar explores the development of antisocial behavior including psychopathy, aggression, and violence. At its core, this course examines what increases the risk that children will develop behavior problems and go onto more chronic and extreme forms of violence and psychopathic personality that results in harm to others. We will examine psychiatric diagnoses associated with these antisocial behaviors in both childhood and adulthood and how they link to other relevant forms of psychopathology (e.g., substance use, ADHD). We will explore research elucidating the neural correlates of these behaviors, potential genetic mechanisms underlying these behaviors, and the environments that increase risk for these behaviors. Thus, there will be a focus on neurobiology and genetics approaches to psychiatric outcomes, as well as a social science approach to understanding these harmful behaviors, all while considering development across time. We will also consider ethical and moral implications of this research.
Taught by: Waller
Prerequisites: PSYC 162 and PSYC 181
Activity: Seminar
1 Course Unit
Notes: Undergraduates only.

PSYC 492 Social Cognition
Activity: Seminar
1 Course Unit

PSYC 511 Visual Tasks, Models, Processing, Receptors & Stimuli
Activity: Lecture
1 Course Unit

PSYC 521 Judgment & Decisions
Activity: Seminar
1 Course Unit

PSYC 525 Controversies in Psychology and Neuroscience
In this seminar, we will discuss several recent controversies in psychology and neuroscience, for example: “p-hacking,” replicability, methodological terrorists, neural activity in dead salmon and failures to control the false positive rate in neuroimaging, “voodoo correlations” and double dipping, whether Tic-Tacs can improve self-control and whether reading “old” makes you walk slower. Our goal is not just to engender ennui and/or schadenfreude, but also to ask what we can learn from these discussions about how to do science in the most rigorous, reproducible manner possible.
Activity: Seminar
1 Course Unit

PSYC 539 Theoretical and Computational Neuroscience
This course will develop theoretical and computational approaches to structural and functional organization in the brain. The course will cover: (i) the basic biophysics of neural responses, (ii) neural coding and decoding with an emphasis on sensory systems, (iii) approaches to the study of networks of neurons, (iv) models of adaptation, learning and memory, (v) models of decision making, and (vi) ideas that address why the brain is organized the way that it is. The course will be appropriate for advanced undergraduates and beginning graduate students. A knowledge of multi-variable calculus, linear algebra and differential equations is required (except by permission of the instructor). Prior exposure to neuroscience and/or Matlab programming will be helpful.
Taught by: Balasubramanian
Course not offered every year
Also Offered As: NGG 594
Activity: Lecture
1 Course Unit

PSYC 547 Foundations of Social, Cognitive, and Affective Neuroscience
Activity: Lecture
1 Course Unit

PSYC 549 Neuroscience and Society
Activity: Lecture
1 Course Unit

PSYC 557 Neuroscience, Ethics & Law
How does the neuroscience of human decision-making and emotion impact our understanding of ethics and law? What can neuroscience tell us about why people find actions moral or immoral, worthy of praise or punishment? What, if anything, can it tell us normatively about morality, agency and responsibility? And what other insights might neuroscience offer regarding other morally and legally relevant phenomena such as stereotyping and bias, the causes of antisocial behavior and the detection of deception?
Activity: Seminar
1 Course Unit

PSYC 579 Exp Methods Perception
Activity: Lecture
1 Course Unit

PSYC 600 Proseminar in General Psychology
Choice of half or full course units each sem. covering a range of subjects and approaches in academic psychology.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Dept permission required

PSYC 609 Systems and Integrative Neuroscience
Course usually offered in fall term
Also Offered As: NGG 573
Activity: Lecture
1 Course Unit
Notes: Fulfills the Brain requirement

PSYC 611 Statistics for Psychologists
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PSYC 612 Introduction to Nonparametric Methods and Log-linear Models
Course usually offered in spring term
Activity: Lecture
1 Course Unit
PSYC 671 Violence: A Clinical Neuroscience Approach
Developed for both Psychology and Criminology graduate students, this interdisciplinary course outlines a clinical neuroscience approach to understanding violence in which the tools of neuroscience—neuroanatomy, neurophysiology, neurocognition, neuroendocrinology, neuropharmacology, molecular and behavioral genetics—are used to help inform the etiology and treatment of violence. Clinical components include psychopathy, proactive and reactive aggression, homicide, domestic violence, conduct disorder, oppositional defiant disorder, antisocial personality disorder, crime, and delinquency as well as their comorbid conditions (schizophrenia, drug abuse, hyperactivity). The interaction between social, psychological, and neurobiological processes in predisposing to violence will be highlighted, together with neurodevelopmental perspectives on violence focusing on prospective longitudinal and brain imaging research. Key implications for the criminal justice system, neuroethics, forensics psychology, and intervention will also be outlined.
Taught by: Raine
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Graduate students only.

PSYC 698 Laboratory Rotation
Lab rotation for psychology grad students.
One-term course offered either term
Activity: Lecture
3 Course Units
Notes: Dept permission required. Open only to psychology dept graduate students.

PSYC 699 Individual Research for First-Year Graduate Students
Two terms. student must enter first term.
Activity: Independent Study
3 Course Units

PSYC 703 Special Topics in Psychology
One-term course offered either term
Activity: Seminar
1 Course Unit

PSYC 704 Research Methods and Statistical Procedures for Social and Clinical Sciences
This course has three primary objectives: 1) developing criteria and strategies for strong inference of causal relationships in social and clinical psychology research; 2) examining the array of research designs employed in the social/clinical sciences together with the threats to internal and external validity associated with each; 3) learning and applying statistical analytical methods appropriate for questions in the social/clinical sciences. The course will employ a seminar format and a project-oriented approach to learning. Students will be encouraged to utilize examples from their own research programs in applying the design and analysis concepts covered in the course.
One-term course offered either term
Activity: Seminar
1 Course Unit

PSYC 705 Neuroethics
Neuroscience is increasingly affecting all aspects of human life, from the relatively familiar medical applications in neurology and psychiatry, to new applications in education, business, law, and the military. Today’s neuroscience graduate students will be among the scientists, citizens, and policymakers who will lead society through the maze of decisions regarding the appropriate uses of neuroscience. This course provides a survey of the key ethical, legal, and social issues at the intersection of neuroscience and society. It will include a combination of traditional classroom lectures, discussion and debates, as well as an online component coordinated with a course at Wisconsin’s Neuroscience and Public Policy graduate program.
Taught by: Farah
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Dept permission required.

PSYC 709 Special Topics in Clinical Psychology
In this seminar we will survey substantive, methodological and statistical issues that arise in the planning, conduct, and interpretation of empirical inquiries about the effects of psychotherapies. Challenges presented in efforts to disseminate evidence-based clinical practices will also be addressed.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Graduate students only.

PSYC 711 Basic Problems in Developmental II
One-term course offered either term
Activity: Seminar
1 Course Unit

PSYC 712 Regression & Anova II
One-term course offered either term
Activity: Seminar
1 Course Unit

PSYC 745 Special Topics in Cognitive Neuroscience
One-term course offered either term
Activity: Seminar
1 Course Unit

PSYC 810 Psychodiagnostic Testing
Course usually offered in fall term
Activity: Seminar
1 Course Unit

PSYC 811 Psychodiagnostic Interviewing
Course usually offered in fall term
Activity: Seminar
1 Course Unit

PSYC 815 Introductory Practicum
Course usually offered in spring term
Activity: Seminar
1 Course Unit

PSYC 820 Advanced Practicum
Intensive studies of single individuals including interviews, tests, and experiments; also clinical experience at appropriate community agencies.
One-term course offered either term
Activity: Seminar
1 Course Unit
PSYC 999 Individual Study and Research
One-term course offered either term
Activity: Independent Study
0.5 Course Units
PUBLIC HEALTH STUDIES (PUBH)

PUBH 500 Foundations of Public Health
This course will provide a topical overview of the inter-disciplinary field of public health and provides grounding in the public health paradigm. Through a series of lectures and recitation sessions, students will learn about the history of public health and the core public health sciences including behavioral and social sciences, biostatistics, epidemiology, environmental health, and policy and management. Other topics include ethics in public health, context analyses (specifically sociographic mapping and urban health), community participation in research, public health promotion, and the prevention of chronic and infectious diseases.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PUBH 501 Introduction to Biostatistics
Introduction to Biostatistics This course is designed to provide a broad overview of biostatistics methods as well as applications commonly used for public health research. Topics covered include measurement and categorizing variables, use and misuse of descriptive statistics, testing hypotheses, and applying commonly used statistical tests. An emphasis will be placed on the practical application of data to address public health issues, rather than theoretical and mathematical development. Students will learn how to choose and apply statistical tools to data sources, when and how statistical tools can be used to analyze data, and how to interpret others' quantitative studies. Students will gain experience using online datasets and the STATA statistical software package.
Taught by: Shofer, Hanlon
One-term course offered either term
Activity: Lecture
1 Course Unit

PUBH 502 Introduction to the Principles and Methods of Epidemiology
This course will provide an introduction to the principles and methods of epidemiology as a research science. The course introduces the student designs applied to human populations, including randomized trials and observational studies (cohort, case-control, cross-sectional, ecological). Homework and in-class assignments focus on building skills in locating, assessing, and synthesizing evidence from the epidemiologic literature, with an emphasis on critical thinking, causal inference, and understanding bias and confounding.
Taught by: Smith, Cannuscio
One-term course offered either term
Activity: Lecture
1 Course Unit

PUBH 503 Environmental and Occupational Health
This course will provide a broad introduction to the scientific basis of occupational and environmental health. Content will address issues in the ambient, occupational and global environments as well as the tools, concepts and methods used in environmental health.
Taught by: Howarth, Pepino, Klinger Kutcher
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PUBH 504 Public Health Theories & Frameworks
This course provides students with a solid foundation in behavioral and social science theory, research, and interventions as they pertain to public health. Content will provide exposure to a broad range of theories, including the theoretical foundations of social science applications for help-seeking, gender, race, ethnicity and social class. These theories will be discussed using examples of their applications to numerous public health problems including HIV/AIDS, violence, cancer, cardiovascular diseases, obesity, and diabetes.
Taught by: Ruggieri, Fleisher
One-term course offered either term
Activity: Lecture
1 Course Unit

PUBH 505 Public Health Policy and Administration
This course is an introduction to health policy and management. It examines both the historical and current state of health policy in America and integrates these concepts within the context of public health practice. We will examine key concepts in understanding US health care organization, financing and delivery; our current political and economic debate on health care reform, examining the role and management issues of public health departments, and case studies in public health policy and management.
Taught by: Noonan, Klusaritz
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PUBH 506 Methods for Public Health Practice
This is a course designed around modules whose objective is to provide students with greater familiarity in a range of methods essential to public health practice. The course will be framed around an in-depth capacity and needs assessment and community public health planning in Philadelphia. Topics covered will include data collection and evaluation, both quantitative and qualitative, uses of informatics in public health, analysis of vital statistics, working with communities, methods for developing and facilitating solutions to public health problems, including concepts of advocacy and policy formation and development of interventions. The course demonstrates how core public health competency areas in data analysis and communication provide foundations for applications for both practice and practice-based research.
Taught by: Solomon, Hall, Leary
One-term course offered either term
Activity: Lecture
1 Course Unit

PUBH 507 Public Health Law & Ethics
What is best - or, at least, seems best – for the public's health is not always consistent with society's view of what is legal, ethical, or good policy. This course introduces key concepts of legal, ethical, and policy analysis and attempts to demonstrate with current examples how these forces empower, guide, and constrain public health decision-making and actions. The course will combine lecture, Socratic dialogue, and group discussion in an informal setting. The course will feature guest lectures by several distinguished experts from Penn and from other universities.
Taught by: Anderson
Course usually offered in fall term
Activity: Lecture
1 Course Unit
PUBH 508 Capstone Seminar I
The Capstone is a culminating experience required for graduation in the Master of Public Health Program. In two Capstone seminars, students will have an opportunity to synthesize the knowledge and public health competencies they have developed through their coursework. Capstone students will apply their knowledge and skills to public health problems in a chosen area of interest. They will engage their peers in scholarly discussion, drawing from relevant scientific literature and public health experience in order to begin to develop a common grounding and identity as public health professionals. The Capstone incorporates two semester-long seminars and a research project. over the course of the Castone, students will develop, propose, revise, implement, and present their projects. As their projects successfully come to fruition they will also advise their junior colleagues still in the proposal stage.
Taught by: Frasso, Anderson, Levy, Grisso
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit

PUBH 514 Experiential Learning in Environmental and Occupational Health

PUBH 517 Geography and Health
This course will provide an introduction to GIS in public health research and practice. Through a series of lectures and labs students will explore theories linking health and the environment, spatial analysis and spatial epidemiology, and applications of GIS-related data collection and analysis.
Taught by: Wiebe
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PUBH 519 Issues in Global Health
This course presents an overview of issues in global health from the viewpoint of many different disciplines, with emphasis on economically less developed countries. Subjects include: millennium goals; measures of disease burden; population projections and control; environmental health and safe water; demography of disease and mortality; zoonotic infectious diseases; AIDS and HIV prevention; vaccine utilization and impact; eradication of polio virus; chronic diseases; tobacco-associated disease and its control; nutritional challenges; social determinants of global health; harm reduction and behavioral modifications; women's reproductive rights; health economics and cost-effective interventions; health manpower and capacity development; bioethical issues in a global context.
Taught by: McLaughlin
Course usually offered in fall term
Prerequisites: Undergraduates must have completed HSOC-010-401.
Activity: Lecture
1 Course Unit

PUBH 521 Program Evaluation in Public Health
There are many public health programs developed to promote change. The question most funders have for public health programs is: what outcomes do you expect? This course is designed to review the principles of identifying short term, mid term and long term outcomes and methods of measurement. Students learn about the application of data collection skills to all phases of developing a public health program or service innovation, from needs assessment to analysis of finding to implementation of changes based on results. Students learn to appreciate how these skills can be used as practical tools for identifying public health problems, program development, program implementation including taking a reflective practice approach, ensuring equity and fairness in program delivery (i.e. combating disparities), and generally promoting public health through effective and efficient programmatic efforts.
Taught by: Karpyn
Course offered spring; odd-numbered years
Activity: Lecture
1 Course Unit

PUBH 525 Developing Effective Public Health Programs Using a Humans Rights Based Approach
This course will engage students in discussion of how a human rights approach, informed by international human rights declarations and covenants as well as gender theory, can more comprehensively inform the development of a variety of public health programs. Specifically, the class will discuss how health policies, programs and practices can impact on human rights (e.g. mandatory reporting of certain communicable diseases, quarantine, accessibility of services, etc.); how violations of human rights affect health (e.g. torture, discrimination, etc.) and how health and human rights are ultimately inextricably linked and programming for public health must use a framework that ensures a balance of interests between the two disciplines.
Taught by: Voet
Course usually offered summer term only
Activity: Lecture
1 Course Unit

PUBH 526 Anthropology and Public Health
Taught by: Barg
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: In this course, we examine three types of relationships between anthropology and public health. Anthropology and public health will examine complementary and competing concepts fundamental to each discipline and ways that these concepts make it essential and difficult for the disciplines to work together. Anthropology in public health takes a critical look at assumptions in public health praxis. Anthropology in public health will focus on ways that anthropology theory and methods inform the practice of public health. Using these three approaches, we will examine topics in public health such as mental health, health promotion/disease prevention communication, cancer disparities, reproductive health, violence and infectious disease. Students will learn and apply anthropologic research methods to these problems.
PUBH 527 Media, Advocacy and Public Health
This course will examine the ways in which the media can be used as a tool to improve health. It will also investigate the ways in which the media has had a negative impact on health behaviors in the population. Looking at specific topics like tobacco, food and nutrition, and HIV/AIDS, we will explore the intersection of media, advocacy, advertising and entertainment and the impact of media broadly on health behavior and society. The course will also provide students the opportunity to practice strategically working with the media to address health problems.

Taught by: TBA
Course not offered every year
Activity: Seminar
1 Course Unit

PUBH 528 Class, Inequality and Health: Ethnographic Perspectives
Taught by: Bourgois
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: This seminar examines anthropological approaches to the concept of class and social inequality through a close reading of a dozen ethnographies that deal with a broad definition of health, illness, and social suffering. Readings span many of the theoretical, political, sub-disciplinary and area studies debates in anthropology and the larger fields of poverty, social inequality, international development, violence studies, science studies, governmentality, and social policy interventions over the past century.

PUBH 529 Topics in Family Planning
This course will survey a range of key current and historic topics in family planning nationally and internationally. Policy, epidemiology, clinical practice, advocacy, and service delivery topics will be covered through presentations and conversations with leaders in the field of reproductive health. The course will provide students with a broad general introduction to family planning which is appropriate for those interested in either public health or clinical aspects of the field. For students who wish to pursue a focused career in this area this course is a necessary introduction, while students who will be working in related areas of public health will have a broad general understanding of family planning. Students will participate through an interactive seminar style and will prepare an oral presentation on a relevant topic of their choice.

Taught by: Bennett, Schreiber
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PUBH 530 Environmental Toxicology: Risk Assessment and Health Effects
This course presents general principals of toxicology and the disposition of toxins in the body. Case studies of the effects of environmental and occupational toxins on individuals will be analyzed. This course is designed for students who desire a strong foundation in toxicological concepts and principals and provides an overview of major toxins in our environment and their association with human health.

Taught by: Liu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Undergrads need Permission

PUBH 531 Public Health Nutrition
Activity: Lecture
1 Course Unit

PUBH 532 Public Health Nutrition
Activity: Lecture
1 Course Unit
Also Offered As: HPR 503
Course usually offered in spring term
Prerequisites: HPR 606 and PUBH 505 or permission of instructor
Activity: Lecture
1 Course Unit

PUBH 533 Global Health
Activity: Seminar
1 Course Unit
Also Offered As: PUBH 505
Course usually offered in spring term
Prerequisites: Fundamentals of Health Policy (offered through the Master's of Science in Health Policy); PUBH 505 Public Health Administration and Policy; or permission of instructor. Enrollment limited to 12.
Activity: Lecture
1 Course Unit

PUBH 534 Global Health Disparities
Course not offered every year
Activity: Seminar
1 Course Unit

PUBH 535 Urban Poverty and Violence
Taught by: Bourgois
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This seminar examines anthropological approaches to poverty and violence through a close reading of eight ethnographies. Readings span many of the theoretical, political, sub-disciplinary and area studies debates in anthropology and the larger fields of poverty, social inequality, international development, and violence studies over the past century. My hope is to bring the subjects of urban poverty, violence, social suffering and a critique of neoliberal governmentality into the center of the disciplines of anthropology and public health specifically, and the social sciences, humanities and medicine more broadly. In the seminar we will be bringing students from anthropology, and other social science and humanities disciplines in dialogue with students in public health, science studies, and clinical medicine.

PUBH 536 Evidenced-Based Health Policy
Achieving Evidence-Based Health Policy examines how research can influence health policy. Individual sessions will be devoted to topics such as the NurseFamily Partnership program, health insurance, smoking, and early childhood mental health. Sessions will examine how selection of research methods may influence results; the dialectical relationship between research and policy; and the role of various stakeholders (the media, foundations, government, advocates) in both research and policy debates. Didactic topical research presentations will be followed by interactive discussions examining how research finds translates (or, as the case may be, do not translate) into policy. Guest speakers will include research and policy experts from the public and private sectors. Prerequisites are Fundamentals of Health Policy (offered through the Master's of Science in Health Policy); PUBH 505 Public Health Administration and Policy; or permission of instructor. Enrollment limited to 12.
Activity: Lecture
1 Course Unit

PUBH 537 Qualitative Methods in Health
The purpose of this course is to expose students to a variety of qualitative approaches/methodologies that may be used in health services/policy research. In didactics we will discuss the pros and cons of various methods, explaining how the method is actually implemented (with multiple experts presenting their approaches), and pair the presentation with a broader discussion in which we compare and contrast health oriented articles in which the method was used.

Taught by: Barg, Shea
Course usually offered summer term only
Activity: Lecture
1 Course Unit

PUBH 538 Designing Interventions To Promote Health and Reduce Health Disparities
Activity: Seminar
1 Course Unit

PUBH 539 Goglobal: Ghana
Activity: Lecture
1 Course Unit
PUBH 541 Social Epi: Social Epidemiology
Activity: Lecture
1 Course Unit

PUBH 545 Contemporary Issues in Maternal Child Health
Activity: Lecture
1 Course Unit

PUBH 551 Global Health Policy and Delivery
This participatory interdisciplinary seminar course examines contemporary issues in global health policy and delivery. The overall organizing framework for the class is the social determinants of health. The class will consider evidence that inequalities in education, income, and occupation influence health status. Students will develop skills in policy analysis, policy brief development, and policy impact monitoring. The public policy process will be explored using a variety of contemporary global health case studies which focus on content areas such as maternal health, HIV policy, refugee health and global healthcare delivery. Finally, we will examine the global health workforce and its impact of widespread global migration of health professionals on receiving and sending countries.
Taught by: McLaughlin and Voet
Course usually offered in spring term
Activity: Lecture
1 Course Unit

PUBH 553 Science & Politics of Food
Activity: Lecture
1 Course Unit

PUBH 554 Impact Evaluation of Global Health Programs
Activity: Lecture
1 Course Unit

PUBH 558 Health & Disease For Public Health Practitioners
Activity: Lecture
1 Course Unit

PUBH 559 Health Communication in the Digital Age
Activity: Lecture
1 Course Unit

PUBH 565 Health Communication in the Digital Age
Activity: Lecture
1 Course Unit

PUBH 567 Adolescent & Young Adult Health/Health Policy
Course usually offered in spring term
Activity: Lecture
1 Course Unit

PUBH 575 Intimate Violence: Intimate Violence
Activity: Lecture
1 Course Unit

PUBH 580 Implementing the ACA-Obamacare: Multi-Stakeholder Perspectives
Activity: Lecture
1 Course Unit

PUBH 588 Advanced Leadership Skills in Community Health
Grounded in a social justice perspective, this course aims to provide the student with a foundational overview of the field of community health and leadership skills in public health advocacy. The course encourages critical thinking about health outcomes framed by the broad context of the political and social environment. This course analyzes the range of roles and functions carried out by leaders in healthcare advocacy for marginalized communities; integrates knowledge of health policy and the key influence of government and financing on health outcomes; explores community-based participatory research and interventions as tools for change; and discuss ways to develop respectful partnerships with community organizations. An assets-based approach that draws upon the strengths of communities and their leaders provides a foundation for community-engagement skill building. The course emphasizes the development of skills and techniques to lead effective, collaborative, health-focused interventions for disenfranchised groups, including residents of urban neighborhoods.
Taught by: Margo; Klusaritz; Lipman
Course usually offered in spring term
Also Offered As: HPR 588
Prerequisite: Enrollment in a Masters or Doctoral program
Activity: Lecture
1 Course Unit
Notes: Undergraduates with permission of the instructor

PUBH 589 The Public Health Challenges of Alzheimer's Disease and Cognitive Aging
Activity: Lecture
1 Course Unit

Taught by: Nelson, Grisso
One-term course offered either term
Corequisites: For BGS Public Health Certificate students only.
Activity: Seminar
1 Course Unit

PUBH 598 Immersion Experience in Global Public Health
Taught by: Nguyen
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: This independent educational experience seeks to provide motivated students with the opportunity to expand their knowledge in global health through focused experiential learning at international sites that provide direct public health services. Such learning will allow students to gain real-world experience concerning the core competencies of public health (health policy, behavior/ social sciences, environmental health, epidemiology, or biostatistics).

PUBH 599 Independent Study in Public Health
One-term course offered either term
Activity: Independent Study
1 Course Unit

PUBH 602 Epi Methods Dis/Prev: Intermediate Epi and Statistical Methods For Ph Practice
Activity: Lecture
1 Course Unit

PUBH 603 Adv Research Methods: Advanced Research Methods For Scholarship
Activity: Lecture
1 Course Unit
PUBH 604 Qualitative Research in Social Sciences
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PUBH 605 Epidemiology and Control of Infectious Diseases
Taught by: Smith
Activity: Lecture
1 Course Unit

PUBH 606 Synthesis and Translation of Epidemiologic Literature
Activity: Lecture
1 Course Unit

PUBH 607 Advanced Local Public Health Policymaking
Activity: Lecture
1 Course Unit

PUBH 608 Behavioral Economics & Health
Activity: Lecture
1 Course Unit

PUBH 637 Advocacy & Public Health: Turning Knowledge Into Action
Course usually offered in spring term
Also Offered As: HPR 637
Activity: Lecture
1 Course Unit

PUBH 701 Industrial Hygiene
Activity: Lecture
1 Course Unit

PUBH 702 Organizational and Healthcare Management
Activity: Lecture
1 Course Unit
PUNJABI (PUNJ)

PUNJ 404 Beginning Punjabi Part I
This course emphasizes speaking and reading skills in Punjabi. Upon completion of this course, students should be able to interact meaningfully and in a socially acceptable manner in a variety of simple situations involving everyday conversational topics. Further, students should be able to read and understand the main idea and most details of simple connected texts. This course will utilize authentic printed, audio, and video materials and will provide opportunities for natural communication both within and outside the classroom.
For BA Students: Language Course
Taught by: Gahunia
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PUNJ 405 Beginning Punjabi Part II
This course emphasizes speaking and reading skills in Punjabi. Upon completion of this course, students should be able to interact meaningfully and in a socially acceptable manner in a variety of simple situations involving everyday conversational topics. Further, students should be able to read and understand the main idea and most details of simple connected texts. This course will utilize authentic printed, audio, and video materials and will provide opportunities for natural communication both within and outside the classroom.
For BA Students: Language Course
Taught by: Gahunia
Course usually offered in fall term
Activity: Lecture
1 Course Unit

PUNJ 424 Intermediate Punjabi Part I
This course is designed as a continuation of Beginning Punjabi, but can also be taken by anyone who can demonstrate a similar level in proficiency of the language. The course objectives are to expand the mastery of sentence patterns and augment vocabulary and its usage through intensive grammar review and comprehension exercises. A special emphasis will also be placed on greater cultural awareness. Upon completion of this course students should be able to interact socially with added confidence and greater expressiveness. Students should also experience a great improvement in their comprehension of the spoken and written language.
For BA Students: Language Course
Taught by: Gahunia
Course usually offered in spring term
Prerequisites: Intermediate Punjabi Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

PUNJ 425 Intermediate Punjabi Part II
This course is designed as a continuation of Beginning Punjabi, but can also be taken by anyone who can demonstrate a similar level in proficiency of the language. The course objectives are to expand the mastery of sentence patterns and augment vocabulary and its usage through intensive grammar review and comprehension exercises. A special emphasis will also be placed on greater cultural awareness. Upon completion of this course students should be able to interact socially with added confidence and greater expressiveness. Students should also experience a great improvement in their comprehension of the spoken and written language.
For BA Students: Language Course
Taught by: Gahunia
Course usually offered in spring term
Prerequisites: Intermediate Punjabi Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

PUNJ 434 Advanced Punjabi
The objective of the course is to improve proficiency in speaking, listening, reading and writing. Fall semester: Readings in Punjabi Literature - This course addresses the individual needs of learners. This is a one semester course. The focus of the course will be to study the interpretation of written and oral materials on social, political and contemporary cultural topics from modern literature, literary criticism, poetry and drama. Weekly written compositions and oral presentations will be assigned. Grading will be based on this. Spring semester: Punjabi Popular Culture- This course focuses on different aspects of popular Punjabi culture as they are represented in media - television, internet, magazines, newspapers, film, and music. This course aims at making the best use of class participation to improve all four language skills. This is also a one semester course.
For BA Students: Language Course
Taught by: Gahunia
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: This course is offered through the Penn Language Center.
QUECHUA (QUEC)

QUEC 110 Elementary Quechua I
For BA Students: Language Course
Taught by: Mendoza-Mori, Americo
One-term course offered either term
Activity: Seminar
1 Course Unit

QUEC 120 Elementary Quechua II
For BA Students: Language Course
One-term course offered either term
Activity: Seminar
1 Course Unit

QUEC 130 Intermediate Quechua I
For BA Students: Language Course
Course usually offered in fall term
Activity: Seminar
1 Course Unit
REAL ESTATE (REAL)

REAL 204 Real Estate Law
This course examines the fundamentals of real estate finance and development from a legal and managerial perspective. The course serves as a foundation course for real estate majors and provides an introduction to real estate for other students. It attempts to develop skills in using legal concepts in a real estate transactional setting. The course will be of interest to students contemplating careers in accounting, real estate development, real estate finance, city planning, or banking. The main topics covered may include the following: land acquisition, finance; choice of entity; tax aspects; management (leasing, environmental); disposition of real property (sale of mortgaged property, foreclosures, wraparound mortgages, sale-leasebacks); and recent legal developments. One-term course offered either term
Activity: Lecture
1 Course Unit

REAL 205 Global Real Estate: Risk, Politics and Culture
This is an introductory course to global real estate markets, with a focus on income-producing real estate assets. Globally, estimates suggest the value of investable real estate assets in the world exceeds $60 trillion. We will discuss the basics of valuation and risk management, emphasizing concepts that are salient in the global context, including political risk, currency risk, property rights and culture. The course will cover markets outside the United States, except for one special topic on international investors in the United States. We will focus more on the qualitative aspects of real estate investment analysis and less on quantitative aspects. As firms expand their ventures across borders, there is a growing emphasis on the ability to assess and manage risk in a global business environment. Many of these decisions have implications on real estate assets. In this class, we will discuss the real estate business decisions of global firms, such as Blackstone, Hilton, AirBNB, WeWork, Prologis, Walmart and Amazon. This is a full semester course, open to undergraduates and MBA’s.
Taught by: Maisy Wong
Course usually offered in fall term
Prerequisites: There is no pre-requisite for the course. No prior real estate experience is needed and no prior financial modelling experience is needed.
Activity: Lecture
1 Course Unit
Notes: Lecture with discussion required.

REAL 208 Housing Markets
This course is designed for students interested in the economics and operations of housing markets. It is primarily a U.S. focused course, but does include a limited amount of international material for comparative purposes. The class is divided into four sections: (1) supply and demand for housing, including the operations of homebuilders and rental landlords; (2) house prices, including cycles and price dynamics; (3) international comparisons; and (4) public policy analysis applied to a current housing markets-related issue. This course presumes knowledge of intermediate economics, as we will apply that knowledge throughout the semester. For Wharton students, this means you must have passed BEPP 250 (undergrads) or MGEC 611 and 612 for MBA’s. Non-Wharton students should have taken the equivalent course in the College.
Taught by: GYOURKO
Course usually offered in spring term
Prerequisites: Managerial Economics (BEPP 250) or equivalent.
Activity: Lecture
1 Course Unit
Notes: Lecture with discussion required.

REAL 209 Real Estate Investment: Analysis and Financing
This course provides an introduction to real estate with a focus on investment and financing issues. Project evaluation, financing strategies, investment decision making and real estate capital markets are covered. No prior knowledge of the industry is required, but students are expected to rapidly acquire a working knowledge of real estate markets. Classes are conducted in a standard lecture format with discussion required. The course contains cases that help students evaluate the impact of more complex financing and capital markets tools used in real estate. There are case studies and two midterms, (depending on instructor).
Taught by: Ferreira, Handbury, Harari, Keys, Sinai, Wong
One-term course offered either term
Prerequisite: FNCE 100
Activity: Lecture
1 Course Unit

REAL 215 Urban Real Estate Economics
Urban Real Estate Economics uses economic concepts to analyze real estate markets, values and trends. The course focuses on market dynamics in the U.S. and internationally, with an emphasis on how urban growth and local and federal government policies impact urban development and real estate pricing. A group development project gives hands on experience, and invited guest speakers bring industry knowledge. Besides the group project and presentation, problem sets are required along with a midterm and an optional second exam.
Taught by: Wachter
One-term course offered either term
Prerequisite: FNCE 100 & FNCE 101
Activity: Lecture
1 Course Unit

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REAL 230 Urban Fiscal Policy
The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent financial crises, local services and taxes as important determinants of real estate prices, the infrastructure crises, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.
Taught by: Inman
Course usually offered in spring term
Prerequisites: FNCE 101 and ECON 001
Activity: Lecture
1 Course Unit

REAL 236 International Housing Comparisons
This course analyzes housing finance systems and housing market outcomes across the globe. In the US, the course focuses on the development of securitization markets and addresses the current challenges of housing finance reform, including the future of Fannie Mae and Freddie Mac. Internationally, the course covers issues of access to housing and housing informality in developing countries, financial crises arising out of the housing sector, and market-oriented and public policy solutions. The course features a wide array of speakers in finance, government and academia who contribute their perspectives to pressing issues of mortgage market design.
Taught by: Wachter
Course usually offered in spring term
Prerequisites: FNCE 101 MONETARY ECON & GLOBAL ECO, ECON 010
INTRO TO ECON FOR BUS
Activity: Lecture
1 Course Unit

REAL 240 Advanced Real Estate Investment and Analysis
This course is designed for majors in Real Estate, but is also open to finance-oriented students who wish a deeper analysis of real estate investment and investment analysis issues than that offered in REAL 209. The class will contain a mixture of lectures, guest speakers and case discussions. Academic research is paired with recent industry analysis of key issues in order to marry sound theory and empirical results with current events and practices. Several classes will include lectures outlining what economics and finance tell us about a number of topics. Generally, these will be followed by guest lectures from industry professionals who will focus on a specific application of the principles introduced in the lectures.
Taught by: Sinai
Course usually offered in spring term
Prerequisite: REAL 209 or FNCE 209
Activity: Lecture
1 Course Unit

REAL 321 Real Estate Development
REAL 821
One-term course offered either term
Activity: Lecture
1 Course Unit

REAL 390 International Real Estate Comparisons
As a truly non-U.S. focused course, we explore the world of cross-border real estate development, with a focus on fast growing emerging market economies. Topics will emphasize the importance of strategy and implementation in cross-border real estate investment and include: the rationale, opportunities and risks of international real estate investing; the macro factors that influence the performance of real estate markets across countries; market specific factors that impact RE investment performance (property rights, taxes, transparency, planning procedures); the qualitative aspects of identifying and achieving successful projects; and the growing market for international RE securities and strategies for portfolio management. Classes will combine a lecture on specific aspects of global cross-border RE in the first half of the class and international case presentations in the second half. Cases will be presented by leading executives in charge of major international RE projects or funds. Cases have been selected to cover different types of RE development-residential, office, retail, hospitality and logistics- important emerging market countries/continents (East/South Asia, Latin America, Sub-Saharan Africa, the Middle East) and different development and investment strategies.
Course usually offered in fall term
Prerequisite: REAL 209 OR FNCE 209
Activity: Seminar
0.5 Course Units
Notes: This class is offered in the second half of the semester.

REAL 396 Real Estate Entrepreneurship
What makes a successful entrepreneur in the real estate industry? This half semester mini-course exposes undergraduates and MBA students to the broad entrepreneurial aspects of creating and executing real estate investments. The course consists of lectures by the professor, case discussions and guest lectures by leading entrepreneurs. Lectures and discussions will emphasize real estate entrepreneurship, leadership and challenges often encountered in creating successful real estate investments rather than development processes. Cases will be used to illustrate investment decision making and financial evaluations. Short written responses to questions raised in each case will be assigned. Class members are expected to engage the speakers with questions and discussion as well as explain their views on cases. Class participation and writings will each represent 50% of the grade.
One-term course offered either term
Activity: Lecture
0.5 Course Units
Notes: Offered in the first half of the semester.

REAL 399 Independent Study
All independent studies must be arranged and approved by a Real Estate department faculty member.
One-term course offered either term
Activity: Independent Study
1 Course Unit
REAL 705 Global Real Estate: Risk, Politics and Culture
This is an introductory course to global real estate markets, with a focus on income-producing real estate assets. Globally, estimates suggest the value of investable real estate assets in the world exceeds $60 trillion. We will discuss the basics of valuation and risk management, emphasizing concepts that are salient in the global context, including political risk, currency risk, property rights, and culture. The course will cover markets outside the United States, except for one special topic on international investors in the United States. We will focus more on the qualitative aspects of real estate investment analysis and less on the quantitative aspects. As firms expand their ventures across borders, there is a growing emphasis on the ability to assess and manage risk in a global business environment. Many of these decisions have implications on real estate assets. In this class, we will discuss the real estate business decisions of global firms, such as Blackstone, Hilton, AirBNB, WeWork, Prologis, Walmart and Amazon. This is a full semester course, open to undergraduates and MBA's.
Taught by: Maisy Wong
Course usually offered in fall term
Prerequisites: There is no pre-requisite for the course. No prior real estate experience is needed and no prior financial modelling experience is needed.
Activity: Lecture
1 Course Unit
Notes: Lecture with discussion required.

REAL 708 Housing Markets
This course is designed for students interested in the economics and operations of housing markets. It is primarily a U.S. focused course, but does include a limited amount of international material for comparative purposes. The class is divided into four sections: (1) supply and demand for housing, including the operations of homebuilders and rental landlords; (2) house prices, including cycles and price dynamics; (3) international comparisons; and (4) public policy and analysis applied to a current housing markets-related issue. This course presumes knowledge of intermediate economics, as we will apply that knowledge throughout the semester. For Wharton students, this means you must have passed BEPP 250 (undergrads) or MGEC 611 and 612 for MBA's. Non-Wharton students should have taken the equivalent course in the College.
Taught by: GYOURKO
Course usually offered in spring term
Prerequisites: Microeconomics for Managers (MGEC 611) and Microeconomics for Managers (Advanced) (MGEC 612) or equivalent.
Activity: Lecture
1 Course Unit
Notes: Lecture with discussion required.

REAL 721 Real Estate Investment: Analysis and Financing
This course provides an introduction to real estate with a focus on investment and financing issues. Project evaluation, financing strategies, investment decision making and capital markets are covered. No prior knowledge of the industry is required, but students are expected to rapidly acquire a working knowledge of real estate markets. Classes are conducted in a standard lecture format with discussion required. The course contains cases that help students evaluate the impact of more complex financing and capital markets tools used in real estate. There are case studies and two mid-terms, (depending on instructor). Cross-listed with FNCE 721.
Taught by: Ferreira, Handbury, Harari, Keys, Sinai, Wong
One-term course offered either term
Prerequisite: FNCE 611 or FNCE 612
Activity: Lecture
1 Course Unit
Notes: Lecture with discussion required.

REAL 723 Introduction to Real Estate
The goal of this class is to help students become informed consumers of real estate advice. The class material breaks down into four major sections: 1) The financial risk and return of property level real estate investments. Be able to interpret, understand and evaluate a real estate property investment pro forma. 2) The legal landscape for investing in real estate and using legal structures to manage risk. 3) The economics of commercial real estate markets. Understanding the forces that will determine the value and income-producing potential of a real estate investment. 4) Important real estate issues of the day.
Taught by: Sinai
One-term course offered either term
Activity: Lecture
0.5 Course Units
Notes: WEMBA COURSE

REAL 724 Urban Real Estate Economics
Urban Real Estate Economics uses economic concepts to analyze real estate markets, values, and trends. The course focuses on market dynamics in the U.S. and internationally, with an emphasis on how urban growth and local and federal government policies impact urban development and real estate pricing. A group development project gives hands on experience, and invited guest speakers bring industry knowledge. Besides the group project and presentation, problem sets are required along with a midterm and optional second exam.
Taught by: Wachter
One-term course offered either term
Prerequisites: MGEC 621, Managerial Economics
Activity: Lecture
1 Course Unit
Notes: Lecture.
REAL 730 Urban Fiscal Policy
The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent fiscal crises, local services and taxes as important determinants of real estate prices, the infrastructure crises, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.
Taught by: Inman
Course usually offered in fall term
Prerequisites: MGEC 621, FNCE 611
Activity: Lecture
1 Course Unit
Notes: Lecture, discussion.

REAL 804 Real Estate Law
This course examines the fundamentals of real estate finance and development from a legal perspective. The course serves as a foundation course for real estate majors and provides an introduction to real estate for other students. It attempts to develop skills in using legal concepts in a real estate transactional setting. The course will be of interest to students contemplating careers in accounting, real estate development, real estate finance, city planning, or banking. The main topics covered may include the following: land acquisition, finance; choice of entity; tax aspects; management (leasing, environmental); disposition of real property (sale of mortgaged property, foreclosures, wraparound mortgages, sale-leasebacks); and recent legal developments. Format: Although some of the material is presented by lecture, the instructor expects considerable class participation. Cross-listed with LGST 804.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Although some of the material is presented by lecture, the instructor expects considerable class participation.

REAL 821 Real Estate Development
This course evaluates "ground-up" development as well as re-hab, re-development, and acquisition investments. We examine raw and developed land and the similarities and differences of traditional real estate product types including office, R & D, retail, warehouses, single family and multi-family residential, mixed use, and land as well as "specialty" uses like golf courses, assisted living, and fractional share ownership. Emphasis is on concise analysis and decision making. We discuss the development process with topics including market analysis, site acquisition, due diligence, zoning, entitlements, approvals, site planning, building design, construction, financing, leasing, and ongoing management and disposition. Special topics like workouts and running a development company are also discussed. Course lessons apply to all markets but the class discusses U.S. markets only. Throughout the course, we focus on risk management and leadership issues. Numerous guest lecturers who are leaders in the real estate industry participate in the learning process. Format: predominately case analysis and discussion, some lectures, project visits.
One-term course offered either term
Prerequisites: REAL 721 OR FNCE 721. The prerequisite is STRICTLY enforced for this class unless it is undersubscribed.
Activity: Lecture
1 Course Unit
Notes: Predominately case analysis, discussion, some lectures, and project visits.

REAL 836 International Housing Comparisons
This course analyzes housing finance systems and housing market outcomes across the globe. In the US, the course focuses on development of securitization markets and addresses current challenges of housing finance reform, including the future of Fannie Mae and Freddie Mac. Internationally, the course covers issues of access to housing and housing informality in developing countries, financial crises arising out of the housing sector, and potential market-oriented and public policy solutions. The course features a wide array of speakers in finance, government and academia who contribute their perspectives to pressing issues of mortgage market design.
Taught by: Wachter
Course usually offered in spring term
Prerequisites: FNCE 613 Macroeconomics and the Global Economic Environment
Activity: Lecture
1 Course Unit

REAL 840 Advanced Real Estate Investment and Analysis
This course, designed for majors in Real Estate, but is also open to finance-oriented students who wish a deeper analysis of real estate investment and investment analysis issues than that offered in REAL/FNCE 721. The class will contain a mixture of lectures, guest speakers and case discussions. Academic research is paired with recent industry analysis of key issues in order to marry sound theory and empirical results with current events and practices. Several classes will include lectures outlining what economics and finance tell us about a number of topics. Generally, these will be followed by guest lectures from industry professionals who will focus on a specific application of the principles introduced in the lectures. Format: Lecture, industry speakers.
Taught by: Sinai
Course usually offered in spring term
Prerequisite: REAL 721 OR FNCE 721
Activity: Lecture
1 Course Unit
REAL 890 International Real Estate Comparisons
As a truly non-U.S. focused course, we explore the world of cross-border real estate development, with a focus on fast growing emerging market economies. Topics will emphasize the importance of strategy and implementation in cross-border real estate investment and include: the rationale, opportunities and risks of international real estate investing; the macro factors that influence the performance of real estate markets across countries; market specific factors that impact RE investment performance (property rights, taxes, transparency, planning procedures); the qualitative aspects of identifying and achieving successful projects; and the growing market for international RE securities and strategies for portfolio management. Classes will combine a lecture on specific aspects of global cross-border RE in the first half of the class and international case presentations in the second half. Cases will be presented by leading executives in charge of major international RE projects or funds. Cases have been selected to cover different types of RE development-residential, office, retail, hospitality and logistics-important emerging market countries/continents (East/South Asia, Latin America, Sub-Saharan Africa, the Middle East) and different development and investment strategies.
Course usually offered in fall term
Prerequisites: REAL 721 OR FNCE 721 or comparable knowledge/work experience.
Activity: Seminar
0.5 Course Units
Notes: This class is offered in the second half of the semester.

REAL 891 Real Estate Entrepreneurship
What makes a successful entrepreneur in the real estate industry? This half semester mini-course exposes undergraduates and MBA students to the broad entrepreneurial aspects of creating and executing real estate investments. The course consists of lectures by the professor, case discussions and guest lectures by leading entrepreneurs. Lectures and discussions will emphasize real estate entrepreneurship, leadership and challenges often encountered in creating successful real estate investments rather than development processes. Cases will be used to illustrate investment decision-making and financial evaluations. Short written responses to questions raised in each case will be assigned. Class members are expected to engage the speakers with questions and discussion as well as explain their views on cases. Class participation and writings will each represent 50% of the grade.
Course usually offered in fall term
Activity: Lecture
0.5 Course Units
Notes: Offered in the first half of the semester.

REAL 899 Independent Study
All independent studies must be arranged and approved by a Real Estate Department faculty member.
One-term course offered either term
Activity: Independent Study
1 Course Unit

REAL 945 Urban Real Estate Economics
Urban Real Estate Economics uses economic concepts to analyze real estate markets, values, and trends. The course focuses on market dynamics in the U.S. and internationally, with an emphasis on how urban growth and local and federal government policies impact urban development and real estate pricing. A group development project gives hands on experience, and invited guest speakers bring industry knowledge. Besides the group project and presentation, problem sets are required along with a midterm and optional second exam. All PhD students will be expected to complete a research paper in addition to the successful completion of the course examination requirements.
Taught by: WACHTER
One-term course offered either term
Prerequisite: MGEC 601
Activity: Lecture
1 Course Unit

REAL 946 Advanced Topics in Urban Economics
This course addresses advanced topics in urban and real estate economics. The course will mix theory and empirics and will cover a broad range of topics including the modeling and estimation of agglomeration economies, land use and urban costs, transportation in cities, urban growth, migration between cities etc. The classes will mix formal presentations made by the instructor and student-led discussions of recent academic papers. In addition to presentations, students will be expected to complete a series of assignments including a short original research paper.
Taught by: FERREIRA,DURANTON
One-term course offered either term
Prerequisites: The course assumes that students have familiarity with standard first year econometrics and microeconomics.
Activity: Lecture
1 Course Unit
Notes: All PhD students will be expected to complete a research paper in addition to the successful completion of the course examination requirements.

REAL 947 Advanced Real Estate and Urban Economics
This course covers fundamental and cutting-edge topics in urban economics and real estate as well as the most important econometric issues that arise in the estimation of urban economics and real estate models. The first part of the course focuses on the application of modern econometric methods to analyze empirical questions in the broad urban economics field, which includes topics from public economics and local finances, such as household sorting and valuation of public goods. This part of the course is especially concerned about dealing with non-experimental data, and also provides a guide for tools that are useful for applied research. The second and third parts of the course examine the economic modeling and intuition of a range of topics in urban economics and real estate, such as spacial equilibrium, supply and demand of space, housing prices and cycles. In addition, special emphasis is given to how the understanding of economic theory and institutions can help any empirical analysis. At the end of the course students should have a firm grasp of theory and econometric tools that lead to convincing empirical applications. All Ph.D. students will be expected to complete a research paper in addition to the successful completion of the course examination requirements.
Taught by: Ferreira
One-term course offered either term
Activity: Lecture
1 Course Unit
REAL 962 Applied Economics Seminar
The goal of this course is to help doctoral students develop critical thinking skills through both seminar participation and writing of referee reports. To this end students will attend the Wharton Applied Economics each Wednesday at noon seminar when it meets; prepare two written referee reports on WAE papers per semester, due before the seminar is presented. After attending the seminar and the ensuing discussion of the paper, students will prepare follow-up evaluations of their referee report reports, due one week after the seminar.
Taught by: Fernando Ferreira
Two terms. student may enter either term.
Prerequisites: None.
Activity: Seminar
0.5 Course Units

REAL 990 Masters Thesis
One-term course offered either term
Activity: Lecture
1 Course Unit

REAL 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit

REAL 999 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
REGULATION (REG)

REG 612 Introduction to Drug Development
This introductory course lays the foundation for conducting pharmaceutical research in many ways. It begins with a brief review of the history of drug development and explains the phases of drug development in detail. The decision making process, drug development milestones and compound progression metrics are defined and explained with examples. At the conclusion of this course, students should have a working knowledge of the drug development process, understand the regulatory basis by which new chemical entities are evaluated and ultimately approved, and appreciate the time and expense of drug development.

Taught by: Jeffrey S. Barrett, PhD, FCP
Course usually offered in spring term
Prerequisites: Undergraduates and graduate students from other departments are welcome. Please contact acgreene@upenn.edu to request permission to register.
Activity: Lecture
1 Course Unit

REG 614 Biopharmaceutical Product Development, Manufacturing and Regulatory Affairs
Biopharmaceutical protein products have been successfully used to treat a number of diseases and currently represent a large segment of the product pipeline in most major pharmaceutical companies. More than half of the current top 20 blockbuster drugs are biopharmaceuticals. Drugs like Activase, Humira, and Avastin have revolutionized the drug industry in treating the unmet medical needs of many patients. With innovation at the heart of the biopharmaceutical industry, this course is aimed at developing the student's understanding of the application of basic research in molecular biology and genetics to the development of novel drugs for treating diseases. The course is designed to provide an overview of biopharmaceutical protein drug development and manufacturing processes with an emphasis on regulatory affairs activities. The class has been developed and is taught by a former VP of biopharmaceutical product development with over 30 years of experience in biotechnology and the biopharmaceutical industry. The course director will provide insights into the unique challenges and opportunities facing the biopharmaceutical industry and how they relate to regulatory affairs. Subject area experts from industry will also participate as guest lecturers.

Taught by: Marcia Federici, PhD
Course usually offered in spring term
Prerequisites: Undergraduates and graduate students from other departments are welcome. Please contact acgreene@upenn.edu to request permission to register.
Activity: Lecture
1 Course Unit

REG 615 Post-Approval Maintenance of Drugs, Biologics, and Devices.
The FDA regulates prescription drugs, biologics and medical devices for utilization in the United States. The approval of a marketing application is a major accomplishment; however, it comes with significant responsibilities for a sponsor including numerous reporting requirements and activities to maintain a license as well as a need for lifecycle maintenance activities to stay competitive. The purpose of this course is to provide an overview of post-approval activities required for drugs, biologics and devices.

Taught by: Ajay Parashar, BPharm, MS, MDD, RAC
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Contact Anna Greene (acgreene@upenn.edu) to receive a permit for registration.
REG 621 Cell and Gene Therapy
This course will provide students with a general overview of translational research in the area of gene and cell therapy. This includes technical considerations, translating preclinical investigation into therapeutics, the execution of gene and cell therapies clinical trials, and key regulatory issues. Entrepreneurial considerations will be discussed as well. By the end of this course, students will understand the basic technologies employed for gene and cell therapy along with approaches and pitfalls to translating these therapies into clinical applications including regulatory and commercial aspects of this emerging area.
Taught by: Michael C. Milone, MD, PhD
Course usually offered in spring term
Prerequisites: At least one course in immunology.
Activity: Lecture
1 Course Unit

REG 622 New Trends in Medicine and Vaccine Discovery
Modern drug discovery has evolved to include human genetic diagnosis and various biological approaches which has enabled progress in a variety of fields, including rare diseases, immuno-oncology, precision medicine, and biomarkers. The goal of this course is for students to understand newer treatment modalities and approaches beyond one size fits all small molecule drugs, as well as the technologies that empower them. Students will learn regulatory processes that govern medicine discovery and development and also consider business and societal aspects of medical progress. Students will be able to apply concepts directly to work in the healthcare industry. Students will be taught by experts in the field internal and external to Penn.
Taught by: Claudine Bruck, PhD
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Permission required to register. Please contact Anna Greene (acgreene@upenn.edu) to request a permit.
RELIGIOUS STUDIES (RELS)

RELS 002 Religions of the West
This course surveys some of the core beliefs and practices within Judaism, Christianity, and Islam. To do so, we will focus on history and memory, exploring how key figures and formative events from the past have been made present, from generation to generation, through scripture, ritual, liturgy, and remembrance. Special attention will be given to points of interaction between Jews, Christians, and Muslims, as well as to the impact of their intertwined histories on the formation and development of Western cultures. Fulfills History & Tradition Sector.
For BA Students: History and Tradition Sector
Taught by: Reed
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 003 Religion and Literature
A consideration of how great works of literature from different cultural traditions have reclaimed and reinterpreted compelling religious themes. The focus this semester will be on themes of creation, especially the creation of human beings, from ancient myths of different cultures to modern science fiction. This course fulfills the General Requirement in Sector 3, Arts and Letters.
For BA Students: Arts and Letters Sector
Taught by: Matter
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Theme of the course will change from term to term. See syllabus for more info.

RELS 004 Art and Religion
What is religious art and what makes art religious? This course will survey a wide variety of artistic expressions from a number of religious traditions which draw on spiritual themes, are inspired by religious experiences or texts, and which serve an important role in religious practice and belief. Some of the themes which this course will explore are: visualization and action within the cosmos, passion and religious ecstasy, the material culture of personal devotion, icons and iconoclasm, depictions of the miraculous, and the relationship between word and image. Objects and images from Christianity, Islam, Judaism, and Buddhism and will be explored along with examples from other traditions.
Taught by: Muravchick
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 005 Gender, Sexuality, & Religion
What does it mean to be a Muslim, Hindu, Jewish, Christian, or spiritual woman or man? How important are the gender differences in deciding social roles, ritual activities, and spiritual vocations? How does gender intersect with nationality, language, and politics? This course tackles all of these questions, showing how gender’s definition and the way it is taught and performed is central to understanding religion. In this course we will learn about women’s and men’s rituals, social roles, and mythologies in specific religious traditions. We will also look at the central significance of gender to the field of religious studies generally, with particular attention to non-binary genders. The first part of the course will be focused on building a foundation of knowledge about a range of religious traditions and the role of women in those traditions. This course emphasizes religious traditions outside the West. Although it is beyond the scope of this class to offer comprehensive discussions of any one religious tradition, the aim is to provide entry points into the study of religious traditions through the lens of gender. This course will emphasize both historical perspectives and contemporary contexts. We will read religion through a variety of feminist and queer theory lenses—exploring the key characteristics of diverse feminist analyses of religion, as well as limits of specific feminist approaches.
Taught by: Robb
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 010 Religion in Public Life
This seminar is an introduction to several aspects of the hotly debated relation between religion and public life in America. In the first half of the course we will study two books by law professors, one Jewish and the other Christian. Their debate will introduce us to the legal and historical background, and to the continuing challenges of church-state separation in America. The second half of the course will examine the claim that we now live in a "new religious America," one in which the increasing presence of Hindus, Buddhists and Muslims has created a new pluralism and a new set of challenges. We will then consider the argument of one historian that diversity and difference have characterized religious groups in America since at least the 19th century, and that this has resulted in a number of paradoxical social situations. Finally, we will close with a brief look at the claim that there exists in America a "civil religion," one that unites all citizens despite their other religious differences.
One-term course offered either term
Activity: Seminar
1 Course Unit
RELS 013 Gods, Ghosts, and Monsters
This course seeks to be a broad introduction. It introduces students to the diversity of doctrines held and practices performed, and art produced about "the fantastic" from earliest times to the present. The fantastic (the uncanny or supernatural) is a fundamental category in the scholarly study of religion, art, anthropology, and literature. This course will focus both theoretical approaches to studying supernatural beings from Religious Studies perspective while drawing examples from Buddhist, Shinto, Christian, Hindu, Jain, Zoroastrian, Egyptian, Central Asian, Native American, and Afro-Caribbean sources from earliest examples to the present including mural, image, manuscript, film, codex, and even comic books. It will also introduce students to related humanistic categories of study: material and visual culture, theology, cosmology, shamanism, transcendentalism, soteriology, eschatology, phantasmatography, spiritualism, mysticism, theophany, and the historical power of rumor. It will serve as a gateway course into the study of Religion among numerous Asian, and East Asian Studies, as well as Visual Culture and Film Studies. It will include guest lectures from professors from several departments, as well as an extensive hands-on use of the collections of the Penn Museum of Archaeology and Anthropology and the manuscripts held in the Schoenberg Collection of Van Pelt Library. It aims to not only introduce students to major approaches, and terms in the study of religion and the supernatural, but inspire them to take more advanced courses by Ilya Vinitsky, Liliane Weissberg, Projet Mukharji, Talia Fishman, Annette Reed, David Barnes, David Spafford, Frank Chance, Michael Meister, Paul Goldin, Renata Holod, Paul Rozin, among several others.
For BA Students: Humanities and Social Science Sector
Taught by: McDaniel
Course usually offered in fall term
Activity: Seminar
1 Course Unit

RELS 014 Myths and Religions of the Ancient World
This course will survey the religions of the ancient Middle East, situating each in its historical and socio-cultural context and focussing on the key issues of concern to humanity: creation, birth, the place of humans in the order of the universe, death and destruction. The course will cover not only the better known cultures from the area, such as Egypt and Mesopotamia, but also some lesser known traditions, such as those of the Hurrians, or of the ancient Mediterranean town of Ugarit. Religion will not be viewed merely as a separate, sealed-off element of the ancient societies, but rather as an element in various cultural contexts, for example the relationship between religion and magic, and the role of religion in politics will be recurring topics in the survey. Background readings for the lectures will be drawn not only from the modern scholarly literature, but also from the words of the ancients themselves in the form of their myths, rituals and liturgies.
For BA Students: History and Tradition Sector
Taught by: Frame
Course usually offered in spring term
Activity: Lecture
1 Course Unit

RELS 024 Archaeology and the Bible
Archaeology and the Bible is a chronological survey of the long span of human occupation in the Land of the Bible, known by the names of the modern nation-states and political entities that occupy the area, as well as various short hands such as Levant and Syria-Palestine, from ca. 10,000 BCE, when humans first began to farm and herd animals through the time of the Divided Monarchy of Israel and Judah. While archaeology has moved beyond a primary concern with illuminating the Bible, NELC155 will investigate the broader import of archaeological discoveries for our understanding of ancient Israel and its neighbors.
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit

RELS 027 Great Books of Judaism
The Babylonian Talmud, known simply as the Bavli, is the foundational legal and ethical document of rabbinic Judaism. It is one of the best read works of world literature, and it is the most widely disseminated and revered rabbinic work. It not only contains legal discussions and rulings but rather it also presents the worldview of the rabbis. This course will analyze and contextualize the perspectives of the Talmud towards the important phases of life. We will examine in-depth several Talmudic passages relating to the various stages of the human lifecycle: birth and naming of the child; circumcision, bar/bat mitzva and adulthood; earning a livelihood and choosing a career; marriage and divorce; procreation and raising children; death, burial, mourning and the belief in the resurrection of the dead among others. We will evaluate these teachings in light of other traditions and in their broader late antiquity and contemporary contexts. All texts will be read in their English translation but originals will be provided.
For BA Students: Arts and Letters Sector
Course usually offered in fall term
Activity: Seminar
1 Course Unit

RELS 028 Religion in America
Activity: Lecture
1 Course Unit
RELS 030 Gurus, Prophets & Aliens: Understanding New Religious Movements

This course offers a thematic introduction to the history of New Religious Movements (NRM) from the mid-19th century to the present day. Often labeled as "cults" by the state and established religious institutions, new religions offer modern believers alternative spiritual and ideological solutions to age-old problems. In this class, students will be introduced to the teachings and practices of prominent NRMs in North America, Europe, Asia, and Australia, from wide-spread movements such as Scientology, Mormonism, and the Unification Church to lesser known groups such as the Church of the Almighty God, Neo-Paganism, and Raelism. We will explore the emergence of the anti-cult campaign in the second half of the 20th century, the relationship between apocalyptic sects such as the Peoples Temple and the Branch Davidians and political and social protest, and the role of Asian religions such as the Maharishi Mahesh Yogi's Transcendental Meditation in the development of New Age religiosity. In addition, we will learn how new religious movements such as Wicca and the Children of God helped reshape gender roles and changed mainstream views about sexuality, and how developments in mass media and popular culture contributed to the creation of new groups such as the Star Wars inspired Temple of the Jedi Order (Jediism), the Church of the Latter-Day Dude (Dudeism), as well as UFO religions such as Heaven's Gate. Throughout the semester, students will be exposed to a wide variety of primary and secondary sources, from academic articles and scholarly essays to documentaries, feature films, and TV shows. No previous knowledge in Religious Studies is required.

Taught by: Tavor
Activity: Seminar
1 Course Unit

RELS 031 Religion and Violence

Perhaps nothing haunts modern politics more than religious violence. Killing sprees done in the name of God reveal the limits of political power. What space is left for the rule of law when appeals to dogma and the divine supersede reason? The causes and nature of divinely motivated violence are so mystifying that they are a constant topic of debate among academics, political parties, and news commentators. What really motivates religious violence? Is it just economic of class grievances in disguise? Are all religions prone to violence? Are some religions more violent than others? Or, are religions only violent when they go awry, denying their true messages? And does religion need to be quarantined and privatized, to keep us all safe? In this course, we'll probe the dividing line separating religion from politics in an effort to better understand the causes and nature of religious violence. How do we know the difference between religious violence and political violence? What makes religion violent, and what makes violence religious?

Activity: Seminar
1 Course Unit

RELS 033 Modern Catholic Christianity

At the turn of the twentieth century, Sigmund Freud hypothesized that religion was a dead duck. Many other thinkers of "modernity" have agreed with his thesis; and yet, over a century later, it is clear that religion is still a forceful presence in human culture. One religious tradition that has survived to the surprise (and even consternation) of some critics, is Roman Catholic Christianity. This Freshman Seminar will look closely at the Catholic Church in the twenty-first century, to explore the ways in which Catholicism has (and has not) adapted to modernity. We will begin with an investigation into the history of Roman Catholicism; how it is defined, and how it developed in relation to politics and culture in the Roman Empire, medieval and early moder Europe, and in the Americas; but most of the semester will focus on the Catholic Church of the past 200 years, especially as it appears in the United States. We will consider the relationship of Catholicism to many aspects of modern life, including science and technology, political systems and leaders, aesthetics (visual arts, music, literature and film), and understandings of gender and sexuality. There will be a mid-term examination and a final paper of 6 to 10 pages.

Taught by: Matter
Activity: Seminar
1 Course Unit

RELS 068 India: Culture & Society

What makes India INDIA? Religion and Philosophy? Architectural splendor? Kingdoms? Caste? The position of women? This course will introduce students to India by studying a range of social and cultural institutions that have historically assumed to be definitive India. Through primary texts, novels and historical sociological analysis, we will ask how these institutions have been reproduced and transformed, and assess their significance for contemporary Indian society.

For BA Students: Humanities and Social Science S

Taught by: Sreenivasan
Course not offered every year
Activity: Lecture
0 Course Units

RELS 069 Love Sex and Death

This course focuses on important constants of human life as they are grappled with across religious traditions. Drawing on data across a range of religious traditions (such as Christianity, Hinduism, Judaism, Islam, Buddhism and Mesoamerican Religion), we will explore topics such as sexual identity, politics, religion and the individual in contemporary life; and eroticism, sex and love as they are reflected in religious literature, art and history. Divine love and religious devotion will be examined in relation to acts of violence, including human sacrifice and self-sacrifice in the past as well as the present. Other important questions considered in this course include: how does the body function as the locus in which religion is enacted? What is the conflict between our agency over our bodies and socio-religious claims over individual autonomy? Is violence an integral part of religion? What are religious understandings of the relationship between our agency over our bodies and socio-religious claims over individual autonomy? Is violence an integral part of religion? What are religious understandings of the relationship between love and sex? What does it mean for human beings to love God?

Taught by: Jamal Elias
Course usually offered in spring term
Activity: Lecture
1 Course Unit
**RELS 091 Native American Literature**
From oral traditions to Youtube videos of Native American hip hop, this course surveys the diverse body of Native American literature through its many transformations across the centuries. The course will focus primarily on contemporary Native American literature, an era known as the Native American Renaissance. We will read literary works by Black Elk, Leslie Marmon Silko, Sherman Alexie, N. Scott Momaday, and others. The course will also include films such as Smoke Signals and Whale Rider.

Taught by: Powell
Course not offered every year
Activity: Lecture
1 Course Unit

**RELS 101 Religion and Evolution**
This class will explore encounters between religion and evolutionary sciences, from the 19th century to the present. We will consider the history of evolutionary biology's entanglements with faith, from the initial explosion of interest in the wake of Darwin's Origin of the Species in 1859 to contemporary debates about creationism and intelligent design here in Pennsylvania in the 21st century. In the first half of the class, we will look at how writers, philosophers, and theologians from around the world and a range of religious traditions have assessed the evolution-religion relationship — some seeing conflict, others concord. In the second half, we will consider evolutionary approaches to the origins of religion, from late-19th century accounts to modern cognitive science and group selection theories. Topics covered will include scientific racism, sociobiology and the evolutionary origins of morality, primate religion, and the relationship between science, religion, and politics.

Taught by: Schaefer
One-term course offered either term
Activity: Lecture
1 Course Unit

**RELS 102 Sacred Stuff: Religious Bodies, Places, and Objects**
Does religion start with what's in our heads? Or are religious commitments made, shaped and strengthened by the people, places, and things around us? This course will explore how religion happens in the material world. We'll start with classical and contemporary theories on the relationship of religion to stuff. We'll then consider examples of how religion is animated not just by texts, but through interactions with objects, spaces, bodies, monuments, color, design, architecture, and film. We'll ask how these material expressions of religion move beyond private faith and connect religion to politics and identity.

Taught by: Schaefer
One-term course offered either term
Activity: Seminar
1 Course Unit

**RELS 103 Religion and Politics**
This course explores the relationship of religion to politics and identity. We'll ask how these material expressions of religion move beyond private faith and connect religion to politics and identity.

Taught by: Schaefer
One-term course offered either term
Activity: Seminar
1 Course Unit

**RELS 104 Religion and the Mind**
This course explores the relationship of religion to the mind, considering the ways in which religion is expressed in the material world.

Taught by: Schaefer
One-term course offered either term
Activity: Seminar
1 Course Unit

**RELS 105 Religion and the Mind**
This course explores the relationship of religion to the mind, considering the ways in which religion is expressed in the material world.

Taught by: Schaefer
One-term course offered either term
Activity: Seminar
1 Course Unit

**RELS 106 Religion and the Mind**
This course explores the relationship of religion to the mind, considering the ways in which religion is expressed in the material world.

Taught by: Schaefer
One-term course offered either term
Activity: Seminar
1 Course Unit

**RELS 107 Religion and the Mind**
This course explores the relationship of religion to the mind, considering the ways in which religion is expressed in the material world.

Taught by: Schaefer
One-term course offered either term
Activity: Seminar
1 Course Unit
RELS 111 God & Money
The relationship between how people understand god(s) and money has always been a complicated one. Many religions have a relationship to money, whether in offerings, asking for blessings, or to build and create places of worship. God and Money explores the relationship between how religions view money, capitalism, and religion, and how movements like the prosperity gospel have expanded and complicated the interplay between religion, money and capitalism around the world.
Taught by: Butler
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 112 Religious Ethics and Modern Society
Religious beliefs of Malcolm X and MLK formed their social action during the Civil Rights for African Americans. This seminar will explore the religious religious biographies of each leader, how religion shaped their public and private personas, and the transformative and transgressive role that religion played in the history of the Civil Rights movement in the United States and abroad. Students in this course will leave with a clearer understanding of religious beliefs of Christianity, the Nation of Islam, and Islam, as well as religiously based social activism. Other course emphases include the public and private roles of religion within the context of the shaping of ideas of freedom, democracy, and equality in the United States, the role of the “Black church” in depicting messages of democracy and freedom, and religious oratory as exemplified through MLK and Malcolm X.
Taught by: Butler
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 114 The Religion of Ancient Egypt
Weekly lectures (some of which will be illustrated) and a field trip to the University Museum’s Egyptian Section. The multifaceted approach to the subject matter covers such topics as funerary literature and religion, cults, magic religious art and architecture, and the religion of daily life.
Taught by: Silverman/Wegner
Course not offered every year
Activity: Lecture
1 Course Unit

RELS 117 African American Religion
The unique history and experiences of African Americans can be traced through religion and belief. Through the mediums of literature, politics, music, and film, students will plot the religious experience of people of the African Diaspora within the context of the complex history of race in American history. The course will cover a broad spectrum of African American religious experience including Black Nationalism, urban religions, the “black church” and African religious traditions such as Santeria and Rastafarianism. Special attention will be paid to the role of race, gender, sexuality, and popular culture in the African American religious experience.
Taught by: Butler
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 118 Religion & Cinema in India
This seminar examines key themes in the study of religion and Indian cinema. The aim of the seminar is to foreground discussions of performativity, visual culture, representation, and politics in the study of modern South Asian religions. Themes include mythological cinema, gender and sexuality, censorship and the state, and communalism and secularism. The films we will be deploying as case studies will be limited to those produced in Hindi, Telugu and Tamil (the three largest cinema cultures of India). No knowledge of South Asian language is needed for this course however.
Taught by: Soneji
Course not offered every year
Activity: Lecture
1 Course Unit

RELS 120 Jews and Judaism in Antiquity
A broad introduction to the history of Jewish civilization from its Biblical beginnings to the Middle Ages, with the main focus on the formative period of classical rabbinic Judaism and on the symbiotic relationship between Judaism, Christianity, and Islam.
For BA Students: History and Tradition Sector
Taught by: Dohrmann
Course usually offered in spring term
Activity: Lecture
1 Course Unit

RELS 121 Med and Early Mod Jewry
Exploration of intellectual, social, and cultural developments in Jewish civilization from the rise of Islam in the seventh century to the assault on established conceptions of faith and religious authority in 17th century Europe that is, from the age of Mohammed to that of Spinoza. Particular attention will be paid to the interaction of Jewish culture with those of Christianity and Islam.
For BA Students: History and Tradition Sector
Taught by: Ruderman
Course usually offered in fall term
Activity: Lecture
1 Course Unit

RELS 122 History of Jewish Civilization: 17th Century to the Present
This course offers an intensive survey of the major currents in Jewish culture and society from the late middle ages to the present. Focusing upon the different societies in which Jews have lived, the course explores Jewish responses to the political, socio-economic, and cultural challenges of modernity. Topics to be covered include the political emancipation of Jews, the creation of new religious movements within Judaism, Jewish socialism, Zionism, the Holocaust, and the emergence of new Jewish communities in Israel and the United States. No prior background in Jewish history is expected.
For BA Students: History and Tradition Sector
Taught by: Wenger
Course usually offered in spring term
Activity: Lecture
1 Course Unit
REL 124 American Jewish Experience
This course offers a comprehensive survey of American Jewish history from the colonial period to the present. It will cover the different waves of Jewish immigration to the United States and examine the construction of Jewish political, cultural, and religious life in America. Topics will include: American Judaism, the Jewish labor movement, Jewish politics and popular culture, and the responses of American Jews to the Holocaust and the State of Israel.
Taught by: Wenger
One-term course offered either term
Activity: Lecture
1 Course Unit

REL 126 Jewish Mysticism
Survey of expressions of Jewish mysticism from Hebrew Scripture through the 21st century. Topics include rabbinic concerns about mystical speculation, the ascent through the celestial chambers - heikhalot; the Book of Creation, the relationship of Jewish philosophy and mysticism, techniques of letter permutation, schematization of the Divine Body, the prominence of gender and sexuality in kabbalistic thought, the relationship of kabbalah to the practice of the commandments, Zohar, Lurianic kabbalah, Hasidism, New-Age Jewish spirituality and the resurgence of Jewish mysticism in the 20th century. All readings will be in English translation.
For BA Students: Arts and Letters Sector
Taught by: Fishman
Course not offered every year
Activity: Lecture
1 Course Unit

REL 129 Themes in the Jewish Tradition
Course topics will vary; have included The Binding of Isaac, Responses to Catastrophes in Jewish History, Holy Men & Women (Ben-Amos); Rewriting the Bible (Dohrmann); Performing Judaism (Fishman); Jewish Political Thought (Fishman); Jewish Esotericism (Lorberbaum).
Democratic culture assumes the democracy of knowledge - the accessibility of knowledge and its transparency. Should this always be the case? What of harmful knowledge? When are secrets necessary? In traditional Jewish thought, approaching the divine has often assumed an aura of danger. Theological knowledge was thought of as restricted. This seminar will explore the "open" and "closed" in theological knowledge, as presented in central texts of the rabbinic tradition: the Mishnah, Talmud, and the Kabbalah. Primary sources will be available in both Hebrew and English.
For BA Students: History and Tradition Sector
Taught by: Ben-Amos/Stern/Dohrmann/Fishman
One-term course offered either term
Activity: Seminar
1 Course Unit

REL 130 How to Read the Bible
While the Bible may be the most read text in the world, it is not clear that anyone understands what it actually means. Secular scholars read the Bible as they would any other ancient document, trying to understand who wrote it and what it reveals about the past, but that is not how the Bible is understood by hundreds of millions of readers who embrace it as a message from God and read its contents not just to learn about the past but to understand what the meaning of life is, how to be a good person, and where the world is headed. How is it that the Bible is read in such different ways by the secular and the religious? Who is right in the struggle over its meaning, and how does one go about deciphering that meaning in the first place?
Taught by: WEITZMAN
Activity: Seminar
1 Course Unit

REL 132 The History of God
This course introduces the history of God as understood by modern scholars of religion. Why do people believe in gods in the first place? How is the God of the Old Testament different from earlier Near Eastern deities, or different from God as represented in the New Testament and the Quran? When and why did people come to question the existence of God, and how has the idea of God changed in the last century in light of experiences like the Holocaust, social movements like feminism, and the rise of new technologies like the Internet? This course will address these questions as it surveys the approaches scholars have developed to comprehend the history of a being who would seem beyond human comprehension.
Taught by: Wietzman
Activity: Seminar
1 Course Unit

REL 135 Introduction to the New Testament
What can be known about the life and teachings of Jesus and his earliest followers? Did Jesus see himself as a teacher and/or a revolutionary and/or the messiah? If Jesus and the apostles were all Jews, how did Christianity emerge as a distinct "religion" distinct from Judaism? And how is it that this small Galilean and Judean movement came to shape world history and Western culture even to this day? This course explores these questions through a focus on the formation of the New Testament - from the letters of Paul in the early first century CE, to the collection and closure of the canon of Christian Scriptures in the fourth century CE. In the process, we will explore the lived worlds of the first followers of Jesus through readings of texts within and outside the New Testament but also through art, artifacts, and manuscripts at Penn and in Philadelphia.
For BA Students: History and Tradition Sector
Taught by: Reed
One-term course offered either term
Activity: Lecture
1 Course Unit
RELS 136 Death and the Afterlife in Ancient Judaism and Christianity
This course surveys the development of concepts about death and the afterlife in Judaism and Christianity, exploring the cultural and socio-historical contexts of the formation of beliefs about heaven and hell, the end of the world, martyrdom, immortality, resurrection, and the problem of evil. Readings cover a broad range of ancient sources, including selections from the Hebrew Bible and New Testament, as well as other Jewish and Christian writings (e.g., “apocrypha,” “pseudepigrapha,” Dead Sea Scrolls, classical rabbinic literature, Church Fathers, “gnostic” and “magical” materials). In the process, this course introduces students to formative eras and ideas in the history of Judaism, Christianity, and Western culture.
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 137 Religion and the Global Future
What role is religion playing in shaping the future of the globe? Has it made the world more or less dangerous? Can it help humanity address challenges like international conflict, climate change and poverty, or is it making those problems worse? The goal of this course is to help students think through these questions in light of the scholarship on religion and its intersections with international relations and public policy.
Taught by: Weitzman, Harf
Course usually offered in spring term
Prerequisite: Permission needed from instructor
Activity: Lecture
1 Course Unit

RELS 143 Introduction to Islam
This course is an introduction to Islam as a religion as it exists in societies of the past as well as the present. It explores the many ways in which Muslims have interpreted and put into practice the prophetic message of Muhammad through historical and social analyses of varying theological, philosophical, legal, political, mystical and literary writings, as well as through visual art and music. The aim of the course is to develop a framework for explaining the sources and symbols through which specific experiences and understandings have been signified as Islamic, both by Muslims and by other peoples with whom they have come into contact, with particular emphasis given to issues of gender, religious violence and changes in beliefs and behaviors which have special relevance for contemporary society.
Taught by: Elias
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 150 Introduction to the Bible (The "Old Testament")
An introduction to the major themes and ideas of the Hebrew Bible (the Old Testament), with attention to the contributions of archaeology and modern Biblical scholarship, including Biblical criticism and the response to it in Judaism and Christianity. All readings are in English.
Taught by: Cranz
Course usually offered in fall term
Activity: Lecture
1 Course Unit

RELS 155 Introduction to Indian Philosophy
This course will take the student through the major topics of Indian philosophy by first introducing the fundamental concepts and terms that are necessary for a deeper understanding of themes that pervade the philosophical literature of India – arguments for against the existence of God, for example, the ontological status of external objects, the means of valid knowledge, standards of proof, the discourse on the aims of life. The readings will emphasize classical Hindu, Buddhist, and Jain philosophical articulations (from 700 B.C.E. to 16th century C.E.) but we will also supplement our study of these materials with contemporary or relatively recent philosophical writings in modern India.
For BA Students: History and Tradition Sector
Taught by: Patel
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 163 Introduction to Hinduism
This course introduces students to the history, texts, philosophies and rituals of South Asia’s oldest living religious traditions, represented today by the term “Hinduism.” At the same time, it problematizes the idea of a monolithic “Hindu Tradition,” in favor of an approach that recognizes several distinct, dynamic, yet symbiotic Hindu religious cultures. The course also places emphasis on the vitality of today’s Hinduisms(s), and the various historical, ritual, cultural, and social contexts that they represent and constitute. The course is organized around six modules: (1) Issues in the Academic Study of Hinduism; (2) Sanskrit (textual) tradition; (3) Philosophy; (4) Theology; (5) Ritual; (6) Modernity and Contemporary Politics.
Taught by: Soneji
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 164 History, Culture, and Religion in Early India
This course surveys the culture, religion and history of India from 2500 BCE to 1200 CE. The course examines the major cultural, religious and social factors that shaped the course of early Indian history. The following themes will be covered: the rise and fall of Harappan civilization, the Aryan invasion and vedic India, the rise of cities, states and the religions of Buddhism and Jainism, the historical context of the growth of classical Hinduism, including the Mahabharata, Ramayana and the development of the theistic temple cults of Saivism and Vaisnavism, processes of medieval agrarian expansion and cultic incorporation as well as the spread of early Indian cultural ideas in Southeast Asia. In addition to assigned secondary readings students will read select primary sources on the history religion and culture of early India, including Vedic and Buddhist texts, Puranas and medieval temple inscriptions. Major objectives of the course will be to draw attention to India’s early cultural and religious past and to assess contemporary concerns and ideologies in influencing our understanding and representation of that past.
For BA Students: History and Tradition Sector
Taught by: Ali
One-term course offered either term
Activity: Lecture
1 Course Unit
RELS 172 East Asian Religions
This course introduces religious traditions in China, Japan, and Taiwan from ancient to contemporary times, with emphases on their sociopolitical contexts, visual and material dimensions, and entanglement with gender, sexuality and the body. We will examine the history of Confucianism, Daoism, Buddhism, Shinto, as well as the practices, thoughts, and institutions that do not fall squarely into those categories. We will pay attention to the relationship between textual and oral traditions, and that between canons, rituals and the popular practices from both historical and anthropological perspectives.
Taught by: Cheng H
Activity: Lecture
1 Course Unit

RELS 173 Introduction to Buddhism
This course seeks to introduce students to the diversity of doctrines held and practices performed by Buddhists in Asia. By focusing on how specific beliefs and practices are tied to particular locations and particular times, we will be able to explore in detail the religious institutions, artistic, architectural, and musical traditions, textual production and legal and doctrinal developments of Buddhism over time and within its socio-historical context. Religion is never divorced from its place and its time. Finally, by geographically and historically grounding the study of these religions we will be able to examine how their individual ethic, cosmological and soteriological systems effect local history, economics, politics, and material culture. We will concentrate first on the person of the Buddha, his many biographies and how he has been followed and worshipped in a variety of ways from Lhasa, Tibet to Phrae, Thailand. From there we touch on the foundational teachings of the Buddha with an eye to how they have evolved and transformed over time. Finally, we focus on the practice of Buddhist ritual, magic and ethics in monasteries and among aly communities in Asia and even in the West. This section will confront the way Buddhists have thought of issues such as “Just-War,” Women’s Rights and Abortion. While no one quarter course could provide a detailed presentation of the beliefs and practices of Buddhism, my hope is that we will be able to look closely at certain aspects of these religions by focusing on how they are practiced in places like Nara, Japan or Vietnam, Laos.
Taught by: McDaniel
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 184 What is Taoism?
Our main goal in this course will be to answer the question, “what is Daoism?” Students will be introduced to a wide variety of ideas and practices that have at one time or another been labeled as “Daoist” in order to sort out the different senses of the term, and consider whether they have any common features. The course will begin with the Laozi, the most translated work in world literature besides the Bible and the one text affirmed by virtually all “Daoist” traditions as foundational. We will also survey several other bio-spiritual practices, such as the meditational techniques of Internal Alchemy and the self-cultivation regimens known today as Qigong and Tai-chi, and familiarize ourselves with theological and ritual foundations of the organized religious tradition known as “Daoism,” which is still widely practiced across East Asia. No knowledge of Chinese is presumed. All readings will be in English.
Taught by: Goldin
Course not offered every year
Activity: Lecture
1 Course Unit

RELS 203 The Religious Other
Course explores attitudes toward monotheists of other faiths, and claims made about these “religious Others” in real and imagined encounters between Jews, Christians and Muslims from antiquity to the present. Strategies of “othering” will be analyzed through an exploration of claims about the Other’s body, habits and beliefs, as found in works of scripture, law, theology, polemics, art, literature and reportage. Attention will be paid to myths about the other, inter-group violence, converts, cases of cross-cultural influence, notions of toleration, and perceptions of Others in contemporary life. Primary sources will be provided in English.
Taught by: Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 204 The Graphic Novel and Religious Identities
Graphic novels and comic books express a variety of popular conceptions concerning religion and, as such, are capable of showing us where (and how) religious identities and phenomena exist in modern societies. Viewing comics as material-semiotic objects with multiple origins, audiences, and effects, this course investigates how religions, religious identity, and religious phenomena are expressed in and through the comic book. Situated at the intersection of religious studies, critical theory, media studies, and literary analysis, the course asks students to consider a number of issues and concerns, including: the appropriateness of the medium to express religious ideas, practices, texts, and histories; the different ways in which narratives of salvation and spiritual transformation are visualized; the role of alternative comix in the critique of popular religion; the use of comics as a means to proselytize, confess, memorialize, and historicize; and the cultural status of comics as material objects of religious import.
Taught by: Arsenault
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 208 A History of Films By and About Native Americans
This course will examine films by and about Native Americans. From the very beginnings of film history, Native Americans have been a centrally important subject. While much of the writing about Native American films tends to focus on the perpetuation of stereotypes, this class will concentrate on four primary themes: 1) the role that film plays in helping the audience to understand the exceedingly complex place of indigenous people in “American” identity (with “American” signifying, in this instance, a hemispheric sense of identity); 2) the myriad of ways that indigenous people have been involved in the history of film as extras, actors, directors, producers; 3) how representations changed when Native Americans took control of production; 4) the ways in which films by and about Native Americans have helped to heal the historical trauma resulting from the “Indian Wars” that have gone on for 500+ years on the North American continent.
Taught by: Powell
Course not offered every year
Activity: Seminar
1 Course Unit
RELS 211 Religion and Ecology
This class will introduce the overlaps between religion and ecology. Rather than assuming that there is a necessary positive or negative relationship between religion and ecology, we will look at how these relationships have materialized in complicated ways at different moments in history. We'll consider perspectives and case studies from a range of different moments in history. We'll consider perspectives and case studies from a range of different traditions, with a special attention paid to the genesis of the field of Religion and Ecology in critiques of Christian attitudes toward the environment in the 1960s and 1970s.
Taught by: Covey
Course not offered every year
Activity: Lecture
1 Course Unit

RELS 223 Jewish Literature in the Middle Ages in Translation
Course explores the cultural history of Jews in the lands of Islam from the time of Mohammed through the late 17th century (end of Ottoman expansion into Europe) -- in Iraq, the Middle East, al-Andalus and the Ottoman Empire. Primary source documents (in English translation) illuminate minority-majority relations, internal Jewish tensions (e.g., Qaraism), and developments in scriptural exegesis, rabbinic law, philosophy, poetry, polemics, mysticism and liturgy. Graduate students have additional reading and meetings. Spring 2015.
Taught by: Fishman/Stern
One-term course offered either term
Activity: Seminar
1 Course Unit

RELS 224 The Bible in Translation
This course introduces undergraduates and graduate students to one specific Book of the Hebrew Bible. "The Bible in Translation" involves an in-depth reading of a biblical source against the background of contemporary scholarship. Depending on the book under discussion, this may also involve a contextual reading with other biblical books and the textual sources of the ancient Near East. Although no prerequisites are required, RELS 224 is a perfect follow-up course for RELS 125 "Intro to the Bible."
Taught by: Crenz
One-term course offered either term
Activity: Seminar
1 Course Unit

RELS 225 Introduction to the Dead Sea Scrolls
Exploration of the issues relating to the identification and history of the people who produced and used these materials as well as the claims made about the inhabitants of the Qumran site near the caves in which the scrolls were discovered, with a focus on what can be known about the community depicted by some of the scrolls, its institutions and religious life, in relation to the known Jewish groups at that time (the beginning of the Common Era). This will involve detailed description and analysis of the writings found in the caves -- sectarian writings, "apocrypha" and "pseudepigrapha," biblical texts and interpretations.
Taught by: Reed
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 230 Topics in European History
Topics vary.
One-term course offered either term
Activity: Seminar
1 Course Unit

RELS 233 Daoist Traditions
This course examines the history of various intellectual and religious traditions that came to be known as Daoist (or Taoist in the Wade-Giles romanization). We will begin with a critical review of the twentieth-century reinvention of Daoism and the new classification of religious versus philosophical Daoism, before tracing chronologically the textual, institutional, and social history of Daoist traditions from the fourth century B.C.E. While familiarizing students with the key concepts, practices, and organizations developed in the history of Daoism, this class emphasizes the specific socio-political context of each of them. Throughout the course, we will think critically about the labeling of Daoist (as well as Confucian and Buddhist) in Chinese history and in modern scholarship. We will also question modern demarcations between philosophy, religion, and science, as well as that between the spiritual and the physical.
Taught by: Cheng
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 235 Eastern Christianities
The history of Christianity is often told from the perspective of its spread westward from Israel to Rome. Yet, in the first millennium, there were more Christians living in the East, in places as far away as Persia, Yemen, India, China, and Mongolia, than in the West. Spread across the Asian continent, these Christians were actively involved in local and imperial politics, composed theological literature, and were deeply embedded in the cultural fabric of their host societies. This course traces the spread of Christianity eastward, paying particular attention to its regional developments, its negotiations with local political powers, and its contact with other religions, including Buddhism, Manichaicism, and Islam. Readings will cover a broad range of sources, including selections from classical Syriac literature, Manichaean texts, Mesopotamian magic bowls, the so-called "Jesus Sutras," and the Quran. All readings will be provided in English, and no background is presumed.
Taught by: Han
Activity: Lecture
1 Course Unit

RELS 236 The Devil's Pact in Literature, Music and Film
For as long as we have been modern, the legend of the devil's pact has been the preferred metaphor for the desire to surpass the limits of human knowledge and power at any cost. Starting with the sixteenth-century Faust Book, which recounts the story of a scholar, alchemist and necromancer who sold his soul to the devil, and extending to the present, this course offers students a chance to explore our enduring fascination with the forbidden.
For BA Students: Arts and Letters Sector
Taught by: Richter
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: All readings and discussions in English.
RELS 239 Death, Disease & Demons in the Medieval World
How did life end for people in the medieval world? For most, death was not considered an end point because the soul journeyed on after the end of the body. But to where did it journey? And how would it be reunited with the body in the future? Between the classical period and the High Middle Ages, death shifted from a moment of quiet release to a frightening struggle in which angels and demons lay in wait for a soul as soon as it exited the body. This course will examine these changing beliefs about dying, focusing primarily on Christian medieval Europe but drawing comparative examples from Judaism, the Roman world, and Byzantine Christianity. Other topics we’ll consider include martyrdom and fears of bodily dismemberment; the emergence of purgatory and depictions of the afterworld; and the development of Christian rites for the dead. We’ll also investigate beliefs about the invisible powers of demons and the apocalyptic end of times. The course will also explore not only the process by which people entered the afterlife in the Middle Ages but also the causes of their deaths—what kinds of disease primarily afflicted medieval society, and how did age, class and gender intersect with disease to affect certain populations? We will end the semester by examining that most apocalyptic of Medieval events—the Black Death—in light of recent scientific discoveries, medieval medical explanations, and social changes brought on by this demographic catastrophe. Students will be exposed to a range of primary sources as well as evidence from tombstone inscriptions, architecture and manuscript illuminations, and archaeology. No prior knowledge of Medieval history is necessary.

Taught by: Leja
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 242 Muslim Sainthood Practices
This course aims at introducing various classical, popular and modern Muslim saints in South Asia. We will read the life stories of these saints and focus on their contribution to various religions in South Asia. We will learn about the major concepts initiated and circulated by these saints and their distinctive ways of dealing with spiritual aspects. While focusing on their sainthood practices, we also study the nature of the dialogue which addresses the questions such as pluralism, localism, and a new paradigm of spirituality that continually interacts with diverse modes of everyday life in South Asia. In order to understand their impact on visual and media cultures, we also watch two documentaries and compare these visual sources with sainthood literature and practices.

Taught by: Mohammad, M.A.
Activity: Seminar
1 Course Unit

RELS 244 From Miracles to Mindfulness
In 1902, the most famous philosopher in America, William James, revolutionized the study of religion by analyzing religion as an experience rather than as a set of doctrines or scriptures. In this course, we will pick up the inquiry that James and scholars such as Sigmund Freud began by exploring new approaches to the science and philosophy of religious experience. We will invite a series of experts from a wide range of fields—neuroscience, psychoanalysis, phenomenology, psychology, anthropology, to name only a few—to present their cutting-edge research on the nature of religious experience. How can religious experience be studied? What does the research reveal about religious experience? And what can we learn from such experiences about the workings of the human mind and human society? The course has two components: 1) a discussion-centered mini-seminar from 3:30-5:00 will open consideration of the subject with help from relevant readings 2) a guest lecture series every Tuesday from 5:00-6:30, featuring leading scholars who approach religious experience from different disciplinary angles or in light of different questions.

Taught by: Steve Weitzman
Activity: Lecture
1 Course Unit

RELS 245 Sufism
This course is a survey of the large complex of Islamic intellectual and social perspectives subsumed under the term Sufism. Sufi philosophies, beliefs, practices, and social organizations have been a major part of the Islamic tradition in all historical periods and Sufism has also served as a primary muse behind Islamic aesthetic expression in poetry, music, and the visual arts. In this course, we will attempt to understand the nature and importance of Sufism by addressing both the world of ideas and socio-cultural practices. We will trace the development of Sufism as a form of Muslim piety linked to key notions in the Quran as well as living practices of venerating the Prophet Muhammad. We will then immerse ourselves in Sufi theoretical writings through a select list of primary sources introducing foundational Sufi concepts concerning the annihilation of oneself in God, and the various stages of the Sufi quest for spiritual union. From there, we will shift to a discussion of the interactions between Sufism and philosophy by looking at the writings of two of the most influential Sufi thinkers, Al-Ghazali and Ibn al-Arabi. We will also study the important role of Sufi poetry through a close reading of a selection of Rumi’s works. In our discussion of the social and political dimensions of Sufism, we will explore the relations between Sufi movements and religious and political authority, focusing on antinomianism and patronage in the Ottoman Empire, and on Sufi responses to colonial rule. The last part of the course will look at the roles of Sufis and Sufism in contemporary societies from South Asia to North America.

Taught by: Harris
Course usually offered in spring term
Activity: Seminar
1 Course Unit
RELS 246 Spirituality in the Age of Global Warming: Designing a Digital Mapping Project in Scalar
We are living in the midst of one of the most severe crises in the Earth’s history. Science confirms the glaciers are melting, hurricanes are growing more intense, and the oceans are rising. But there is also a deeply spiritual dimension to global warming that does not factor into the scientific explanations of the Anthropocene. “Spirituality” will be defined not in terms of one particular religion, but in relationship to a passionate study of the environment and nature. Readings will include materials from both the sciences and the humanities such as Donella Meadows’s Thinking in Systems, Elizabeth Kolbert’s The Sixth Extinction, Barbara Kingsolver’s Flight Behavior, and films such as Black Fish and Wale Rider. The theoretical focus of the course will be how “multiespecies partnerships” can help us better understand and mitigate the effects of Climate Change. This class will work collaboratively on a digital archive with an interactive mapping interface designed in Scalar. This newly developed platform allows for the creation of multimedia exhibits that will document how Global Warming is affecting coral reefs in the tropics, glaciers in the Arctic and Antarctic, rainforests in the Amazon and rivers of Philadelphia. Students will also work individually to design interactive maps on the Scalar platform documenting their own more personal interactions with the environment.
Taught by: Timothy Powell
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 248 Introduction to Islamic Law
This course will introduce students to classical Islamic law, the all-embracing sacred law of Islam. Among the world’s various legal systems, Islamic law may be the most widely misunderstood and even misrepresented; certainly, misconceptions about it abound. Islamic law is, however, the amazing product of a rich, fascinating and diverse cultural and intellectual tradition. Most of the readings in this course will be taken from primary sources in translation. Areas covered will include criminal law, family law, law in the Quran, gender and sexuality, the modern application of Islamic law, Islamic government and other selected topics.
Taught by: Lowry
Course usually offered in fall term
Activity: Lecture
1 Course Unit

RELS 249 Re-enchanting Modernity: A Guide to Sufism in South Asia
This undergraduate level course introduces students to Sufism in modern South Asia, with a particular focus on how Muslim ‘mystics’ and their ‘mystical’ methods interacted with modernity, colonialism, technological developments and globalization. This course is divided into three parts. In the first part of this course, students are provided with an overview of the theological and historical background of the dominant expression of Islam that came to be identified as ‘Sufism’ of ‘Islamic mysticism’, the historical development of Sufi institutions and spaces in South Asia, and the historical emergence of South Asia as a prominent global center of Sufism. The second and main part of this course introduces students to a range of anthropological and historical works that are revelatory about how Sufi in modern South Asia were and remain intimately connected to modern political and technological developments. Providing students with an overview of Sufi re-enchantments of modernity from the 19th to 21st century, this section of the course focuses upon Sufi movements and masters who perpetuated or defended customary Islam through sophisticated appropriations of technologies and print networks, and negotiations with non-Muslim rulers and societies. Moreover, students will be introduced to anthropological and historical scholarship on religious worlds in modern South Asia that were and remain steeped in customary Islam and Sufi performances and interpretations of Islam. These sources reveal how ‘mystical’ methods of performing Islam through ecstasy and spiritual restoration, and interpretations of dreams and visions, have regularly interacted with contemporaneous technologies. The third part of this course introduces students to the globalization of South Asian Sufism in North America, Europe and Southeast Asia. Herein, students will be encouraged to engage with anthropological and literary works pertaining to itinerant South Asian Sufi masters and their devotional cults, and introduced to active South Asian Sufi centers in Philadelphia.
Taught by: Sevea
One-term course offered either term
Activity: Seminar
1 Course Unit

RELS 251 History of Hinduism
This course will explore the history of the religion(s) designated by the term ‘Hinduism’ from their earliest articulations down to the rise of modern reforms in the nineteenth century. The study of Hinduism is perhaps unique among the scholarly traditions on world religions in that it has to date had no serious connected account of its historical development, as scholars have preferred to take structural, sociological, phenomenological, and doctrinal approaches to the religion. The course, after a brief review of scholarly approaches to Hinduism and their interpretive legacies, will seek to develop a historical sense of the religion through attention to shifts in liturgy, ritual, theology, doctrine, sacral kingship, and soteriology. The course will include the reading of primary sources relevant to understanding these changes a well as highlight both modern and premodern traditions of their interpretation. It will also consider and assess some of the key interpretive ideas in the study of Hinduism, including, Sanskritization, Great and Little Traditions, cult formation, regional and popular religious movements, and canon formation. There will also be sustained consideration of the question of religion and socio-political power as well as relations between Hinduism and other religions like Buddhism and Islam.
Taught by: Sreenivasan
Activity: Lecture
1 Course Unit
RELS 254 Violence, Tolerance, Freedom
This seminar examines how the adjective "religious" has been used to modify the nouns "violence," "tolerance," and "freedom." It traces the historical development of liberal ideas of tolerance and human rights, interrogates the common assumption that religion exerts a perverse influence on politics and vice versa, critically examines the concept of terrorism, and connects the neoliberal ideal of unfettered free markets to the idea of being "spiritual but not religious."
Taught by: Jolyon Thomas
Activity: Seminar
1 Course Unit

RELS 255 Women in Modern S. Asia
This course seeks to introduce students to the diversity of texts, textual practices, and textual communities in Buddhist Asia. We will look at cosmological, historical, narrative, psychological, grammatical, magical, didactic, and astrological genres to gain an understanding of how Buddhist writers from various places and times have expressed their views on the inner workings of the mind, the nature of action, the illusion of phenomena, the role of the ethical agent, the origin of chaos, the persistence of violence, the contours of the universe, and the way to Enlightenment.
Taught by: McDaniel
Activity: Seminar
1 Course Unit

RELS 256 Existential Despair
This is an experimental course that seeks to combine creative pedagogical methods and alternative scheduling to encourage intellectual reflection and emotional vulnerability through an in-depth study of the way people cope with existential despair. Through a reading of memoirs, novels, poetry, and essays in an atmosphere conducive to close-reading and full-participation students will explore a wide-range of ways of coping with, describing, and comprehending moments of great despair. Lectures will explain the ritual, liturgical, homiletic, meditative, reflective, self-destructive, psycho-somatic, and ascetic ways despair is both conditioned and mitigated by different thinkers from various traditions over time. Format: This course is different from most others in that there is no homework, no class participation, no outside reading, and no research papers. There will be no work given to students or expected of them outside of class. All work is done in class and class is very long (8 hours straight, once a week, from four PM to midnight). Students will eat together in class, there will be three bathroom breaks, but there will be no internet, no phones, no computers, and no auditors. Each student must be fully committed to the class and 75% of the grade will be determined by class participation.
Taught by: Maclntyre
Prerequisite: Permission needed from instructor
Activity: Seminar
1 Course Unit

RELS 257 Religion, Violence, and State
This course examines the relationship between religious institutions and the state in East Asia. Focusing on China and Japan, we will learn about the impact of religious ideas, practices, and organizations on social, political, and economic processes and inspect the role of religion in the consolidation of individual, communal, and national identity. Adopting a comparative and transnational approach, we will examine the impact of Asian religious traditions: Confucianism, Daoism, Buddhism, and Shinto, as well as global religions such as Islam and Christianity, on the states and their role in shaping power relations on the international level.
Taught by: Tavor
Course not offered every year
Activity: Lecture
1 Course Unit

RELS 267 Food & Religion
Activity: Lecture
1 Course Unit

RELS 270 Topics in East Asian Religions
This seminar examines how the adjective "religious" has been used to modify the nouns "violence," "tolerance," and "freedom." It traces the historical development of liberal ideas of tolerance and human rights, interrogates the common assumption that religion exerts a perverse influence on politics and vice versa, critically examines the concept of terrorism, and connects the neoliberal ideal of unfettered free markets to the idea of being "spiritual but not religious."
Taught by: Jolyon Thomas
Activity: Seminar
1 Course Unit

RELS 271 The Politics of Shinto
Shinto-derived images and ideas frequently appear in Japanese anime and film, and journalists and academics frequently mobilize the term Shinto as a way of explaining Japan's past or envisioning its future. The environmentalist left champions a green Shinto while Shinto-derived ideas serve as red meat for politicians pandering to Japan's nationalist right. While the influential position Shinto occupies in Japanese sociopolitical life is therefore clear, the term Shinto itself is actually not. Depending on who one asks, Shinto is either the venerable indigenous religion of the Japanese archipelago, the irreducible core of Japanese culture, a tiny subset of Japanese Buddhism, an environmentalist ethic, or some combination of these. This course investigates the multifarious types of Shinto envisioned by these competing interest groups.
Taught by: Jolyon Thomas
Course not offered every year
Activity: Lecture
1 Course Unit

RELS 273 Buddhist Literature
This course seeks to introduce students to the diversity of texts, textual practices, and textual communities in Buddhist Asia. We will look at cosmological, historical, narrative, psychological, grammatical, magical, didactic, and astrological genres to gain an understanding of how Buddhist writers from various places and times have expressed their views on the inner workings of the mind, the nature of action, the illusion of phenomena, the role of the ethical agent, the origin of chaos, the persistence of violence, the contours of the universe, and the way to Enlightenment.
Taught by: McDaniel
Activity: Seminar
1 Course Unit

RELS 275 Women in Modern S. Asia
Activity: Lecture
1 Course Unit
RELS 303 Power and Peril: The Paradox of Monarchy among Ancient Greeks, Romans, and Jews
We imagine ancient Greece and Rome as the cradles of democracy and republicanism, the early Judea as pious theocracy, but the evidence tells us that monarchy was the most common and prevalent form of government in antiquity (and the premodern world in general). Despite their ubiquity, the King was a polarizing figure— in reality and in conception. On the one hand, some idealized the monarchy as the ideal leader, and monarchy provided the language with which to describe and even imagine the very gods— but on the other, monarchs were widely reviled in both theory and practice, from the Greek tyrant to the biblical Saul. The Emperor Augustus loudly denied his own affinity to the office of "king," even as he ruled alone and was revered as a god. In other words, kings stood for both the ideal ruler and the worst form of government. This class confronts the paradox of the King. This class will take a special look at the idea and institution of kingship in the Near East, among the Jews, Greeks, and Romans to assess and discuss similarities, differences, and mutual influences among these cultures. Through the lens of the "king" we will explore the idea of god, government, human frailty, and utopianism. Why did the rule of one prevail, why was it so attractive to so many? How was the royal rule legitimized? What role did religious beliefs play for keeping a monarchical system stable? What did people expect from their rulers and what happened if the ruler failed to fulfill these expectations? How was the concept of monarchical rule adopted and transferred into other spheres, such as religious beliefs or hopes for messianic kingship? While kingship is a rich field of scholarly inquiry, the question of its ubiquity, and the entanglement and divergences of these three cultures is rarely studied in context and comparison.

Taught by: Wilker, Dohrmann
Activity: Seminar
1 Course Unit

RELS 309 Honors Thesis Seminar
Required of honors majors who choose the research option.
Course usually offered in spring term
Activity: Independent Study
1 Course Unit

RELS 311 Muslims, Christians, and Jews in the Middle East: Historical Perspectives
A reading- and discussion-intensive seminar that addresses several recurring questions with regard to the Middle East and North Africa. How have Islam, Judaism, and Christianity influenced each other in these regions historically? How have Jews, Christians, and Muslims fared as religious minorities? To what extent have communal relations been characterized by harmony and cooperation, or by strife and discord, and how have these relations changed in different contexts over time? To what extent and under what circumstances have members of these communities converted, intermarried, formed business alliances, and adopted or developed similar customs? How has the emergence of the modern nation-state system affected communal relations as well as the legal or social status of religious minorities in particular countries? How important has religion been as one variable in social identity (along with sect, ethnicity, class, gender, etc.), and to what extent has religious identity figured into regional conflicts and wars? The focus of the class will be on the modern period (c. 1800-present) although we will read about some relevant trends in the early and middle Islamic periods as well. Students will also pursue individually tailored research to produce final papers. Prior background in Islamic studies and Middle Eastern History is required. This class is intended for juniors, seniors, and graduate students.

Taught by: Sharkey
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 320 Modern Jewish Intellectual and Cultural History
An overview of Jewish intellectual and cultural history from the late 18th century until the present. The course considers the Jewish enlightenment Reform, Conservative and Neo-Orthodox Judaism, Zionist and Jewish Socialist thought, and Jewish thought in the 20th century, particularly in the context of the Holocaust. Readings of primary sources including Mendelsohn, Geiger, Hirsch, Herzl, Achad-ha-Am, Baeck, Buber, Kaplan, and others. No previous background is required.

Taught by: Ruderman
One-term course offered either term
Activity: Lecture
3 Course Units

RELS 329 Wisdom in the Hebrew Bible
What does God want from us? Why are we here? How can we make the most of our existence? In this course we will explore how the Bible answers above questions and what this can tell us about the human condition during biblical times. Students will read select passages in the Book of Proverbs, Job and Qohelet (Ecclesiastes) in conjunction with Near Eastern texts. We will learn how ancient sages faced the uncertainties of life and the fleeting nature of human existence.

Taught by: Crantz
Course usually offered in fall term
Activity: Seminar
1 Course Unit
RELS 352 Jewish Political Thought & Action
Weekly seminar explores expressions of Jewish political thought—and, where possible, political action—from biblical times to the present. Themes include the leadership of biblical priests, prophets and kings; covenant as the basis of the theocratic polity the status of outsiders in biblical and rabbinic societies; constructions of political authority; changing understandings of Jewish "nationhood"; messianism; medieval Jewish ruminations on ideal government; the non-sovereign Jewish community's relationship to rulers; manifestations of Jewish communal autonomy; tensions between rabbinic and lay leadership; biblical Israel as a model for governance in early modern political thought; debates over Jewish Emancipation; expressions of Jewish socialism; varieties of pre-state Zionist thought; contemporary messianic Zionism; contemporary manifestations of Jewish political concerns. Primary sources (English translation) include readings from Hebrew Bible, ancient rabbinic texts, Jewish communal decrees, Moses Maimonides and other medieval Jewish thinkers; Baruch Spinoza, Moses Mendelssohn, Ber Barochov, Theodor Herzl, Martin Buber, Rabbi Abraham Isaac Kook, Yeshayahu Leibovitz and contemporary writers. One session will take place in the Rare Book Room of Van Pelt Library. No prior knowledge is assumed. Taught by: Fishman
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 356 Living Deliberately: Monks, Saints, and the Contemplative Life
Students who are not Religious Studies Majors and are not honors students must gain permission from instructor to enroll in this course. This is an experimental course in which students will experience monastic and ascetic ways of living. There will be no examinations, no formal papers, and very little required reading. However, each participant will need to be fully committed intellectually and participate in the monastic rules in the course involving restrictions on dress, technology, verbal communication, and food. The course subject matter is about ways in which nuns, monks, shamen, and swamis in various religious traditions (Buddhist, Muslim, Catholic, Jain, Taoist, Hindu, Animist, among others) have used poetry, meditation, mind-altering chemicals, exercise, magic, and self-torture to cope with pain and suffering, as well as struggle with spiritual, ethical, and metaphysical questions concerning the nature of the soul, the afterlife, and reality. Through monastic and spiritual practice, this course hopes to provide students with an opportunity to struggle with these questions themselves. Taught by: McDaniel
Course not offered every year
Prerequisites: Students must complete an interview with instructor before acquiring a permit.
Activity: Seminar
1 Course Unit

RELS 399 Directed Reading
Students arrange with a faculty member to pursue a program of reading and writing on a suitable topic. One-term course offered either term
Activity: Independent Study
1 Course Unit

RELS 401 Sacred Stuff in Medieval & Early Modern Europe
During devotional activities people engage with various objects and believe that they are imbued with religious significance. In this seminar, we will explore the material culture of religion across medieval and early modern Europe. From rosary beads and crucifixes to devotional books, prints, and paintings, a range of "sacred stuff" populated the lives of medieval and early modern Europeans. We will consider objects associated with daily life as well as rites of passage. We will study objects of Christian devotion and will consider how the advent of Protestantism and the Catholic Reformations influenced the types of objects devotees used for their devotion. In this seminar, we will discuss the material culture of Judaism and Islam, religions also practiced in medieval and early modern Europe. We will engage with "sacred stuff" from a variety of disciplinary perspectives, including art history, literature, archaeology, social history, and cultural history. We will then hone these skills with visits to local museums and libraries where we will view medieval and early modern books, objects and images. Course assignments will include an in-depth analysis of a devotional object from medieval or early modern Europe chosen by the student. Taught by: Tycz
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 410 American Religion and the LGBTQ Experience
Taught by: Philip Francis
One-term course offered either term
Activity: Lecture
1 Course Unit

RELS 422 Jewish Intellectual and Cultural History in the Early Modern Era: From the Spanish Expulsion to Spinoza
God and Nature examines the place of the natural world, medicine, and science in Jewish thought from antiquity to the modern era. It looks especially at a body of primary sources in Hebrew written during the age of the so-called "scientific revolution" and during its aftermath. The course is a seminar open to undergraduate and graduate students with a reading knowledge of classical Hebrew. Students without Hebrew with special interest in the subject might enroll with special permission from the instructor. Taught by: Ruderman
One-term course offered either term
Activity: Seminar
1 Course Unit

RELS 426 Rabbinic Writers on Rabbinic Culture
The course traces reflections on rabbinic culture produced within Jewish legal literature of the classic rabbinic period - Midrash, Mishna and Talmud - and in later juridical genres - talmudic commentary, codes and responsa. Attention will be paid to the mechanics of different genres, the role played by the underlying prototext, the inclusion or exclusion of variant opinions, the presence of non-legal information, the balance between precedent and innovation. Reading knowledge of Hebrew is required. Taught by: Fishman
Course not offered every year
Prerequisite: Reading knowledge of Hebrew
Activity: Seminar
1 Course Unit
RELS 429 Topics In Jewish History
Reading and discussion course on selected topics in Jewish history. Course not offered every year
Activity: Seminar
1 Course Unit

RELS 434 Christian Thought From 1000-1800
This course will trace the development of Christian thought (including philosophy, theology, spirituality and mysticism) from the early Scholastic period to early Methodism. Readings will be from both primary and secondary sources. A research paper will be required of each student. Spring 2014: This course will give an overview of the main currents of Western Christian thought from the first age of reform (that is, the Central Middle Ages) through the Reformations of the sixteenth century, to the eve of the Enlightenment. In these centuries, “Christendom” underwent an almost constant process of internal and external self-definition. The most striking results of this process were the definitive separation of eastern and western Christianity and the division of the western church into what became known as Protestant and Catholic Christianity. Our focus will be on the changing definitions of Christian culture, including theological formulations (definitions of orthodoxy and heterodoxy), trends of spirituality and mysticism, forms of worship, and gender roles and definitions. Attention will also be given to institutional questions such as ecclesiastical hierarchy, monasticism, scholasticism and the rise of universities, and the changing relationship between the secular and religious worlds. Readings will be from both original and secondary sources. Additional primary sources will be available online, attached to the course Blackboard page. I will supply copies of other readings.
Taught by: Matter
Course not offered every year
Prerequisites: None-some background in European history helpful.
Activity: Seminar
1 Course Unit

RELS 438 Topics in Medieval History
This seminar introduces students to the development of Jewish and Christian biblical interpretation by focusing on ancient, medieval, and modern interpretations of the Sermon on the Mount. The Sermon on the Mount is part of the Gospel of Matthew and is often considered to summarize the essential teachings of Jesus of Nazareth. Students will encounter a variety of important interpreters (including Origen, John Chrysostom, Augustine of Hippo, Thomas Aquinas, Martin Luther, Leo Tolstoy, Albert Schweitzer, Dietrich Bonhoeffer, Clarence Jordan, and Hans Dieter Betz), guided by appropriate secondary materials. The seminar will utilize a combination of lecture, discussion, student presentations, reports, close reading, and a research paper. Students will be encouraged to do original research in the primary sources. This course has no prerequisites. The readings will be made available in English. The class will utilize a combination of lecture, discussion, student presentations, reports, close reading, and a research paper.
Taught by: Treat
One-term course offered either term
Activity: Seminar
1 Course Unit

RELS 439 Religion, Social Justice & Urban Development
Urban development has been influenced by religious conceptions of social and economic justice. Progressive traditions within Judaism, Christianity, Islam, Buddhism, Hinduism, Jainism, Baha’i, Humanism and other religions and systems of moral thought have yielded powerful critiques of oppression and hierarchy as well as alternative economic frameworks for ownership, governance, production, labor, and community. Historical and contemporary case studies from the Americas, Europe, Africa, Asia, and the Middle East will be considered, as we examine the ways in which religious responses to poverty, inequality, and ecological destruction have generated new forms of resistance and development.
Taught by: Lamas
Course usually offered in spring term
Activity: Seminar
1 Course Unit

RELS 440 Later Islamic Art & Architecture
Istanbul, Samarkand, Isfahan, Cairo and Delhi as major centers of art production in the fourteenth to seventeenth centuries. Attention is given to urban and architectural achievement as well as to the key monuments of painting and metalwork. The visual environment of the “gunpowder empires” is discussed.
Taught by: Holod
Activity: Lecture
1 Course Unit

RELS 446 Digital Humanities
Penn recently opened the Price Lab for Digital Humanities as part of the university’s new strategic plan, so it is a very exciting moment for DH at Penn. This class might be considered an advanced introduction to the relatively short history of DH. It will focus on one of the questions that has vexed the field from the beginning: Why are the Digital Humanities So White? as Tara McPherson put it rather bluntly in a chapter of Debates in the Digital Humanities. The class will provide an overview of some of the foundational texts of DH, but the primary focus of the class will be involving students in a new DH project to construct an interactive timeline, built in Omeka. The spatio-temporal timeline seeks to represent Iroquois history as seen from the perspective of Iroquois scholar and Faithkeeper, Richard Hill. Hill is the director of the Deyohahage: Indigenous Knowledge Centre on the Six Nations reserve in the Grand River region of Ontario and one of the most highly regarded traditional knowledge keepers of his generation, so it is a great honor to be able to work with him. On a more theoretical level, the class will be addressing the relationship between cultural codes and digital codes. In other words, how to represent Iroquois spiritual history (i.e., mythical events) on a chronological timeline? How to represent indigenous space on maps created by the people who colonized the Iroquois (e.g., the border between Canada and the US cuts the Iroquois traditional homeland in half)? Students will learn how to evaluate a complex and challenging project like this, which is still in its earliest stages. On a more practical level, students will learn skills in the exhibit building software Omeka. The class will engage many different forms of history from archival documents to YouTube videos, in its study of how digital technology makes it possible to represent the indigenous oral tradition much more accurately than is possible on the printed page.
Taught by: Tim Powell
Activity: Seminar
1 Course Unit
RELS 471 Religion in Eleven Objects
This advanced course for Religious Studies majors and minors approaches the study of religion through material objects. By looking at both sacred and everyday objects like rosaries melted in atomic blasts, magical amulets used in healing rituals, temple murals defaced by invading armies, manuscript stained by hold water, we will explore the many ways people express their spiritual aspirations and existential fears through objects. Not only will a different object from a variety of religious traditions be examined each week (eleven in total), but we will also explore different methodological and theoretical approaches to the study of religion. Psychological, phenomenological, bio-genetic, sociological, art historical, discursive, post-modern, and narrative approaches will be discussed.
Taught by: Justin McDaniel
Activity: Seminar
1 Course Unit

RELS 498 Advanced Research Project: Human Flourishing and Religious Education
One-term course offered either term
Activity: Independent Study
1 Course Unit

RELS 501 Topics in the Study of Religion
This course deals with various religious topics, such as Mass Religious Conversion.
Taught by: Klausner
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 505 Religion & Cinema
This course looks at religion in film. As we will see, this is not just a question of how religion is represented onscreen, but how cinematic objects make religious subjects. We’ll explore the ways films are crafted through technique, performance, and distribution, then consider how these components shape religious bodies and religious traditions in turn.
Taught by: Schaefer
Course usually offered in spring term
Activity: Seminar
1 Course Unit

RELS 509 Teaching Religious Studies
Many faculty in academia, especially at a research university, think of themselves as scholars first and teachers second. The emphasis on scholarship is essential for a position at a research university, but what the culture of such institutions can obscure is the importance of teaching as part of the academic vocation. The purpose of this course is to help prepare graduate students to teach academic religious studies, not to teach them how to teach, a skill developed through experience and feedback, but to encourage students to plan in advance for their work as educators and to develop their teaching aspirations and approach in dialogue with issues and debates in Religious Studies, the Humanities and the field of Education.
Taught by: Weitzman
Course usually offered in fall term
Activity: Seminar
1 Course Unit

RELS 510 Civil Religion
In the first half of the course, we will examine the theoretical question of whether modern liberal societies need a civil religion - an idea first proposed in the late eighteenth century by writer who feared that without some unifying ideal or principle the centrifugal forces at work in modern societies would lead them to disintegrate. We will examine various authors who have defended the idea of civil religion in these terms (including J.J. Rousseau, J.G. Herder, and G.W.F.Hegel) as well as several who (implicitly or explicitly) have rejected the argument (Max Weber, Michael Oakeshott, Daniel Bell, and Niklas Luhmann). In the second half of the class, we will turn to the American context and explore the way these arguments have played themselves out from the time of the constitutional frames to today. In this part of the class, we will read and discuss excerpts from the Federalist Papers and Toqueville's Democracy in America, selected presidential speeches, nineteenth- and twentieth-century debates surrounding Manifest Destiny and American Exceptionalism, John Dewey/Richard Rorty's proposal for a religion of democratic "common faith," and the neoconservative case for a civil religion of "national greatness." Along the way we will also have occasion to examine sociological treatments of civil religion by such authors as Emile Durkheim, Robert Bellah, and Seymour Martin Lipset.
Taught by: Butler
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 517 Topics in American Religion
From Marvin Gaye, to Tammy Faye Baker, to Sarah Palin and James Baldwin, Pentecostalism has influenced many, including politicians, preachers, writers, and the media. One of the fastest growing religious movements in the world, Pentecostalism continues to have a profound effect on the religious landscape. Pentecostalism's unique blend of charismatic worship, religious practices, and flamboyant, media-savvy leadership, has drawn millions into this understudies and often controversial religious movement. This course will chronicle the inception and growth of Pentecostalism in the United States, giving particular attention to beliefs, practices, gender, ethnicity, and Global Pentecostalism.
Taught by: Butler
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 520 Spirit and Law
This advanced course for Religious Studies majors and minors approaches the study of religion through material objects. By looking at both sacred and everyday objects like rosaries melted in atomic blasts, magical amulets used in healing rituals, temple murals defaced by invading armies, manuscript stained by hold water, we will explore the many ways people express their spiritual aspirations and existential fears through objects. Not only will a different object from a variety of religious traditions be examined each week (eleven in total), but we will also explore different methodological and theoretical approaches to the study of religion. Psychological, phenomenological, bio-genetic, sociological, art historical, discursive, post-modern, and narrative approaches will be discussed.
Taught by: Justin McDaniel
Activity: Seminar
1 Course Unit

RELS 520 Spirit and Law
While accepting "the yoke of the commandments", Jewish thinkers from antiquity onward have perennially sought to make the teachings of revelation more meaningful in their own lives. Additional impetus for this quest has come from overtly polemical challenges to the law, such as those leveled by Paul, medieval Aristotelians, Spinoza and Kant. This course explores both the critiques of Jewish Law, and Jewish reflections of revelation more meaningful in their own lives. Additional impetus for this quest has come from overtly polemical challenges to the law, such as those leveled by Paul, medieval Aristotelians, Spinoza and Kant. This course explores both the critiques of Jewish Law, and Jewish reflections of whether modern liberal societies need a civil religion - an idea first proposed in the late eighteenth century by writer who feared that without some unifying ideal or principle the centrifugal forces at work in modern societies would lead them to disintegrate. We will examine various authors who have defended the idea of civil religion in these terms (including J.J. Rousseau, J.G. Herder, and G.W.F.Hegel) as well as several who (implicitly or explicitly) have rejected the argument (Max Weber, Michael Oakeshott, Daniel Bell, and Niklas Luhmann). In the second half of the class, we will turn to the American context and explore the way these arguments have played themselves out from the time of the constitutional frames to today. In this part of the class, we will read and discuss excerpts from the Federalist Papers and Toqueville's Democracy in America, selected presidential speeches, nineteenth- and twentieth-century debates surrounding Manifest Destiny and American Exceptionalism, John Dewey/Richard Rorty's proposal for a religion of democratic "common faith," and the neoconservative case for a civil religion of "national greatness." Along the way we will also have occasion to examine sociological treatments of civil religion by such authors as Emile Durkheim, Robert Bellah, and Seymour Martin Lipset.
Taught by: Butler
Course not offered every year
Activity: Seminar
1 Course Unit
RELS 523 Studies in Medieval Jewish Culture
Course examines features of 9th-16th century Jewish culture within their broader historical, regional and cross-cultural contexts, whether Christian or Islamic. Emphasis is placed on primary sources in Hebrew. Topics vary and have included "Reconstructing Rabbinic Judaism prior to the First Millenium"; "Custom Medieval Jewish Cultures"; "Jewish Culture in the Islamicate World"; "Nature in Medieval Jewish Culture." Students should be able to read unpointed Hebrew. May be repeated for credit.
Taught by: Fishman
One-term course offered either term
Prerequisite: Reading knowledge of Hebrew.
Activity: Seminar
1 Course Unit

RELS 537 Medieval Christian Mysticism
The course traces the flowering visionaries (mostly women) in Italy between the thirteenth and seventeenth centuries. We will pay close attention to the writings of some of the more famous women, notably Claire of Assisi, Catherine of Siena, Angela of Foligno, and Lucia Brocadelli, (all of whom can be read in English as well as in the original) and contextualize them with secondary sources about gender roles and the aspects of "female Christianity," especially connected to the materiality of women in pre-modern Italy (Bynum, McGinn, Zarri, etc.). We will meet in the library to take advantage of the manuscript and early book holdings that Penn has to offer.
Taught by: Matter
One-term course offered either term
Prerequisite: undergraduates need permission from instructor
Activity: Seminar
1 Course Unit

RELS 540 David and Solomon
Activity: Lecture
1 Course Unit

RELS 541 Religion and the Visual Image: Seeing is Believing
Seeing is Believing engages in a historical, theoretical, and cross-cultural analysis of the place of visuality in religion and of religion in visual culture. We will examine images, buildings, places, objects, performances and events. The geographical, cultural and historical scope of the material is broad, including subjects from Europe, the Islamic World, non-Muslim South Asia, the US and Latin America from the medieval period until the present. Theoretical works will be read in conjunction with representative examples to invite intellectual engagement in a socially and historically grounded way. Important issues to be covered include the relationship of visual to material culture; visual theories versus theories of vision; locating religion in human sensory experience; perception at individual and collective levels; authentics, fakes and simulacra; iconoclasm and image veneration; aesthetics, use and utility; and things.
Taught by: Jamal Elias
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 551 History of Hinduism
This course will explore the history of the religion(s) designated by the term 'Hinduism' from their earliest articulations down to the rise of modern reforms in the nineteenth century. The study of Hinduism is perhaps unique among the scholarly traditions on world religions in that it has to date had no serious connected account of its historical development, as scholars have preferred to take structural, sociological, phenomenological, and doctrinal approaches to the religion. The course, after a brief review of scholarly approaches to Hinduism and their interpretive legacies, will seek to develop a historical sense of the religion through attention to shifts in liturgy, ritual, theology, doctrine, sacrality, kingship, and soteriology. The course will include the reading of primary sources relevant to understanding these changes a well as highlight both modern and premodern traditions of their interpretation. It will also consider and assess some of the key interpretive ideas in the study of Hinduism, including, Sanskritization, Great and Little Traditions, cult formation, regional and popular religious movements, and canon formation. There will also be sustained consideration of the question of religion and socio-political power as well as relations between Hinduism and other religions like Buddhism and Islam.
Taught by: Ali
Activity: Seminar
1 Course Unit

RELS 552 Emotion and Power
Is power smart? Conventional models of power—both in everyday, commonsense understandings and in academic studies—tend to be instrumentalist. They understand power as a thoughtful exercise designed to achieve particular ends. But as we consider the political-cultural landscape, does the assumption that power is rational hold up? This seminar will bring together an in-depth exploration of Michel Foucault’s theory of power with contemporary affect theory to address this question. We will begin by mapping out Foucault’s “analytics of power,” from his early work on power knowledge to his late work on embodiment, desire, and the care of the self. We will then consider a series of interpretations of Foucault within contemporary affect theory, an approach which centralizes the non-rational, emotive force of power. Along the way, we will consider formations of sex, race, religion, material culture, and cinema. No previous knowledge of theory is required. Students will be encouraged to connect the theoretical frames of the class to their own fields and areas of interest.
Taught by: Schaefer
One-term course offered either term
Activity: Seminar
1 Course Unit
RELS 557 Seminar in Rabbinic Judaism
Most of the foundational writings of rabbinic Judaism corpora of Midrash, Mishna, and the two Talmuds were in existence by the end of the sixth century CE. Yet, for several centuries thereafter, there is little evidence attesting to the lived nature of rabbinic culture and society. Course will focus on writings by Jews and about Jews, produced between the 7th and 10th centuries, complemented by secondary sources. Texts will include selections from archaeological inscriptions; Midrash; liturgical poetry; Targum; Masora; geonic responsa, writings by Muslims and by Church Fathers. While students must be able to read Hebrew, much class time will be devoted to the improvement of reading and comprehension skills. Undergraduates should seek permission of the instructor.
Taught by: Stern, Reed
Course not offered every year
Prerequisites: Proficiency in Hebrew and/or Greek recommended.
Undergraduates need permission to enroll.
Activity: Seminar
1 Course Unit
Notes: May be repeated for credit.

RELS 571 Advanced Topics in Buddhism
This is an advanced course for upper level undergraduates and graduate students on various issues in the study of Buddhist texts, art, and history. Each semester the theme of the course changes. In recent years themes have included: Magic and Ritual, Art and Material Culture, Texts and Contexts, Manuscript Studies. Fall 2013 Topic: Buddhist repertoires (idiosyncratic and personal assemblages of beliefs, reflections, wonders, possessions, and practices) for a large part, material and sensual. Buddhists are often sustained by their collection, production, and trading of stuff amulets, images, posters, protective drawings, CDs, calendars, films, comic books, and even Buddhist-themed pillow cases, umbrellas, and coffee mugs. Aspirations are interconnected with objects. Beliefs are articulated through objects. Objects are not empty signifiers onto which meaning is placed. The followers and the objects, the collectors and their stuff, are overlooked in the study of religion, even in many studies in the growing field of material culture and religion. What is striking is that these objects of everyday religiosity are often overlooked by art historians as well. Art historians often remove (through photography or physical movement to museums or shops) images and ritual implements from their ritual context and are seen as objets d'art. Taught by: McDaniel
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 581 Environmental Activism & Digital Humanities
We are living in a moment of Environmental crisis as the oceans rise and carbon emissions warm the planet. And yet more than half the US population believes climate change will not harm them personally and 30% feel they cannot trust science. As the standoff at Standing Rock and the #NoDapl movement made clear, Native Americans’ spirituality is playing a central role in galvanizing the public and providing alternative narratives to capitalist consumption. Students will work on ongoing projects to build partnerships between Penn and two Native American communities– Sitting Bull College on the Standing Rock Sioux reservation in South Dakota and a UNESCO World Heritage Site nomination submitted by Ojibwe First Nations in Canada to preserve 24,000 sq. kms. of boreal forest through the use of Traditional Ecological Knowledge. This class will learn to build multi-media exhibits using Scalar, Omeka, Google Earth, and StoryMap. No previous experience is necessary. Students will learn about choosing a platform, creating dynamic narratives that incorporate videos and interactive features, and learning about grant writing in order to sustain digital projects and benefit Indigenous communities. Although the emphasis will be on practical applications or praxis, the course will also engage with new theories from the fields of Digital Humanities and Environmental Humanities as a basis for building new exhibits.
Taught by: Powell
Activity: Seminar
1 Course Unit

RELS 586 History of Islam in Asia
This class is designed to structure reflection on Islam and Islamic culture in South Asia -- Indonesia, Pakistan, India, and Bangladesh. Contrary to the popular perception that the Middle East defines Islam, Asian countries not only host the most Muslims in the world but have been the source of some of Islam’s most important social and reform movements in the last three hundred years. This class looks at the history of Muslim societies across Asia not just as a religious community but also as a social and cultural bloc (a distinctive part of what Marshall Hodgson called the ‘Islamicate’ world, but also an area that challenges some of Hodgson's assumptions about the Islamicate world). This course allows for the study of the Muslim world between the years 1700 to present. The class will allow students to compare and contrast Muslim societies over the last three centuries, examine points of confluence for geographically- or culturally- distinct Muslim peoples in the last three centuries, and in their writing assignments focus on the history of one society in a wider Islamicate context. In the process students will gain a more nuanced awareness of how Islam has made an impact in Asian countries, and how Asian countries have in turn impacted Islam.
Taught by: Robb
Activity: Seminar
1 Course Unit

RELS 617 Proseminar in Africana Studies
This course focuses on the historical and cultural relationship between Africans and their descendants abroad.
Taught by: Beavers, Butler, Charles, Jackson, Savage, Thomas, Zuberi
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit
RELS 620 Godliness, Miracles, Madness
This graduate-level course introduces students to religious worlds within port cities of the modern Indian Ocean that were centered upon peripatetic Muslim, Sivaia, Christian and Sikh miracle-workers, missionaries and 'gods.' This course will particularly consider how extant, published sources reveal how religion in the 19th and 20th century cosmopolitan port cities and islands: was centered upon holy men and women or spiritual beings, and intricately connected to modern economic, political and technological developments in the Indian Ocean. This course is divided into three parts. In the first part of this course, students will be introduced, on the one hand, to the scholarship on port cities or islands of, and religions or religious networks in, the modern Indian Ocean. On the other hand, to anthropological, historical and literary works on Muslim saints, Christian missionaries and Sivaia gods in the Indian Ocean. In the second and main section of this course, students will be introduced to contemporary academic literature pertaining to the inter-linkages between itinerant miracle-workers, missionaries, 'gods' and devotional cults, and economic, political and technological developments in the Indian Ocean. As well as works that explore European institutions, barracks, plantations, cells and asylums, and the steam travel being steeped, in customary religion, carnivals, ecstasy, madness and miracle stories. Here, students will be encouraged to consider ways in which a study of religion and religious economies of modern Indian Ocean port cities can be recovered through extracts from a range of anthropological, literary and historical sources. In the third part of this course, students will be encouraged to engage with the question of whether the religion of devotional cults, preoccupied with the powers of Muslim, Sivaia, Christian, and Sikh miracle-workers, missionaries and 'gods' in cosmopolitan port cities, was a distinct product of circulations within the Indian Ocean.
Taught by: Sevea
Course usually offered in fall term
Activity: Seminar
1 Course Unit

RELS 630 Gender and Religion in China
This course examines gender in Chinese religious culture from ancient to contemporary times. We will explore topics including the Buddhist accommodation of Chinese family system, Chinese transformation of the bodhisattva Guanyin, female dieties in Daoist and popular religious pantheons, writings about religious women, female ghosts and fox spirits in literary imagination and folk tales, and the significance of yin force in Chinese medicine and Daoist alchemy. Through the case of China, we will look at how gender plays critical and constitutive roles in religious traditions, and how religion can be used both to reinforce and to challenge gender norms.
Taught by: Cheng, H
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 622 Hinduism&Colonial Mdrnty: Hinduism and Colonial Modernity
This seminar deals with the question of modernity in South Asia, with a specific focus on the construction, dissemination, and politicization of Hinduism in nineteenth and twentieth century India. It focuses on three central heuristic lenses—namely those of European imperialism, Orientalism, and nationalism—to study modernity and its discontents. What was at stake in the encounter between colonial modernity and India's religions in nineteenth and early twentieth centuries? How did colonial and native discourses on "reform" and "revival" shape Indian religions as we understand them today? How is modern "Hinduism" inextricably hinged to early forms of cultural transnationalism, Orientalism, and incipient forms of nationalism? This seminar approaches questions such as these and others, with an eye to understanding how nineteenth and early twentieth century discourses continue to shape contemporary understandings of Hinduism in deep and highly politicized ways.
One-term course offered either term
Activity: Seminar
1 Course Unit

RELS 643 The Persian Intellectual Tradition
What makes Persian culture distinctive within broader Islamic intellectual history, and what constitutes the historical and geographical boundary of the Persianate intellectual and cultural zone? These questions lie at the center of inquiry in this seminar in which participants will read and discuss a broad range of works from the 11th to the 20th centuries. Readings will include works on philosophy and language, Sufi epic poems, religious and cultural geographies, accounts of natural and manufactured wonders, urban and political histories, as well as other kinds of texts. All readings will be in English for the regular meeting of the seminar; students with a reading knowledge of Persian and an interest in participating in an additional meeting to read the assignments in their original language should register for the higher of the two numbers listed for this course.
Taught by: Elias
Course not offered every year
Prerequisite: prior knowledge of Persian is required
Activity: Seminar
1 Course Unit

RELS 670 Religious Bodies and Sex in South Asia
This graduate-level course introduces students to the writings of key religious scholars in modern South Asia who associated the regeneration of Hinduism, Islam, and Sikhism with the cultivation of bodies and sexual practices. Particular attention will be paid towards religious texts produced in modern India, Pakistan and Bangladesh pertaining to sexual bodies, exercises and health; celibacy; body-building; the transmission of sexual knowledge; and the political roles of the 'Hindu,' 'Muslim' and 'Sikh' body. In this course, students will be encouraged to engage a range of sources including religio-sexual manuals, autobiographies, novels, speeches, pamphlets, official records, recipes and films. Moreover, students will be introduced to the academic literature on South Asian religious scholars and 'sex gurus' in South and Southeast Asia; religious sexuality in South Asia, Southeast Asia, the Middle East and Europe; and, the transcultural literary networks that led to the production of religio-sexual texts in modern South Asia.
Taught by: Sevea
One-term course offered either term
Activity: Seminar
1 Course Unit
RELS 701 Readings in African American Religion History
Traditional narratives of African American Religion go from slavery to civil rights to “freedom” without taking into account the complex religious lives and intellectual production of people of African descent in the Americas. This course will focus on African American Religion and the historical and theoretical frameworks that have shaped the study of this field. Readings will cover religious studies, anthropology, history, and African American studies in order to provide an understanding of the varieties of religion and religious experiences with this particular segment of the African Diaspora.
Taught by: Butler
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 702 Topics in Medieval Art
Spring 2017: For the Christians of Mideval Europe, pilgrimages were one of the key embodied experiences of faith. Reliquaries, churches with their welcoming portals, manuscripts and music: all were crafted to augment the corporeal experience of the divine. This seminar will take the material culture surrounding the relic and its veneration as a lens for exploring the Middle Ages, from the Early Christian to the High Gothic. Cross-disciplinary methodologies and cross-cultural examples will be considered to advance our understanding of these phenomena. While proceeding chronologically, each week will focus on a distinct strategy for shaping the interaction between faith and matter.
Taught by: Guerin
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 738 The Long Reformation in Britain and America
This seminar will explore how protestantism infiltrated and shaped the British Isles and colonies at multiple levels, and in particular how it was imposed from above, received in the pew, and negotiated across the gap between the two. We shall examine this process during the century and a half following the official Reformations in England, Scotland, Anglo-Ireland, the Gaidhealtachd, and British settlements in North America. Readings will be for the most part recent (and some classic) historical monographs, with a sampling of primary sources including spiritual autobiographies, diaries, church court records, and sermons. Depending on student interest, readings in anthropology of religion and ritual may be added. The course will begin with readings in secondary literature, then turn to primary research. Each participant will produce a short work (ca. 12 pp. - the length of a conference paper) of original research in primary materials. An introduction to paleography will allow you to use scanned or microfilmed manuscript sources as well as early printed works. We meet in a library seminar room in order to incorporate the material history of the early modern religious text (manuscript and print) and print image as well, with the help of our rare books and manuscripts curators.
Taught by: Todd
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 742 Qur’anic Studies
This seminar explores the nature and uses of the Qur’an. It focuses on the practice and theory of Qur’an commentary and interpretation (safsir and ta’wil). A major portion of the course will involve a close examination of manuscripts of the Qur’an at the Philadelphia Museum of Art and the Kislak Center at the University of Pennsylvania, concentrating on the relationship between the text and marginalia as well as on the peculiarities of individual manuscripts. The rest of the course will focus on reading commentaries on the Qur’an in manuscript as well as print. In addition, we will read and discuss theoretical works on the history and nature of Qur’an commentary, literary criticism and textual analysis, and spend some of the later section of the course discussing issues of translation and editorial processes involved in popularizing Qur’an commentaries on the internet. READING KNOWLEDGE OF ARABIC REQUIRED.
Taught by: Elias
Course not offered every year
Prerequisites: A reading knowledge Arabic required.
Activity: Seminar
1 Course Unit

RELS 745 Visual Cultures in Islam
This course is an intensive reading course in Pali literature from South and Southeast Asia. Students who wish to take the course must have at least 3 years of Sanskrit and a knowledge of at least one Southeast Asian language. Reading will be in philosophic, narrative, magical, medical, historical, and ritual texts.
Taught by: Justin McDaniel
Activity: Seminar
1 Course Unit

RELS 771 Readings Pali Buddhism
This is an advanced PhD seminar in which the students will need advanced proficiency in Pali and at least one Southeast Asian Language (Burmese, Thai, Khmer, Lao, Leu, Khoen, Shan, and/or Lanna). Original manuscripts from Penn’s collection of Southeast Asian religious, medical, botanical, historical, art, and literary archives will be examined and discussed.
Taught by: McDaniel
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 773 Southeast Asian Manuscript Traditions
This is an advanced PhD seminar in which the students will need to have at least 3 years of Sanskrit and a knowledge of at least one Southeast Asian Language (Burmese, Thai, Khmer, Lao, Leu, Khoen, Shan, and/or Lanna). Original manuscripts from Penn’s collection of Southeast Asian religious, medical, botanical, historical, art, and literary archives will be examined and discussed.
Taught by: Justin McDaniel
Course not offered every year
Activity: Seminar
1 Course Unit

RELS 999 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: See department for section numbers.
ROBOTICS (ROBO)

ROBO 597 Master's Thesis Research
One-term course offered either term
Activity: Masters Thesis
1 Course Unit

ROBO 599 Masters Independ Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
ROMANCE LANGUAGES (ROML)

ROML 113 Haitian Creole
Activity: Seminar
0.5 Course Units

ROML 250 Golden Age of Spain
For BA Students: History and Tradition Sector
One-term course offered either term
Activity: Seminar
1 Course Unit

ROML 690 Language Teaching and Learning
This is a year-long course required of all first-year Teaching Assistants in French and Italian. It is designed to provide new instructors with the necessary practical support to carry out their teaching responsibilities effectively. It will also introduce students to various approaches to foreign language teaching as well as to current issues in second language acquisition.
Course not offered every year
Activity: Seminar
1 Course Unit
RUSS 001 Elementary Russian I
This course develops elementary skills in reading, speaking, understanding and writing the Russian language. We will work with an exciting range of authentic written materials, the Internet, videos and recordings relating to the dynamic scene of Russia today. At the end of the course students will be comfortable with the Russian alphabet and will be able to read simplified literary, commercial, and other types of texts (signs, menus, short news articles, short stories) and participate in elementary conversations about daily life (who you are, what you do every day, where you are from, likes and dislikes).
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit

RUSS 002 Elementary Russian II
Continuation of RUSS 001. Further work developing basic language skills using exciting authentic materials about life in present-day Russia. At the conclusion of the course, students will be prepared to negotiate most basic communication needs in Russia (getting around town, ordering a meal, buying goods and services, polite conversation about topics of interest) and to comprehend most texts and spoken material at a basic level.
For BA Students: Language Course
Taught by: Peeney/Alley
Course usually offered in spring term
Prerequisite: RUSS 001 or equivalent
Activity: Lecture
1 Course Unit

RUSS 003 Intermediate Russian I
This course will develop your ability to use the Russian language in the context of typical everyday situations, including university life, family, shopping, entertainment, etc. Role-playing, skits, short readings from literature and the current press, and video clips will be used to help students improve their language skills and their understanding of Russian culture. At the end of the semester you will be able to read and write short texts about your daily schedule and interests, to understand brief newspaper articles, films and short literary texts, and to express your opinions in Russian. In combination with RUSS 004, this course prepares students to satisfy the language competency requirement.
For BA Students: Language Course
Taught by: Peeney/Alley
Course usually offered in fall term
Prerequisites: RUSS 001 and 002 or placement exam.
Activity: Lecture
1 Course Unit

RUSS 004 Intermediate Russian II
A continuation of RUSS 003. This course will further develop your ability to use the Russian language in the context of everyday situations (including relationships, travel and geography, leisure activities) and also through reading and discussion of elementary facts about Russian history, excerpts from classic literature and the contemporary press and film excerpts. At the end of the course you will be able to negotiate most daily situations, to comprehend most spoken and written Russian, to state and defend your point of view. Successful completion of the course prepares students to satisfy the language competency requirement.
For BA Students: Last Language Course
Taught by: Peeney/Alley
Course usually offered in spring term
Prerequisite: RUSS 003 or placement exam
Activity: Lecture
1 Course Unit

RUSS 009 Central and Eastern Europe: Cultures, Histories, Societies
The reappearance of the concept of Central and Eastern Europe is one of the most fascinating results of the collapse of the Soviet empire. The course will provide an introduction into the study of this region its cultures, histories, and societies from the foundation of the Holy Roman Empire to the enlargement of the European Union. Students are encouraged to delve deeper into particular countries, disciplines, and sub-regions, such as Central Europe, Eastern Europe, and the Balkans, through an individual research paper and class presentations.
Taught by: Steiner/Orenstein/Verkholantsev
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: This course is one of two required core courses for the Russian and East European Studies (REES) Major.

RUSS 010 Intro to Russia and Eurasia: Histories, Cultures, Societies
This course is designed as a broad introduction to the study of Russia and Eurasia that will offer students a multi-disciplinary overview of the cultures, histories and societies of this large and diverse region of the world. It is organized in units that illustrate the approaches of various disciplines to the study of the region, including history, literary studies, cinema studies, art history, and social scientific inquiry. At the conclusion of the course, students will be acquainted with these various disciplinary frameworks and the differences between them, with the modes of analysis and writing that pertain to them, and with fundamental knowledge of the region. They will be prepared for further study of the region in a variety of programs of study, including the Russian and East European Studies major, for which the course serves as a foundation.
Taught by: Platt/Staff
Course usually offered in fall term
Activity: Lecture
1 Course Unit
RUSS 026 BEHIND THE IRON CURTAIN
This first-year seminar provides an introduction to the histories, cultures, and societies of Central and Eastern Europe, including Poland, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Albania, and the successor states of Yugoslavia. Through a selection of articles and essays written by anthropologists and sociologists and based on their extended fieldwork in the region, students will explore both the ethnographic method and the experience of everyday life during and after the communist era. Topics will include: popular music under socialism, food and wine, environmental concerns, the status of Muslim minorities, socialist aesthetics, public cultures and commodities of commemoration, privatization, advertising, women’s rights, gender and sexuality, emergent nationalism, and the rise of income inequality and homelessness. All readings and assignments in English.
Taught by: GHODSEE
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: In this course, first-year students gain knowledge about the cultures and societies of Central and Eastern Europe through the reading of ethnographic texts about the socialist (1945-1989) and post-socialist (1990 to the present) eras. The course takes a multidisciplinary approach in that it combines ethnographic works from both anthropology and sociology and discusses how qualitative methodologies differ from survey research or other forms of quantitative analysis. By exposing students to the critical examination of how different types of knowledge are produced through the close study of Central and Eastern Europe, the course aims to teach them to be critical consumers of essentialized truths underpinning fix notions about concepts such as “culture” and “society.” At the end of the course students should develop a deep understanding of the value of the ethnographic method and the contested terrain of knowledge production about the socialist and post-socialist past, and will be able to speak and write about these issues with competence and confidence.

RUSS 048 The Rise and Fall of the Russian Empire, 1552-1917
How and why did Russia become the center of the world’s largest empire, a single state encompassing eleven time zones and over a hundred ethnic groups? To answer this question, we will explore the rise of a distinct political culture beginning in medieval Muscovy, its transformation under the impact of a prolonged encounter with European civilization, and the various attempts to re-form Russia from above and below prior to the Revolution of 1917. Main themes include the facade vs. the reality of central authority, the intersection of foreign and domestic issues, the development of a radical intelligentsia, and the tension between empire and nation.
For BA Students: History and Tradition Sector
Taught by: Nathans/Holquist
One-term course offered during term
Activity: Lecture
1 Course Unit

Out of an obscure, backward empire, the Soviet Union emerged to become the great political laboratory of the twentieth century. This course will trace the roots of the world’s first socialist society and its attempts to recast human relations and human nature itself. Topics include the origins of the Revolution of 1917, the role of ideology in state policy and everyday life, the Soviet Union as the center of world communism, the challenge of ethnic diversity, and the reasons for the USSR’s sudden implosion in 1991. Focusing on politics, society, culture, and their interaction, we will examine the rulers (from Lenin to Gorbachev) as well as the ruled (peasants, workers, and intellectuals; Russians and non-Russians). The course will feature discussions of selected texts, including primary sources in translation.
For BA Students: History and Tradition Sector
Taught by: Nathans/Holquist
Course usually offered during spring term
Activity: Recitation
1 Course Unit

RUSS 095 UNIVERSAL LANGUAGE: FROM THE TOWER OF BABEL TO ARTIFICIAL INTELLIGENCE
This is a course in European intellectual history. It explores the historic trajectory, from antiquity to the present day, of the idea that there once was, and again could be, a universal and perfect language among the human race. If recovered, it can explain the origins and meaning of human experience, and can enable universal understanding and world peace. The tantalizing question of the possibility of a universal language has been vital and thought-provoking throughout the history of humanity. The idea that the language spoken by Adam and Eve was a language which perfectly expressed the nature of all earthly objects and concepts has occupied the minds of intellectuals for almost two millennia. In defiance of the Christian biblical myth of the confusion of languages and nations at the Tower of Babel, they have over and over tried to overcome divine punishment and discover the path back to harmonious existence. By recovering or recreating a universal language, theologians hoped to be able to experience the divine; philosophers believed that it would enable apprehension of the laws of nature, while mystic cabalists saw in it direct access to hidden knowledge. In reconstructing a proto-language, 19th-century Indo-Europeanist philologists saw the means to study the early stages of human development. Even in the 20th century, romantic idealists, such as the inventor of Esperanto Ludwik Zamenhof, strove to construct languages to enable understanding among estranged nations. For writers and poets of all times, from Cyrano de Bergerac to Velimir Khlebnikov, the idea of a universal and perfect language has been an inexhaustible source of inspiration. Today, this idea echoes in theories of universal and generative grammars, in approaching English as a global tongue, and in various attempts to create artificial languages, even a language for cosmic communication.
Taught by: VERKHOLANTSEV
Course usually offered during spring term
Activity: Seminar
1 Course Unit
RUSS 105 Accelerated Elementary Russian
TWO IN ONE: This is an intensive two-credit course covering two semesters of the first-year sequence (RUSS001 and 002). The course is designed for students with no background in Russian and develops language competence in speaking, reading, writing and understanding contemporary Russian. Class work emphasizes development of communication skills and cultural awareness. Together with RUSS003 and 004 fulfills Penn Language Requirement.
For BA Students: Language Course
Course not offered every year
Activity: Lecture
2 Course Units

RUSS 111 Poetics of Screenplay: The Art of Plotting
This course studies screenwriting in a historical, theoretical and artistic perspective. We discuss the rules of drama and dialogue, character development, stage vs. screen-writing, adaptation of nondramatic works, remaking of plots, auteur vs. genre theory of cinema, storytelling in silent and sound films, the evolvement of a script in the production process, script doctoring, as well as screenwriting techniques and tools.
Taught by: Todorov
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course cannot be applied towards Russian major or minor.

RUSS 115 Before Transgender: Hermaphrodites in 19th Century Literature
This course provides a literary and cultural prehistory to contemporary discourses on transgender identity by focusing on the figure of the hermaphrodite in 19th Russia and the West. Far from a marginal subject, the hermaphrodite and intersex characters played central roles in the novels of Balzac, Tolstoy, Dostoevsky, and many others whose work we will read in this course. Interdisciplinary in nature, this course draws on 19th century discourses in medicine, psychology, opera, religious philosophy, and political theory to understand why characters who exist outside of the male/female gender binary feature so prominently in 19th century literature and cultural texts across a wide range of traditions (Anglophone, French, and Russian, and others.)
Taught by: Wilson
Activity: Lecture
1 Course Unit

RUSS 123 Russia and Eastern Europe in International Affairs
Russia and the European Union (EU) are engaged in a battle for influence in Eastern Europe. EU foreign policy towards its Eastern neighbors is based on economic integration and the carrot of membership. With the application of this powerful incentive, Central and Southeastern European countries such as Poland, Hungary, the Czech Republic, and Croatia have progressed rapidly towards integration with the EU (and NATO). Yet, given Russia’s opposition to the further enlargement, membership is off the table for the large semi-Western powers such as Russia itself and Turkey and the smaller countries inhabiting an emerging buffer zone between Russia and the EU, such as Georgia, Ukraine, Azerbaijan, Moldova, and Belarus. These in-between countries find themselves subject to intense competition for influence between Eastern and Western powers. In this context, EU countries must balance their energy dependence on Russia and need for new markets and geopolitical stability with concern for human rights, democratic governance, and self-determination. What are the trade-offs implicit in the foreign policies of Russia, EU member states, and Eastern Europe? What are the best policy approaches? What are the main opportunities and obstacles?
For BA Students: Society Sector
Taught by: Orenstein
Course not offered every year
Activity: Lecture
1 Course Unit

RUSS 125 The Adultery Novel
The object of this course is to analyze narratives of adultery from Shakespeare to the present and to develop a vocabulary for thinking critically about the literary conventions and social values that inform them. Many of the themes (of desire, transgression, suspicion, discovery) at the heart of these stories also lie at the core of many modern narratives. Is there anything special, we will ask, about the case of adultery—once called “a crime which contains within itself all others”? What might these stories teach us about the way we read in general? By supplementing classic literary accounts by Shakespeare, Pushkin, Flaubert, Chekhov, and Proust with films and with critical analyses, we will analyze the possibilities and limitations of the different genres and forms under discussion, including novels, films, short stories, and theatre. What can these forms show us (or not show us) about desire, gender, family and social obligation? Through supplementary readings and class discussions, we will apply a range of critical approaches to place these narratives of adultery in a social and literary context, including formal analyses of narrative and style, feminist criticism, Marxist and sociological analyses of the family, and psychoanalytic understandings of desire and family life.
For BA Students: Arts and Letters Sector
Taught by: Platt
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: All readings and lectures in English.
RUSS 134 Communism
The rise and fall of Communism dominated the history of the short twentieth century from the Russian revolution of 1917 to the collapse of the Soviet Union in 1991. As a system of government, Communism is more or less dead, but its utopian ideals of liberation from exploitation and want live on. Communism remains the one political-economic system that presented, for a time, an alternative to global capitalism. In this course, students will gain an introduction to socialist and Communist political thought and explore Communist political and economic regimes their successes and failures, critics and dissidents, efforts at reform, and causes of collapse. We will learn about the remnants of Communism in China, North Korea, and Cuba and efforts of contemporary theorists to imagine a future for Communism.
For BA Students: Society Sector
Taught by: Orenstein
Course not offered every year
Activity: Lecture
1 Course Unit

RUSS 135 Cold War: A Global History
The Cold War was more than simply a military confrontation between the United States and the Soviet Union; it was the frame within which the entire world developed (for better or worse) for nearly five decades. This course will examine the cold War as a global phenomenon, covering not only the military and diplomatic history of the period, but also examining the social and cultural impact of the superpower confrontation. We will cover the origins of the conflict, the interplay between periods of tension and detente, the relative significance of disagreements within the opposing blocs, and the relationship between the "center" of the conflict in the North Atlantic/European area and the global "periphery".
For BA Students: Humanities and Social Science S
Taught by: Nathans
Activity: Recitation
1 Course Unit

RUSS 136 Portraits of Russian Society: Art, Fiction, Drama
This course covers 19C Russian cultural and social history. Each week-long unit is organized around a single medium-length text (novella, play, memoir) which opens up a single scene of social history - birth, death, duel, courtship, tsar, and so on. Each of these main texts is accompanied by a set of supplementary material - paintings, historical readings, cultural-analytical readings, excerpts from other literary works, etc. The object of the course is to understand the social codes and rituals that informed nineteenth-century Russian life, and to apply this knowledge in interpreting literary texts, other cultural objects, and even historical and social documents (letters, memoranda, etc.). We will attempt to understand social history and literary interpretation as separate disciplines - yet also as disciplines that can inform one another. In short: we will read the social history through the text, and read the text against the social history.
For BA Students: Humanities and Social Science S
Taught by: Platt
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: No prior language experience required.

RUSS 145 Masterpieces of 19th Century Russian Literature
A bronze monument to an all-powerful emperor comes to life and pursues a poor everyman through the streets, driving him to his death. A studious young man kills an old woman as a philosophical experiment. A young woman at the height of aristocratic society abandons her husband and young son to devote herself to her lover. These and other tales from the classics of nineteenth-century Russian literature will touch and delight you, get under your skin, and even attempt to show you how to live.
We will read these tales in order to understand how books can become events in their own right, how Russian literature gained such power and prestige, and what it can still teach us today. Works will include Pushkin’s The Bronze Horseman, Turgenev’s Fathers and Children, Dostoevsky’s Crime and Punishment, Tolstoy’s Anna Karenina, Khovshchinsky’s City Folk and Country Folk, Chekhov’s Cherry Orchard, and others.
For BA Students: Arts and Letters Sector
Taught by: Platt
Course usually offered in fall term
Activity: Lecture
1 Course Unit

RUSS 149 Slavery, Serfdom, and Cultures of Bondage in the U.S. and Russia
During the Cold War, the United States and Russia were locked in an ideological battle, as capitalist and communist superpowers, over the question of private property. So how did these two countries approach the most important question regarding property that ever faced human civilization: how could governments justify the treatment of its subjects, people, as property? In 1862, Russia abolished serfdom, a form of human bondage that had existed in its territories since the 11th century. Just a year later, in 1863, Abraham Lincoln signed the Emancipation Proclamation, declaring America’s slaves “then, thenceforward, and forever free.” What forces, both domestic and international, both political and cultural, influenced this near simultaneous awakening in which huge swaths of the Russian and U.S. populations were liberated?
While scholars have often sought to compare slavery and serfdom as institutions, this course does not attempt to draw connections between the two. Rather, we will focus on how the slavery/anti-slavery and serfdom/anti-serfdom debates were framed in each respective country as well as how Russia used American slavery and the U.S. used Russian serfdom to shape their own domestic debates.
Taught by: Wilson
Course not offered every year
Activity: Seminar
1 Course Unit

RUSS 155 Masterpieces of 20th Century Russian Literature
Major Russian writers in English translation: Tolstoy, Chekhov, Pasternak, Babel, Solzhenitsyn, and others.
For BA Students: Arts and Letters Sector
Taught by: Steiner
Course usually offered in spring term
Activity: Lecture
1 Course Unit
RUSS 159 POPULATION AND PUBLIC HEALTH IN EASTERN EUROPE
Since the collapse of communism in 1989 in Eastern Europe (and 1991 in the Soviet Union), many of the countries in the region have experienced public health crises and demographic catastrophe. Below replacement fertility rates and massive out migration have decimated the populations of these countries even as populations age and place unsustainable strains on pension systems and medical services. The demographic collapse has also been accompanied by falling male life expectancy and the rise of alcoholism, depression, domestic violence, and suicide. The economic exigencies of the transition from communism to capitalism dismantled welfare states at the exact moment when health services were most needed, leaving charities and nongovernmental organization to try to fill in the gaps. Through a combination of readings from the fields of epidemiology, demography, and medical anthropology, this course examines the public health implications of poverty and social dislocation in post-communist states. All readings and assignments are in English.
Taught by: GHODSEE
Activity: Lecture
1 Course Unit

RUSS 160 Sex and Socialism
This seminar examines classic and current scholarship and literature on gender and sexuality in contemporary Eastern Europe, and examines the dialogue and interchange of ideas between East and West. Although the scholarly and creative works will primarily investigate the changing status of women during the last three decades, the course will also look at changing constructions of masculinity and LGBT movements and communities in the former communist bloc. Topics will include: the woman question before 1989; gender and emerging nationalisms; visual representations in television and film; social movements; work; romance and intimacy; spirituality; and investigations into the constructed concepts of "freedom" and "human rights."
Course not offered every year
Activity: Lecture
1 Course Unit

RUSS 161 Communism & Woman Qstion
Course not offered every year
Activity: Seminar
1 Course Unit

RUSS 164 Russian and East European Film from the October Revolution to World War II
The purpose of this course is to present the Russian and East European contribution to world cinema in terms of film theory, experimentation with the cinematic language, and social and political reflex. We discuss major themes and issues such as the invention of montage, the means of revolutionary visual propaganda and the cinematic component to the communist cultural revolutions, party ideology, and practices of social-engineering, cinematic response to the emergence of the totalitarian state in Soviet Russia before World War II.
Taught by: Todorov
Activity: Lecture
1 Course Unit

RUSS 165 Russian and East European Film after World War II
The purpose of this course is to present the Russian and East European contribution to world cinema in terms of film theory, experimentation with the cinematic language, and social and political reflex. We discuss major themes and issues such as means of visual propaganda and the cinematic component to the communist cultural revolutions, party ideology and practices of social-engineering, cinematic response to the emergence of the totalitarian state in Russia and its subsequent installation in Eastern Europe after World War II.
Taught by: Todorov
Activity: Lecture
1 Course Unit

RUSS 171 The Socialist City
This course will explore the ideology and politics of the socialist city in the Soviet Union, East Europe, and the Second World. We will focus on how design professionals, politicians, and residents realized utopian socialist values in the face of national design traditions, local politics, and limited resources. Beginning with the Soviet case, the course will consider how planners and architects addressed modernization, multi-family housing, and neighborhood units in new city plans. We will consider capitals, like Moscow, as well as less well-known regional centers that had strong local identities, such as Tashkent, Belgrade, and Prague. We will examine the state’s use of public spaces for commemorations and preservationists’ reinterpretation of existing historic sites. In addition, we will consider how everyday residents experienced the socialist city, such as multi-family housing, shopping centers, and subway systems. We will address how citizens circumvented official state channels to obtain state housing and illegally build homes for themselves, sometimes in a folk style. The course will center on Soviet and East European cities, but also address socialist cities in Cuba and Africa whose design was influenced by transnational exchanges. Most broadly, this course explores the question, what was the socialist city? How did its planners, architects, and politicians understand it, and what did they intend to construct? And, what resulted? In the past fifteen years, North American scholars have begun to take seriously the study of the socialist city, and this course draws on the emerging scholarship on this exciting, cross-disciplinary topic. How do scholars understand the socialist city today? We will examine the shared legacies that socialist cities across East Europe shared with their Western European counterparts, as well as the particularities of design that have sparked North American scholars’ debates on what distinguished the socialist city from ones that emerged in a capitalist context. In our discussions, we will seek to understand how socialist design professionals understood their work and the emerging cities at the time, as well as how North American scholars view the socialist city today. Disciplinarily, the focus of the call will fall at the intersection of architectural history and politics.
Taught by: Aplenc
Course not offered every year
Activity: Seminar
1 Course Unit
RUSS 187 Portraits of Soviet Society: Literature, Film, Drama
How can art and literature open a window on Russian lives lived over the course of the tumultuous twentieth century? This course adopts a unique approach to questions of cultural and social history. Each week-long unit is organized around a medium-length film, text or set of texts by some of the most important cultural figures of the era (novella, play, memoir, film, short stories) which opens up a single scene of social history: work, village, avant-garde, war, Gulag, and so on. Each cultural work is accompanied by a set of supplementary materials: historical readings, paintings, cultural-analytical readings, excerpts from other literary works, etc. We will read social history through culture and culture through history.
For BA Students: Humanities and Social Science S
Taught by: Platt
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English

RUSS 189 Soviet and Post-Soviet Economy
The course will cover the development and operation of the Soviet centrally planned economy— one of the grandest social experiments of the 20th century. We will review the mechanisms of plan creation, the push for the collectivization and further development of Soviet agriculture, the role of the Soviet educational system and the performance of labor markets (including forced labor camps—GULags). We will discuss the strengths and weaknesses of the Soviet system and the causes of its collapse. Privatization, called by some “piratization,” will be one of the central issues in our consideration of central planning to a market economy in the early 1990s. Even though our main focus will be on the Soviet economy and post-Soviet transition, we will occasionally look back in time to the tsarist era and even further back to find evidence to help explain Soviet/Russian economic development.
Taught by: Vekker
Activity: Lecture
1 Course Unit

RUSS 191 Putin's Russia: Culture, Society and History
Winston Churchill famously said that Russia “is a riddle, wrapped in a mystery, inside an enigma.” Strikingly, today many informed Russians would agree: no one can provide definitive answers concerning what has driven Russian public life and politics over the past three years, as it ricocheted from the mass protests of 2011 and 2012, into the Pussy Riot scandal, then the Olympics, and most recently to the intense patriotism driving the Russian annexation of Crimea and intervention in Ukraine. In this course we will examine how Russians themselves communicate about and represent Russia and what this reveals about this complex society and its development. We will consider print journalism, novels, films, televised media, and the internet paying close attention both to particular representations and to social institutions for their production, dissemination and consumption. Topics of special concern will include: conspiracy theories, representations of Russian history, collective identity and patriotism, intellectuals and elites, gender and sexuality, consumption and wealth. Putins Russia is an introductory level course for which no prior knowledge Russian history, culture or society is required.
All readings and screenings will be in English.
For BA Students: Society Sector
Taught by: Platt
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: No prior knowledge of Russian is required.

RUSS 193 War and Representation
This class will explore complications of representing war in the 20th and 21st centuries. War poses problems of perception, knowledge, and language. The notional “fog of war” describes a disturbing discrepancy between agents and actions of war; the extreme nature of the violence of warfare tests the limits of cognition, emotion, and memory; war’s traditional dependence on declaration is often warped by language games—“police action,” “military intervention,” “nation-building,” or palpably unnamed and unacknowledged state violence. Faced with the radical uncertainty that forms of war bring, modern and contemporary authors have experimented in historically, geographically, experientially and artistically particular ways, forcing us to reconsider even seemingly basic definitions of what a war story can be. Where does a war narrative happen? On the battlefield, in the internment camp, in the suburbs, in the ocean, in the ruins of cities, in the bloodstream? Who narrates war? Soldiers, refugees, gossips, economists, witnesses, bureaucrats, survivors, children, journalists, descendants and inheritors of trauma, historians, those who were never there? How does literature respond to the rise of terrorist or ideology war, the philosophical and material consequences of biological and cyber wars, the role of the nuclear state? How does the problem of war and representation disturb the difference between fiction and non-fiction? How do utilitarian practices of representation—propaganda, nationalist messaging, memorialization, xenophobic depiction—affect the approaches we use to study art? Finally, is it possible to read a narrative barely touched or merely contextualized by war and attend to the question of war’s shaping influence? The class will concentrate on literary objects—short stories, and graphic novels—as well as film and television. Students of every level and major are welcome in and encouraged to join this class, regardless of literary experience.
For BA Students: Humanities and Social Science S
Taught by: Fischler
Course not offered every year
Activity: Seminar
1 Course Unit

RUSS 196 Russian Short Story
This course studies the development of 19th and 20th-century Russian literature through one of its most distinct and highly recognized genres – the short story. The readings include great masters of fiction such as Pushkin, Gogol, Dostoevsky, Tolstoy, Chekhov, Solzhenitsyn, and others. The course presents the best works of short fiction situating them in a larger cultural-political context. The students learn about the historical formation, poetic virtue, and thematic characteristics of major narrative modes such as sentimentalism, romanticism, utopia, realism, modernism, and socialist realism. We study literary devices, styles, and trends of storytelling such as irony, absurd, satire, grotesque, anecdote, etc. Main topics include culture of the duel; the role of chance; the riddle of death; the role of the nuclear state; the extreme nature of the violence of warfare tests the limits of cognition, emotion, and memory; war’s traditional dependence on declaration is often warped by language games—“police action,” “military intervention,” “nation-building,” or palpably unnamed and unacknowledged state violence. Faced with the radical uncertainty that forms of war bring, modern and contemporary authors have experimented in historically, geographically, experientially and artistically particular ways, forcing us to reconsider even seemingly basic definitions of what a war story can be. Where does a war narrative happen? On the battlefield, in the internment camp, in the suburbs, in the ocean, in the ruins of cities, in the bloodstream? Who narrates war? Soldiers, refugees, gossips, economists, witnesses, bureaucrats, survivors, children, journalists, descendants and inheritors of trauma, historians, those who were never there? How does literature respond to the rise of terrorist or ideology war, the philosophical and material consequences of biological and cyber wars, the role of the nuclear state? How does the problem of war and representation disturb the difference between fiction and non-fiction? How do utilitarian practices of representation—propaganda, nationalist messaging, memorialization, xenophobic depiction—affect the approaches we use to study art? Finally, is it possible to read a narrative barely touched or merely contextualized by war and attend to the question of war’s shaping influence? The class will concentrate on literary objects—short stories, and graphic novels—as well as film and television. Students of every level and major are welcome in and encouraged to join this class, regardless of literary experience.
For BA Students: Humanities and Social Science S
Taught by: Todorov
Course not offered every year
Activity: Lecture
1 Course Unit
RUSS 197 Madness and Madmen in Russian Culture
Is "insanity" today the same thing as "madness" of old? Who gets to define what it means to be "sane," and why? Are the causes of madness biological or social? In this course, we will grapple with these and similar questions while exploring Russia's fascinating history of madness as a means to maintain, critique, or subvert the status quo. We will consider the concept of madness in Russian culture beginning with its earliest folkloric roots and trace its depiction and function in the figure of the Russian "holy fool," in classical literature, and in contemporary film. Readings will include works by many Russian greats, such as Pushkin, Gogol, Dostoevsky, Chekhov, Bulgakov and Nabokov.
For BA Students: Humanities and Social Science S
Taught by: Peeney
Course not offered every year
Activity: Lecture
1 Course Unit

RUSS 201 Dostoevsky and His Legacy
This course explores the ways Fyodor Dostoevsky (1821-1881) portrays the "inner world(s)" of his characters. Dostoevsky's psychological method will be considered against the historical, ideological, and literary contexts of middle to late nineteenth-century Russia. The course consists of three parts: External World (the contexts of Dostoevsky), "Inside" Dostoevsky's World (the author's technique and ideas) and The World of Text (close reading of Crime and Punishment and The Brothers Karamazov). Students will write three essays on various aspects of Dostoevsky's "spiritual realism."
Activity: Seminar
1 Course Unit

RUSS 202 Tolstoy
Few authors have ever been able to combine their moral and artistic visions as closely as Tolstoy. Over the course of the semester, we will plot how Tolstoy's ethical concerns changed over the course of his life and how this was reflected in works, which include some of the greatest prose ever written. We will begin by surveying the majestic and far-reaching world of his novels and end with some of Tolstoy's short later works that correspond with the ascent of "Tolstoyism" as virtually its own religion.
Taught by: Todorov
Activity: Seminar
1 Course Unit
Notes: Ben Franklin Seminar

RUSS 213 Saints and Devils in Russian Literature and Tradition
This course is about Russian literary imagination, which is populated with saints and devils, believers and religious rebels, holy men and sinners. In Russia, where people's frame of mind had been formed by a mix of Eastern Orthodox Christianity and earlier pagan beliefs, the quest for faith, spirituality, and the meaning of life has invariably been connected with religious matters. How can one find the right path in life? Is humility the way to salvation? Should one live for God or for the people? Does God even exist? In "Saints and Devils" we read works of great masters of Russian literature and learn about the historic trends that have filled Russia's national character with religious and mystical spirit. We start with old Russian fanciful stories and legends of crafty demons and all-forbearing saints. The master of fantastic writing, Nikolai Gogol, will teach us how to triumph over the devil. Together with Anton Chekhov and Leo Tolstoy, we contemplate an ambivalent cultural image of woman as a victim or a sinful agent of the devil. Immersed in the world of Dostoevsky's The Brothers Karamazov, we contemplate an ambivalent cultural image of woman as a victim or a sinful agent of the devil. Immersed in the world of Dostoevsky's The Brothers Karamazov, we contemplate an ambivalent cultural image of woman as a victim or a sinful agent of the devil. Immersed in the world of Dostoevsky's The Brothers Karamazov, we contemplate an ambivalent cultural image of woman as a victim or a sinful agent of the devil. Immersed in the world of Dostoevsky's The Brothers Karamazov, we contemplate an ambivalent cultural image of woman as a victim or a sinful agent of the devil. Immersed in the world of Dostoevsky's The Brothers Karamazov, we contemplate an ambivalent cultural image of woman as a victim or a sinful agent of the devil. Immersed in the world of Dostoevsky's The Brothers Karamazov, we contemplate an ambivalent cultural image of woman as a victim or a sinful agent of the devil.
For BA Students: Arts and Letters Sector
Taught by: Verkholantsev
Course not offered every year
Activity: Seminar
1 Course Unit

RUSS 217 Russian Politics
This course will present an in-depth examination of political, economic and social change in post-Soviet Russia within a historical context. After a brief discussion of contemporary problems in Russia, the first half of the course will delve into the rise of communism in 1917, the evolution of the Soviet regime, and the tensions between ideology and practice over the seventy years of communist rule up until 1985. The second part of the course will begin with an examination of the Gorbachev period and the competing interpretations of how the events between 1985 and 1991 may have contributed to the collapse of the Soviet Union. We will then proceed to make sense of the continuities and changes in politics, economics and society in contemporary Russia. Important topics will include the confrontations accompanying the adoption of a new constitution, the emergence of competing ideologies and parties, the struggle over economic privatization, the question of federalism and nationalism, social and political implicatons of economic reform, and prospects for Russia's future in the Putin and post-Putin era.
Course usually offered in spring term
Activity: Recitation
1 Course Unit
RUSS 220 Russia and the West
This course will explore the representations of the West in eighteenth- and nineteenth-century Russian literature and philosophy. We will consider the Russian visions of various events and aspects of Western political and social life, including the French and American Revolutions, educational systems, public executions, resorts, etc. within the context of Russian intellectual history. We will examine how images of the West reflect Russia's own cultural concerns, anticipations, and biases, as well as aesthetic preoccupations and interests of Russian writers. The discussion will include literary works by Karamzin, Pushkin, Gogol, Dostoevsky, Leskov, and Tolstoy, as well as non-fictional documents, such as travelers' letters, diaries, and historiographical treatises of Russian Freemasons, Romantic and Positivist thinkers, and Russian social philosophers of the late Nineteenth century. A basic knowledge of nineteenth-century European history is desirable. The class will consist of lectures, discussion, short writing assignments, and two in-class tests.
For BA Students: Humanities and Social Science Seminar
1 Course Unit
Notes: From the Other Shore: Russia and the West

RUSS 222 Imagining Asia: Russia and the East
This course examines the important role of the East in Russian literature and nationalism. Focusing specifically on the Caucasus, Central Asia, Iran, and Turkey, this course will analyze how Russian writers connected the East to Russian identity, and how their approaches implicate different artistic periods (Romanticism, Realism, Socialist Realism, Post-Modernism) and different political atmospheres (Tsarist Russia, Soviet Union, Post-Soviet). Students will also ascertain how Russian literature on the East has affected and influenced literary and political movements produced in the East. In particular, students will analyze how Soviet Central Asian writers, Iranian Socialists, and contemporary Turkish writers were influenced by Russian literature and Soviet ideology. Ultimately, this course examines the impact of Russias cultural and political history in 20th century Central Asia and the Middle East. Readings will include works by: Pushkin, Lermontov, Tolstoy, Dostoevsky, Platonov, Chingiz Aitmatov, Sadek Hedayat, Orhan Pamuk, and others.
Activity: Seminar
1 Course Unit

RUSS 234 Medieval Russia: Origins of Russian Cultural Identity
This course offers an overview of the cultural history of Rus from its origins to the eighteenth century, a period which laid the foundation for the Russian Empire. The course takes an interdisciplinary approach to the evolution of the main cultural paradigms of Russian Orthodoxy viewed in a broader European context. Although this course is historical in content, it is also about modern Russia. The legacy of Medieval Rus is still referenced, often allegorically, in contemporary social and cultural discourse as the Russian, Ukrainian and Belarusian societies attempt to reconstruct and reinterpret their histories. In this course, students learn that the study of the medieval cultural and political history explains many aspects of modern Russian society, its culture and mentality.
Taught by: Verkholantsev
Course not offered every year
Activity: Lecture
1 Course Unit

RUSS 240 Napoleonic Era and Tolstoy
In this course we will read what many consider to be the greatest book in world literature. This work, Tolstoy's War and Peace, is devoted to one of the most momentous periods in world history, the Napoleonic Era (1789-1815). We will study both the novel and the era of the Napoleonic Wars: the military campaigns of Napoleon and his opponents, the grand strategies of the age, political intrigues and diplomatic betrayals, the ideologies and human dramas, the relationship between art and history. How does literature help us to understand this era? How does history help us to understand this great novel? Because we will read War and Peace over the course of the entire semester, readings will be manageable (circa 100 pages of the epic and 50 pages of additional reading per week) and very enjoyable.
Taught by: Holquist
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English.

RUSS 250 Tarkovsky's Passions
Andrei Tarkovsky is universally acknowledged to be the greatest Soviet filmmaker of the last half of the twentieth century. In Kurosawas assessment following Tarkovskys death in the late 1980s, he had no equal among film directors alive now. In Ingmar Bergmans words, Tarkovskys work was a miracle. His films are beautiful, intellectually challenging, and spiritually profound. They range from Ivans Childhood, an exploration of wartime experience through the eyes of a child; to Solaris, a philosophical essay in the form of a science-fiction thriller; to Andrei Rublev, an investigation of the power of art and spirituality. In this course, we will study Tarkovskys films and life, with attention both to his formal and artistic accomplishments, his thought and writings concerning art and film, and the cultural and political contexts of his work.
Taught by: Platt
Course not offered every year
Activity: Seminar
1 Course Unit

RUSS 261 Russian Thinkers
This class focuses on the complex relations between philosophy, history, and art in Russia and offers discussions of works of major Russian authors (such as Dostoevsky, Tolstoy, Khlebnikov), religious and political thinkers (Chaadaev, Herzen, Berdiaev, Lenin, Bogdanov), avant-garde artists (Filonov, Malevich), and composers (Skriabin) who created and tested in their lives their own, sometimes very peculiar and radical, worldviews. We will consider these worldviews against a broad cultural background and will reenact them in class in the form of philosophical mini-dramas. The only prerequisite for this course is intellectual curiosity and willingness to embrace diverse, brave and often very weird ideas.
Course not offered every year
Activity: Seminar
1 Course Unit
RUSS 275 Russian History in Film
This course draws on fictional, dramatic and cinematic representations of Russian history based on Russian as well as non-Russian sources and interpretations. The analysis targets major modes of imagining, such as narrating, showing and reenacting historical events, personae and epochs justified by different, historically mutating ideological postulates and forms of national self-consciousness. Common stereotypes of picturing Russia from "foreign" perspectives draw special attention. The discussion involves the following themes and outstanding figures: the mighty autocrats Ivan the Terrible, Peter the Great, and Catherine the Great; the tragic ruler Boris Godunov; the brazen rebel and royal impostor Pugachev; the notorious Rasputin, his uncanny powers, sex-appeal, and court machinations; and Lenin and the October Revolution; images of war; times of construction and times of collapse of the Soviet Colossus. Taught by: Todorov
Course not offered every year
Activity: Lecture
1 Course Unit

RUSS 299 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit

RUSS 311 Advanced Russian Conversation and Composition I
This course develops students’ skills in speaking and writing about topics in Russian literature, contemporary society, politics, and everyday life. Topics include women, work and family; sexuality; the economic situation; environmental problems; and life values. Materials include selected short stories by 19th and 20th century Russian authors, video-clips of interviews, excerpts from films, and articles from the Russian media. Continued work on grammar and vocabulary building. For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisites: RUSS 004 or placement exam.
Activity: Lecture
1 Course Unit

RUSS 312 Advanced Russian Conversation and Composition II
Primary emphasis on speaking, writing, and listening. Development of advanced conversational skills needed to carry a discussion or to deliver a complex narrative. This course will be based on a wide variety of topics from everyday life to the discussion of political and cultural events. Russian culture and history surveyed briefly. Materials include Russian TV broadcast, newspapers, Internet, selected short stories by contemporary Russian writers. Offered each spring. For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisite: RUSS 311 or placement exam
Activity: Lecture
1 Course Unit

RUSS 360 Russian for Heritage Speakers I
This course is intended for students who have spoken Russian at home and seek to achieve proficiency in the language. Topics will include an intensive introduction to the Russian writing system and grammar, focusing on exciting materials and examples drawn from classic and contemporary Russian culture and social life. Students who complete this course in combination with RUSS361 satisfy the Penn Language Requirement. Taught by: Nazyrova
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Previous language experience required

RUSS 361 Russian for Heritage Speakers II
This course is a continuation of RUSS360. In some cases, students who did not take RUSS360 but have basic reading and writing skills may be permitted to enroll with the instructor's permission. Students who complete RUSS361 with a passing grade will satisfy the Penn Language Requirement. For BA Students: Last Language Course
Taught by: Nazyrova
Course usually offered in spring term
Prerequisites: Prerequisites: Russian 360 or at least three and no more than six years of Russian formal schooling, or instructor’s permission.
Activity: Lecture
1 Course Unit

RUSS 399 Supervised Work
Hours and credits on an individual basis.
One-term course offered either term
Activity: Independent Study
1 Course Unit

RUSS 408 Reading Russian History
The course explores defining episodes, concepts, and figures in Russian history, from the earliest time to the present day, and their reception in today's scholarship and society. Students learn about Russian historical heritage through the reading of primary sources and analytical essays, as well as examining how this history is used in the present socio-political and ideological discourse. Work on language focuses on matters of style, sentence structure, and vocabulary building. Taught by: Verkholyantsev
Course not offered every year
Prerequisite: RUSS312 or placement exam
Activity: Seminar
1 Course Unit

RUSS 410 Russian Folk and Literary Tale
This course continues developing students' advanced skills in Russian. It focuses on the language, style, and narrative techniques of Russian tales. Course materials include written, animated, and cinematic versions of folk fairy tales, epic songs, and literary tales by major Russian authors, such as Alexander Pushkin, Nikolai Gogol, and Leo Tolstoy. The course aims to improve students' knowledge of idiomatic language and to expand their knowledge of Russian popular culture. Taught by: Verkholyantsev
Course not offered every year
Prerequisites: Russian 312 or placement exam.
Activity: Seminar
1 Course Unit
Notes: Conducted in Russian.
RUSS 412 Nineteenth-Century Russian Literature and Culture: Romantics and Realists
This course continues developing students' advanced skills in Russian, and combines advanced study of the Russian language with an examination of the fundamental literary movements and figures of nineteenth-century Russian literature and culture. Course materials include prosaic and poetic texts by Pushkin, Gogol', Lermontov, Dostoevsky, Tolstoy, and Chekhov, as well as films and art. Language work will be devoted to writing, syntactical and stylistic analysis, vocabulary, academic speech, and listening comprehension.
Taught by: Verkholantsev
Course not offered every year
Prerequisites: Russian 312 or placement exam.
Activity: Lecture
1 Course Unit
Notes: Conducted in Russian.

RUSS 413 Twentieth-Century Russian Literature, Film and Culture: Utopia, Revolution and Dissent
This course continues developing students' advanced skills in Russian, and introduces students to major movements and figures of twentieth-century Russian literature and culture. We will read the works of modern Russian writers, and watch and discuss feature films. The course will introduce the first Soviet films and works of the poets of the Silver Age and beginning of the Soviet era as well as the works from later periods up to the Perestroika and Glasnost periods (the late 1980s).
Taught by: Bourlatskaya
Course not offered every year
Prerequisites: Russian 312 or placement exam.
Activity: Seminar
1 Course Unit
Notes: Conducted in Russian.

RUSS 414 Business and Democracy in the New Russia
This course continues developing students' advanced skills in Russian, and is designed to familiarize students with contemporary Russian society, its historical background and its present political and economic structure, and to develop functional proficiency in speaking, writing, reading and listening. The course will focus on a variety of issues central to Russian society since the fall of the Soviet Union, including changing values, political parties and movements, the business climate and businessmen, various nationalities within Russia, women in the family and at work. Course materials will include interviews, articles, essays by leading Russian journalists and statesmen, and contemporary Russian movies.
Taught by: Bourlatskaya
Course not offered every year
Prerequisites: RUSS 312 or placement exam.
Activity: Seminar
1 Course Unit
Notes: Conducted in Russian.

RUSS 419 Russian Song and Folklore
This course offers a general introduction to the history of Russian folklore, song and musical culture. Students will explore the history of song in Russia and various song genres including folk songs, gangster songs, cabaret, war songs, Soviet ideological songs, and Russian rock and pop music. We will discuss ritual functioning of songs in Russian calendar rites, examine the aesthetic properties of song lyrics and music, and analyze the educational, community-building and ideological roles of song in Russian society.
Taught by: Verkholantsev
Course not offered every year
Prerequisites: Russian 312 or placement exam.
Activity: Seminar
1 Course Unit
Notes: Conducted in Russian.

RUSS 420 Contemporary Russia Through Film
This course continues developing students' advanced skills in Russian and offers intensive study of Russian film, arguably the most powerful medium for reflecting changes in modern society. This course will examine Russia's transition to democracy and market economy through the eyes of its most creative and controversial cinematographers. The course will focus on the often agonizing process of changing values and attitudes as the country moves from Soviet to Post-Soviet society. Russian films with English subtitles will be supplemented by readings from contemporary Russian media sources. The course provides an excellent visual introduction to the problems of contemporary Russia society.
Taught by: Bourlatskaya
Course not offered every year
Prerequisites: Russian 312 or placement exam.
Activity: Seminar
1 Course Unit
Notes: Conducted in Russian

RUSS 421 The Life and Art of Anton Chekhov
This course continues to develop students' advanced skills in Russian. Language work will be combined with an examination of the life and creative work of one of Russia's greatest writers, Anton Chekhov. Chekhov's prose and drama will be analyzed using the political, social and literary currents of his time as the background. This course will introduce students to the literary technique, poetics, and deeply humane worldview of Chekhov. Course materials will include short stories and drama, as well as some background readings. The advanced study of Russian language will have an emphasis on improving pronunciation, significantly expanding the vocabulary, mastering complicated grammatical and syntactic structures, and learning the basic conventions of academic discourse. As part of this course, students will be asked to write short response papers and some pieces of creative writing. Students will also produce a short film and stage a scene from a play. All class discussions and primary sources will be in Russian. Some secondary readings will be in English.
Activity: Seminar
1 Course Unit
Notes: Conducted in Russian
RUSS 426 Chekhov: Stage & Screen
What's so funny, Mr. Chekhov? This question is often asked by critics and directors who still are puzzled with Chekhov's definition of his four major plays as comedies. Traditionally, all of them are staged and directed as dramas, melodramas, or tragedies. Should we cry or should we laugh at Chekhovian characters who commit suicide, or are killed, or simply cannot move to a better place of living? Is the laughable synonymous to comedy and the comic? Should any fatal outcome be considered tragic? All these and other questions will be discussed during the course. The course is intended to provide the participants with a concept of dramatic genre that will assist them in approaching Chekhov's plays as comedies. In addition to reading Chekhov's works, Russian and western productions and film adaptations of Chekhov's work will be screened. Among them are, Vanya on 42nd Street with Andre Gregory, and Four Funny Families. Those who are interested will be welcome to perform and/or direct excerpts from Chekhov's works.
Taught by: Zubarev
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Forms a part of the LPS Masters in Liberal Arts Program.

RUSS 430 Nationalism and Ethnic Conflict in Film
This course studies the cinematic representation of civil wars, ethnic conflicts, nationalistic doctrines, and genocidal policies. The focus is on the violent developments that took place in Russia and on the Balkans after the collapse of the Soviet Bloc and were conditioned by the new geopolitical dynamics that the fall of communism had already created. We study media broadcasts, documentaries, feature films representing the Eastern, as well as the Western perspective. The films include masterpieces such as "Time of the Gypsies", "Underground", "Prisoner of the Mountains", "Before the Rain", "Behind Enemy Lines", and others.
Taught by: Todorov
Course not offered every year
Activity: Online Course
1 Course Unit
Notes: Forms a part of the LPS Masters in Liberal Arts Program.

RUSS 432 Fate and Chance in Literature and Culture
In Fate and Chance in Literature and Culture, we will explore these two interrelated concepts in comparative perspective over a broad historical range. As a result, the students will learn how the philosophy of fate and chance has been reflected in works of different Russian authors and in different cultural and political environments. In Russian as well as western systems of belief fate and chance represent two extreme visions of the universal order, or, perhaps, two diametrically opposed cosmic forces: complete determinism, on the one hand, and complete chaos or unpredictability, on the other. These visions have been greatly reflected by various mythopoetic systems. In this course, we will investigate religious and folkloric sources from a series of Russian traditions compared to other Indo-European traditions (Greek, East-European). Readings will include The Song of Prince Igor's Campaign, The Gambler by Dostoevsky, The Queen of Spades by Pushkin, Vj by Gogol, The Black Monk by Chekhov, The Fatal Eggs by Bulgakov, and more.
Taught by: Zubarev
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Forms a part of the LPS Masters in Liberal Arts Program.

RUSS 455 The Living & the Dead: The Great Patriotic War in Russ Cultural Imagination
This course is dedicated to the 70th anniversary of the Great Patriotic War, 1941-45. Students will explore the cultural myth of the war, created in the 1960-80s. The materials will include literary texts, documentaries, photographs, and films. We will focus on three major themes of this myth: 1. moral strength and courage; 2. respect for Russia's military past; and 3. the rise of national consciousness.
Course not offered every year
Prerequisites: RUSS361 or comparable language experience.
Activity: Seminar
1 Course Unit

RUSS 463 Fantasy, Science Fiction and Fantastic Imagination in Russian Culture
Explores masterpieces of Russian fantastic imagination from folklore and 19th century classics to 20th and 21st century dystopia, magic realism and science fiction. Readings include works by Nikolai Gogol, Mikhail Bulgakov, the Strugatsky brothers, and Victor Pelevin. Discussions focus on 1) the philosophical quest of Russian fantastic authors and their ideas about humanity, the meaning of existence, and human relationship with nature; 2) the texture of fantasy, including the absurd and surreal, the grotesque humor, and macabre irony.
Taught by: Nazyrova
Course not offered every year
Prerequisite: RUSS361 or comparable language competence
Activity: Seminar
1 Course Unit
Notes: All lectures and readings in Russian.

RUSS 464 Russian Humor
One of the most fascinating and most difficult things for a student of foreign culture is to understand national humor, as it is presented in various stories and films, jokes and shows. To an extent, humor is a gateway to national mentality. In the present course we will examine Russian cultural history, from the sixteenth through the twenty-first centuries, through the vehicle of Russian humor. How does Russian humor depend on religion and history? What was considered funny in various cultural trends? What are the peculiarities of Russian humorist tradition? Students will be familiarized with different Russian theories of humor (Bakhtin, Likhachev, Panchenko, Tynianov, etc.) and, of course, with a variety of works by Russian kings of humor Pushkin and Gogol, Chekhov and Zoshchenko, Bulgakov and If and Petrov, Erofeev and Kibirov, etc. Class lectures will be supplemented by frequent video and musical presentations ranging from contemporary cartoons to high comedies and from comic songs (Chaliapins The Flea) to the music of Shostakovich (The Nose). This course is intended for students who have spoken Russian at home and seek to improve their capabilities in formal and professional uses of the Russian language.
Course not offered every year
Prerequisites: RUSS361 or comparable language competence
Activity: Seminar
1 Course Unit
Notes: Conducted in Russian.
RUSS 466 Russian Revolution
This course is a content-based course intended for students who speak Russian at home and seek to improve their command of formal and professional registers of the Russian language. Paying tribute to the centennial of the Russian Revolution, the course examines the sociopolitical milestone of the 20th century through the works of literature, art, music, film, and material culture that both refracted the revolutionary situation and responded to the revolutionary change. The course’s primary sources include works of Russian symbolist poets (e.g., Blok) and realist writers (e.g., Korolenko, Chekhov, Gorky, Andrei Platonov), the music of modernist composers, Soviet montage films, and the Soviet architecture of the International Style. The specific attention will be on the relationship between sociopolitical transformation and the rise of avant-garde movements in visual arts and poetry known as the artistic revolution (e.g., Khlebnikov, Maiakovskii, Kandinskii, Goncharova, Malevich, Chagall).
Taught by: Nazyrova
Course not offered every year
Prerequisite: RUSS361 or comparable language competence
Activity: Seminar
1 Course Unit

RUSS 467 Classic Russian Literature Today
This course is intended for students who have spoken Russian at home and seek to improve their capabilities in formal and professional uses of the Russian language. A study of classic Russian literature in the original. Readings will consist of some of the greatest works of 19th and 20th-century authors, such as Pushkin, Gogol, Tolstoy, Dostoevsky, and Bulgakov. Students will examine various forms and genres of literature, learn basic techniques of literary criticism, and explore the way literature is translated into film and other media. An additional focus of the course will be on examining the uses and interpretations of classic literature and elitist culture in contemporary Russian society. Observing the interplay of the "high" and "low" in Russian cultural tradition, students will develop methodology of cultural analysis.
Course not offered every year
Prerequisites: RUSS361 or comparable language competence.
Activity: Lecture
1 Course Unit
Notes: Conducted in Russian.

RUSS 471 Moscow: Cultural History
This course is intended for students who have spoken Russian at home and seek to improve their capabilities in formal and professional uses of the Russian language. An extraordinary diverse city, Moscow has acquired a number of names, referring both to its size and role in the national history. The Third Rome, The Whitestone One, The First Throne, The Forty Forties, The Hero City, and even The Big Village. In this course, students will examine the cultural history of the great city from 1147 to the present. The “itinerary” for this imaginary trip will include the Kremlin and the banyas, Saint Basil’s Cathedral and the Bolshoi Theater, the Ostankino Tower and the underground palaces of the Metro, the workers’ canteen and the dining rooms of the posh restaurants, etc. The course discussions will be centered on literary texts, travelers’ accounts, films, and works of art and architecture.
Course not offered every year
Prerequisites: RUSS361 or comparable language competence.
Activity: Seminar
1 Course Unit

RUSS 474 Anton Chekhov: Love and Death in Russian Culture
Taught by: NAZYROVA
Prerequisite: RUSS361 or comparable language competence
Activity: Seminar
1 Course Unit

RUSS 485 Russian Poetics
Introduction to the analysis of poetic texts, based on the works of Batyushkov, Lermontov, Tютчев, Fet, Mandelshtam, and others.
Taught by: Steiner
Course not offered every year
Prerequisites: RUSS361 or comparable language competence.
Activity: Seminar
1 Course Unit
Notes: This course is open to all advanced students of Russian (including students who speak Russian at home).

RUSS 508 Advanced Russian for Business
This advanced language course focuses on developing effective oral and written communication skills for working in a Russian-speaking business environment. Students will discuss major aspects of Russian business today and learn about various Russian companies using material from the current Russian business press. In addition, students will be engaged in a number of creative projects, such as business negotiation simulations, and simulation of creating a company in Russia.
For BA Students: Advanced Language Course
Taught by: Bourlatskaya
Course not offered every year
Prerequisites: At least one RUSS400-level course or comparable language competence.
Activity: Seminar
1 Course Unit

RUSS 518 Old Church Slavonic: History, Language, Manuscripts
The language that we know today as Old Church Slavonic (OCS) was invented, along with the Slavic alphabet(s), in the 9th century by two Greek scholars, Sts. Cyril and Methodius. They had been tasked by the Byzantine Emperor with bringing the Christian faith to the Slavic-speaking people of Great Moravia, a powerful medieval state in Central Europe. From there, literacy, along with the Christian faith, spread to other Slavs. OCS is thus the language of the oldest written texts of the Slavic-speaking world, which today is comprised of the following languages: Belarusian, Bosnian, Bulgarian, Croatian, Czech, Macedonian, Montenegrin, Russian, Polish, Slovak, Serbian, Slovene, and Ukrainian. Therefore, knowledge of OCS aids in understanding the cultural, literary, and linguistic history of any modern Slavic language. For learners of Russian and other Slavic languages, OCS provides a layer of elevated stylistic vocabulary and conceptual terminology, similar to, and even greater than, the role of Latin and Greek roots in the English language. For historical linguists, OCS provides valuable material for comparison with other ancient Indo-European languages, such as Latin, Greek, and Sanskrit. This course introduces students to the basics of OCS, as well as to the cultural and historical circumstances of the emergence of Slavic literacy and its material culture - manuscripts. It is suitable for both undergraduate and graduate students.
Taught by: Verkholantsev
Course not offered every year
Activity: Seminar
1 Course Unit
RUSS 519 History of Russian Literary Language and Culture
This course examines the linguistic, literary, and social history of the Russian language from the medieval period to the modern day. Course topics include: the creation of the Slavic alphabets and the first literary language of the Slavs, Old Church Slavonic; the beginnings and development of writing and literacy in Old Russia; the evolution of the Russian literary language, its styles, and registers; grammatical categories of Russian; features of Russian lexicography; the social history and politics of language use; analysis of texts. Taught in Russian; readings in Russian & English; advanced language proficiency required. Taught by: Verkholantsev
Course not offered every year
Prerequisites: Any RUSS 400 level course or comparable proficiency.
Activity: Seminar
1 Course Unit

RUSS 545 Russian Dead Poets Society
This course, designed for the lovers of poetry, will focus on close readings of the works of marvelous Russian poets from the 18th to the 20th c. These poems will be read against a broad historical and cultural background. Our goal will be to "resurrect" the distinct voice of each poet as a part of a cultural myth of Russian poetry. The list of dead poets to be summoned includes a number of major names, such as Gavriil Derzhavin, Alexander Pushkin, Mikhail Lermontov, Alexander Blok, Osip Mandelstam, and Iosif Brodsky, as well as a "short list" of minor, yet very representative and provocative, authors such as the notorious "pornographic" poet Ivan Barkov and a "ghost poet" Kozma Prutkov.
Course not offered every year
Activity: Seminar
1 Course Unit

RUSS 549 Stalinist Culture
In the Soviet Union in the late 1920s the dynamic cultural life of the revolutionary era, characterized by avant-gardism, experimentation, and diversity, gave way to a new organization of Soviet cultural life—dominated by the newly formulated official style of "Socialist Realism" and bureaucratic institutions such as the Soviet Writers Union. In this course we will study the conditions that gave rise to this new era, its institutional realities, and masterworks in film, photography and literature of official art, including those by Kavelin, Pasternak and Eisenstein. We will also examine the social phenomena of cultural resistance and non-conformism of this period and its works written "for the drawer" or for non-official consumption, such as those of Akhmatova, Mandelstam, Bulgakov, Kharms and Druskin.
Taught by: Platt/Staff
Course not offered every year
Activity: Seminar
1 Course Unit

RUSS 575 Russian History in Film
The course draws on the cinematic/fictional representation of the Russian/Soviet history based on Russian as well as non-Russian sources. The analysis targets major modes of imagining, staging and reenacting history, construction of images that satisfy dominant political, cultural and ideological stereotypes, and help create national identities. Bias, eye-witness accounts, propaganda uses and abuses of history, forgeries and the production of alt-facts become topics of particular interest. The discussions involve nation builders, iconic heroes and charismatic antiheroes, great commanders and revolutionaries such as Alexander Nevsky, Ivan the Terrible, Rasputin and the Fall of the Romanovs, Lenin and the October Revolution, Stalin and the construction of the Soviet Colossus, the Storming of the Winter Palace, the Civil War, the Great Purge, the Red Scare in the US, etc.
Taught by: TODOROV
Activity: Seminar
1 Course Unit

RUSS 618 Cultural History of Medieval Rus' (800-1700)
Taught by: Verkholantsev
Activity: Seminar
1 Course Unit
SKRT 461 Sanskrit 1st Year Part II
During the first semester of beginning Sanskrit, students will be introduced to the script, phonetics, and grammar of the Sanskrit language. By the end of the semester they will be able to begin to read Sanskrit texts and compose Sanskrit sentences in addition to carrying out simple conversation. They will build the requisite skills to read, by the second semester, simple inscriptions and sections from texts like the Ramayana, the Mahabharata, the Bhagavad Gita, Pancatantra, and Yoga Sutra. Students will also be introduced to many features of Sanskrit culture.

Taught by: Obrock
Course usually offered in spring term
Prerequisites: Intermediate Sanskrit II or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit
Notes: Contact professor to discuss actual class times that work for all students.

SKRT 470 Sanskrit 2nd Year Part I
This course will lead students to consolidate their knowledge of Sanskrit grammar and increase their familiarity with Sanskrit literature of all kinds, including epic, literary, philosophical, and narrative genres of texts. It will also introduce students to the study and reading of inscriptional materials.

Taught by: Obrock
Two terms. student must enter first term.
Prerequisites: First year Sanskrit or equivalent ascertained through test or permission of instructor.
Activity: Lecture
1 Course Unit
Notes: Contact professor to discuss actual class times that work for all students.

SKRT 471 Intermediate Sanskrit Part II
This course will lead students to consolidate their knowledge of Sanskrit grammar and increase their familiarity with Sanskrit literature of all kinds, including epic, literary, philosophical, and narrative genres of texts. It will also introduce students to the study and reading of inscriptional materials.

For BA Students: Last Language Course
Two terms. student must enter first term.
Prerequisites: Intermediate Sanskrit II or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

SKRT 480 Readings in Sanskrit Literature
This course is for advanced students of Sanskrit. Designed as a seminar, the course aims to take students through the primary and secondary sources of Sanskrit literary and philosophical production. Each semester will focus on a different genre: epic, belles-lettres, lyric poetry, drama, philosophy, shastra, advanced grammar, history, poetics, and epigraphy. We will focus on original sources, secondary scholarship, and theoretical approaches toward the translation and study of Sanskrit texts.

One-term course offered either term
Prerequisites: Advanced Sanskrit or equivalent ascertained through test or permission of instructor.
Activity: Seminar
1 Course Unit

SKRT 490 Advanced Sanskrit Topics Course
Topics vary by semester in Advanced Sanskrit
Course not offered every year
Activity: Seminar
1 Course Unit
SCANDINAVIAN (SCND)

SCND 000 Swedish I
Activity: Lecture
1 Course Unit

SCND 101 Elementary Swedish I
Part one of the elementary level Swedish course. The first-year language course introduces you to contemporary Swedish and Nordic society, culture, and history. Students actively participate in class in discussion, assignments, and projects. You will learn to understand and use basic language in a contemporary everyday-life context. The course will offer individualized opportunities to explore Swedish and to reflect over how it fits with your continued academic and personal development.
For BA Students: Language Course
Taught by: Aahren
Course offered fall; odd-numbered years
Activity: Lecture
1 Course Unit

SCND 102 Elementary Swedish II
Part two of the elementary level Swedish course. Authentic texts and media will be introduced, as well as opportunities to communicate with native speakers. By the end of the spring semester you will be able to handle a range of practical situations, such as ordering in restaurants and cafes, shopping, talking about family, holidays, plans, daily routines, health, sports/hobbies, jobs and studies. You will work on expressing your opinions and intentions, likes and dislikes, and understanding basic authentic source media, spoken language, etc. You will also learn about Sweden in an international context.
For BA Students: Language Course
Taught by: Aahren
Course offered spring; even-numbered years
Prerequisites: SCND 101 or equivalent
Activity: Lecture
1 Course Unit

SCND 103 Intermediate Swedish I
In part one of the intermediate year, students will research and explore a broad range of topics using authentic sources and course materials to gain greater fluency and familiarity with language and culture. You will meet native Swedish speakers and visit Swedish organizations in the Philadelphia area. Projects and assignments will give you ample opportunity to explore areas that are of special interest to you from academic, professional, and personal perspectives. We will learn about Swedish innovation, business, socio-economic and political structures, geography, tourism, migration, history, and about what it is like to live in Sweden today.
For BA Students: Language Course
Taught by: Aahren
Course offered fall; even-numbered years
Prerequisite: SCND 102 or equivalent
Activity: Lecture
1 Course Unit

SCND 104 Intermediate Swedish II
Part two of the intermediate level Swedish course. Through in- and our-of-class interactions, you will continue to engage with your peers and native or fluent Swedish speakers. We will look at Swedish products, practices and perspectives, and we will discuss how Swedish culture and society are adapting to a rapidly changing world. We will complement the course literature with relevant authentic sources, such as online media, films, newspapers, etc. With a small class size, we have the flexibility to adapt the content to individual interests, and you will have plenty of opportunity to contribute to the total learning experience while elevating your Swedish vocabulary, grammar and communication skills.
For BA Students: Last Language Course
Taught by: Aahren
Course offered spring; odd-numbered years
Prerequisite: SCND 103 or equivalent
Activity: Lecture
1 Course Unit

SCND 501 Elementary Swedish I
Part one of the elementary level Swedish course. The first-year language course introduces you to contemporary Swedish and Nordic society, culture, and history. Students actively participate in class in discussion, assignments, and projects. You will learn to understand and use basic language in a contemporary everyday-life context. The course will offer individualized opportunities to explore Swedish and to reflect over how it fits with your continued academic and personal development.
For BA Students: Language Course
Taught by: Aahren
Course offered fall; odd-numbered years
Activity: Lecture
1 Course Unit

SCND 502 Elementary Swedish II
Part two of the elementary level Swedish course. Authentic texts and media will be introduced, as well as opportunities to communicate with native speakers. By the end of the spring semester you will be able to handle a range of practical situations, such as ordering in restaurants and cafes, shopping, talking about family, holidays, plans, daily routines, health, sports/hobbies, jobs and studies. You will work on expressing your opinions and intentions, likes and dislikes, and understanding basic authentic source media, spoken language, etc. You will also learn about Sweden in an international context.
Taught by: Aahren
Course offered spring; even-numbered years
Activity: Lecture
1 Course Unit

SCND 503 Intermediate Swedish I
In part one of the intermediate year, students will research and explore a broad range of topics using authentic sources and course materials to gain greater fluency and familiarity with language and culture. You will meet native Swedish speakers and visit Swedish organizations in the Philadelphia area. Projects and assignments will give you ample opportunity to explore areas that are of special interest to you from academic, professional, and personal perspectives. We will learn about Swedish innovation, business, socio-economic and political structures, geography, tourism, migration, history, and about what it is like to live in Sweden today.
Taught by: Aahren
Course offered fall; even-numbered years
Activity: Lecture
1 Course Unit
SCND 504 Intermediate Swedish II

Part two of the intermediate level Swedish course. Through in- and out-of-class interactions, you will continue to engage with your peers and native or fluent Swedish speakers. We will look at Swedish products, practices and perspectives, and we will discuss how Swedish culture and society are adapting to a rapidly changing world. We will complement the course literature with relevant authentic sources, such as online media, films, newspapers, etc. With a small class size, we have the flexibility to adapt the content to individual interests, and you will have plenty of opportunity to contribute to the total learning experience while elevating your Swedish vocabulary, grammar and communication skills.

For BA Students: Last Language Course
Taught by: Aahren
Course offered spring; odd-numbered years
Prerequisite: SCND 503 or equivalent
Activity: Lecture
1 Course Unit
SCIENCE, TECHNOLOGY & SOCIETY (STSC)

STSC 001 Emergence of Modern Science
During the last 500 years, science has emerged as a central and transformative force that continues to reshape everyday life in countless ways. This introductory course will survey the emergence of the scientific world view from the Renaissance through the end of the 20th century. By focusing on the life, work, and cultural contexts of those who created modern science, we will explore their core ideas and techniques, where they came from, what problems they solved, what made them controversial and exciting and how they relate to contemporary religious beliefs, politics, art, literature, and music. The course is organized chronologically and thematically. In short, this is a "Western Civ" course with a difference, open to students at all levels.
For BA Students: Hum/Soc Sci or Nat Sci/Math Sector
Taught by: Kucuk
Course usually offered in fall term
Activity: Lecture
1 Course Unit

STSC 002 Medicine in History
This course surveys the history of medical knowledge and practice from antiquity to the present. No prior background in the history of science or medicine is required. The course has two principal goals: (1) to give students a practical introduction to the fundamental questions and methods of the history of medicine, and (2) to foster a nuanced, critical understanding of medicine's complex role in contemporary society. The course takes a broadly chronological approach, blending the perspectives of the patient, the physician, and society as a whole—recognizing that medicine has always aspired to "treat" healthy people as well as the sick and infirm. Rather than history "from the top down" or "from the bottom up," this course sets its sights on history from the inside out. This means, first, that medical knowledge and practice is understood through the personal experiences of patients and caregivers. It also means that lectures and discussions will take the long-discredited knowledge and treatments of the past seriously, on their own terms, rather than judging them by today's standards. Required readings consist largely of primary sources, from elite medical texts to patient diaries. Short research assignments will encourage students to adopt the perspectives of a range of actors in various historical eras.
For BA Students: History and Tradition Sector
Taught by: Barnes
Course usually offered in fall term
Activity: Lecture
1 Course Unit

STSC 003 Technology & Society
Technology plays an increasing role in our understandings of ourselves, our communities, and our societies, in how we think about politics and war, science and religion, work and play. Humans have made and used technologies, though, for thousands if not millions of years. In this course, we will use this history as a resource to understand how technologies affect social relations, and conversely how the culture of a society shapes the technologies it produces. Do different technologies produce or result from different economic systems like feudalism, capitalism and communism? Can specific technologies promote democratic or authoritarian politics? Do they suggest or enforce different patterns of race, class or gender relations? Among the technologies we'll consider will be large objects like cathedrals, bridges, and airplanes; small ones like guns, clocks and birth control pills; and networks like the electrical grid, the highway system and the internet.
For BA Students: Society Sector
Taught by: Benson
Course usually offered in spring term
Activity: Lecture
1 Course Unit

STSC 021 From Darwin to DNA
Evolution has been one of the productive and important ideas in the history of biology. It has also been a scientific idea with many complex social and political meanings. In this freshman seminar, we explore the history of ideas about evolution, heredity, DNA and genomics, attentive to the profound social dimensions of biological ideas. We consider the political and intellectual history of genetics and genomics, from pre-Darwinian ideas about evolution (there were many theories before Darwin's) to contemporary debates about ancestry testing and creation science. We look at evolution's role in the politics of race, eugenics, creation science and identity. This course will provide students with critical historical and social perspectives on science, technology and medicine.
Taught by: Lindee
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 026 Relativity and the Philosophy of Space and Time
This course will present a detailed introduction to Einstein's special and general theories of relativity and will examine their historical development and philosophical significance. No previous physics or philosophy will be presupposed, and only high school mathematics will be used.
For BA Students: Natural Science and Math Sector
Taught by: Domoter
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Also fulfills General Requirement in Science Studies for Class of 2009 and prior
STSC 062 American Way of War
Do Americans fight wars differently than do the people of other nations? Are there unique American tactics or technologies? Does America's success in war owe to its arsenal of sophisticated weapons, or to the fighting spirit of its people? What characterizes the American experience in combat? A respect for limits, or a willingness to win at any cost? And can we even answer these questions, or do the myths we tell ourselves about our past get in the way? This seminar explores the scientific and technological development of warfare in the United States from the time of European settlement of the Americas to the era of unmanned aerial vehicles. The changing nature of warfare beginning in 1775 and continuing through 2014 involved the creation and deployment of increasingly complex and powerful weapons, as well as a corresponding evolution in tactics and strategy.
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 077 Voyages of Discovery
Across the nineteenth century, voyages of sail and steam made possible the creation of empires and a globalized world, through the transportation of people and commodities. Similarly, this course is a voyage of discovery based on the study of actual ship's logs held in Penn's Rare Book collection. We will use these accounts to guide our investigation into the science, technology, medicine, economic and environmental history of life at sea and in the ports of call for these ships around the Indian and Atlantic Oceans. Collectively, the seminar will produce an online exhibition built on logs, diaries and other sources held at Penn, in other local collections and gleaned from archives around the world.
Taught by: Petrie
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 078 Everyday Technologies and the Making of the Modern World
Long before iPhones and Fitbits, personal technology — small(ish), portable, purchasable — had a tremendous impact on the lives of people around the globe. Items such as wristwatches, bicycles, sewing machines and radios could empower their users (or sometimes discipline them), creating economic, educational or recreational opportunities while also being associated with grander ideas and ideologies. This course will explore such everyday technologies across the nineteenth and twentieth centuries, in locations spanning the Americas, Europe, Africa and Asia. We will consider how the use and significance of particular technologies varied according to time and place, how these everyday items could contribute to "self-fashioning" for individuals, nations, and empires; and how, through use and modification, consumers themselves could become part of the story of technological change. In addition to reading a variety of classic and recent scholarship, students will work with a wide array of primary sources (newspapers, photographs, patent records, trade cards) and use digital tools to present their own research projects.
Taught by: Petrie
Activity: Seminar
1 Course Unit

STSC 107 Science, Technology & Medicine in Colonial India
In this course we will explore the broad contours of the histories of Science, Medicine and Technology in Colonial India (c. 1757 - 1947). This broad overview will be developed each week through a case study based on any one particular scientific discipline, technological project or medical event. Overall the course will attempt to locate the development of science, technology and medicine within the social, political and cultural context of colonial India. It is also worth noting that 'Colonial India', will include discussions of regions which today make up the Republic of India, Pakistan and Bangladesh.
Taught by: Mukharji
One-term course offered either term
Activity: Seminar
1 Course Unit

STSC 110 Science and Literature
This course will explore the emergence of modern science fiction as a genre, the ways it has reflected our evolving conceptions of ourselves and the universe, and its role as the mythology of modern technological civilization. We will discuss such characteristic themes as utopias, the exploration of space and time, biological engineering, superhero, robots, aliens, and other worlds—and the differences between European and American treatment of these themes.
For BA Students: Arts and Letters Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit

STSC 135 Modern Biology and Social Implications
This course covers the history of biology in the 19th and 20th centuries, giving equal consideration to three dominant themes: evolutionary biology, classical genetics, and molecular biology. The course is intended for students with some background in the history of science as well as biology, although no specific knowledge of either subject is required.
We will have three main goals: first, to delineate the content of the leading biological theories and experimental practices of the past two centuries; second, to situate these theories and practices in their historical context, noting the complex interplay between them and the dominant social, political, and economic trends; and, third, to critically evaluate various methodological approaches to the history of science.
For BA Students: Natural Science and Math Sector
Taught by: Ceccatti
One-term course offered either term
Activity: Seminar
1 Course Unit
STSC 145 Comparative Medicine
This course explores the medical consequences of the interaction between Europe and the “non-West.” It focuses on three parts of the world Europeans colonized: Africa, South Asia, and Latin America. Today’s healing practices in these regions grew out of the interaction between the medical traditions of the colonized and those of the European colonizers. We therefore explore the nature of the interactions. What was the history of therapeutic practices that originated in Africa or South Asia? How did European medical practices change in the colonies? What were the effects of colonial racial and gender hierarchies on medical practice? How did practitioners of “non-Western” medicine carve out places for themselves? How did they redefine ancient traditions? How did patients find their way among multiple therapeutic traditions? How does biomedicine take a different shape when it is practiced under conditions of poverty, or of inequalities in power? How do today’s medical problems grow out of this history? This is a fascinating history of race and gender, of pathogens and conquerors, of science and the body. It tells about the historical and regional roots of today’s problems in international medicine.
For BA Students: History and Tradition Sector
Taught by: Mukharji
Course usually offered in fall term
Activity: Lecture
1 Course Unit

STSC 160 The History of the Information Age
Certain new technologies are greeted with claims that, for good or ill, they must transform our society. The two most recent: the computer and the Internet. But the series of social, economic and technological developments that underlie what is often called the Information Revolution include much more than just the computer. In this course, we explore the history of information technology and its role in contemporary society. We will explore both the technologies themselves—calculating machines, punched card tabulators, telegraph and telephone networks, differential analyzers, digital computers, and many others—and their larger social, economic and political contexts. To understand the roots of these ideas we look at the prehistory of the computer, at the idea of the post-industrial or information society, at parallels with earlier technologies and at broad historical currents in the United States and the world.
For BA Students: Humanities and Social Science S
Taught by: Dick
One-term course offered either term
Activity: Lecture
1 Course Unit

STSC 162 Technology and Medicine in Modern America
Medicine as it exists in contemporary America is profoundly technological; we regard it as perfectly normal to be examined with instruments, to expose our bodies to many different machines; and to have knowledge produced by those machines mechanically/electronically processed, interpreted and stored. We are billed technologically, prompted to attend appointments technologically, and often buy technologies to protect, diagnose, or improve our health: consider, for example, HEPA-filtering vacuum cleaners; air-purifiers; fat-reducing grills; bathroom scales; blood pressure cuffs; pregnancy testing kits; blood-sugar monitoring tests; and thermometers. Yet even at the beginning to the twentieth century, medical technologies were scarce and infrequently used by physicians and medical consumers alike. Over the course of this semester, we will examine how technology came to medicine's center-stage, and what impact this change has had on medical practice, medical institutions and medical consumers - on all of us!
Taught by: Johnson
Course usually offered summer term only
Activity: Seminar
1 Course Unit

STSC 168 Environment and Society
This course examines contemporary environmental issues such as energy, waste, pollution, health, population, biodiversity and climate through a historical and critical lens. All of these issues have important material, natural and technical aspects; they are also inextricably entangled with human history and culture. To understand the nature of this entanglement, the course will introduce key concepts and theoretical frameworks from science and technology studies and the environmental humanities and social sciences.
For BA Students: Humanities and Social Science S
Taught by: Benson
Course not offered every year
Activity: Lecture
1 Course Unit

STSC 169 Environmental History
This course provides an introduction to environmental history—the history of the interrelationship between humans and the rest of nature. In the words of historian J.R. McNeill, “Human history has always and will always unfold within a larger biological and physical context, and that context evolves in its own right. Especially in recent millennia, that context has co-evolved with humankind.” In this course we will study this co-evolution between human actors and non-human actors in global history, analyzing political, social, cultural and economic factors that affect ideas about nature and material effects on nature. We will consider the concept of the Anthropocene and study current environmental changes and challenges.
Taught by: Greene, A
Course not offered every year
Activity: Lecture
1 Course Unit
STSC 201 Hist Phys Sci 19th & 20th Century
Over the last two centuries, scientists have produced a broad range of knowledge about the physical world, from light to electromagnetism to atoms to nuclei, facilitating or explaining an ever increasing mastery over the natural world. Because of their success, these developments played an important role in forming our views of how to effectively generate knowledge of the natural world. This course will examine some of the major developments in the physical sciences during the 19th and 20th century, asking how that knowledge and the means by which it was produced related to institutions, technical practices and broader cultural knowledge and knowledge production to explore how past practices have, or have not, left their traces in later science. The course will meet twice a week for lecture and discussion. Readings will consist of Pursuing Power and Light: Technology and Physics from James Watt to Albert Einstein by Bruce J. Hunt When Physics Became King by Iwan Rhys Morris Night Thoughts of a Classical Physicist by Russel McCormmach as well as articles from a course reader. Students will produce three short papers (about three pages) and a term paper (about ten pages)
Taught by: Ashrafi
Course not offered every year
Activity: Lecture
1 Course Unit

STSC 208 Science and Religion: Global Perspectives
This survey course provides a thematic overview of science and religion from antiquity to the present. We will treat well-known historical episodes, such as the emergence of Muslim theology, the Galileo Affair and Darwinism, but also look beyond them. This course is designed to cover all major faith traditions across the globe as well as non-traditional belief systems such as the New Age movement and modern Atheism
Taught by: Kucuk
Course not offered every year
Activity: Lecture
1 Course Unit

STSC 209 Race and Gender in Global Science
This course critically examines the creation of scientific conceptions of 'race' and 'sex' in the modern era and their global impact. How did 'race' and 'sex' come to be the primary categories through which human variation has been classified in the modern West? What concepts of 'race' and 'sex' did colonial scientists, doctors, naturalists, and other experts invent, and how and why did they do this? How have scientific conceptions of 'race' and 'sex' been adapted to fit the sociopolitical projects of formerly colonized regions? And how have recent developments in genomic science sought to reinvent these categories? With these questions in mind, this course challenges us to think critically about the political contexts in which conceptions of 'race' and 'sex' have been crafted as well as how they have been contested and re-defined.
Taught by: Gil-Riano
Course usually offered in spring term
Activity: Seminar
1 Course Unit

STSC 210 Hist Phys Sci 19th & 20th Century
Over the last two centuries, scientists have produced a broad range of knowledge about the physical world, from light to electromagnetism to atoms to nuclei, facilitating or explaining an ever increasing mastery over the natural world. Because of their success, these developments played an important role in forming our views of how to effectively generate knowledge of the natural world. This course will examine some of the major developments in the physical sciences during the 19th and 20th century, asking how that knowledge and the means by which it was produced related to institutions, technical practices and broader cultural knowledge and knowledge production to explore how past practices have, or have not, left their traces in later science. The course will meet twice a week for lecture and discussion. Readings will consist of Pursuing Power and Light: Technology and Physics from James Watt to Albert Einstein by Bruce J. Hunt When Physics Became King by Iwan Rhys Morris Night Thoughts of a Classical Physicist by Russel McCormmach as well as articles from a course reader. Students will produce three short papers (about three pages) and a term paper (about ten pages)
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Taught by: Gil-Riano
Course usually offered in spring term
Activity: Seminar
1 Course Unit

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Taught by: Gil-Riano
Course usually offered in spring term
Activity: Seminar
1 Course Unit
STSC 231 Insect Epidemiology Pests, Pollinators and Disease Vectors
Malaria, Dengue, Chagas disease, the Plague - some of the most deadly and widespread infectious diseases are carried by insects. The insects are also pernicious pests; bed bugs have returned from obscurity to wreak havoc on communities, invasive species decimate agricultural production, and wood borers are threatening forests across the United States. At the same time declines among the insects on which we depend - the honeybees and other pollinators - threaten our food security and ultimately the political stability of the US and other nations. We will study the areas where the insects and humans cross paths, and explore how our interactions with insects can be cause, consequence or symptom of much broader issues. This is not an entomology course but will cover a lot about bugs. It's not a traditional epidemiology course but will cover some fascinating epidemiological theory originally developed for the control of disease vectors. It will cover past epidemics and infestations that have changed the course of the history of cities and reversed advancing armies. HSOC 241. Stem Cells, Science and Society. Gearhart/Zaret. Taught by: Levy
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 260 Cyberculture
Computers and the internet have become critical parts of our lives and culture. In this course, we will explore how people use these new technologies to develop new conceptions of identity, build virtual communities and affect political change. Each week we'll see what we can learn by thinking about the internet in a different way, focusing successively on hackers, virtuality, community, sovereignty, interfaces, algorithms and infrastructure. We'll read books, articles, and blogs about historical and contemporary cultures of computing, from Spacewar players and phone phreaks in the 1970s to Google, Facebook, World of Warcraft, WikiLeaks, and Anonymous today. In addition, we'll explore some of these online communities and projects ourselves and develop our own analyses of them. Taught by: Dick
One-term course offered either term
Activity: Seminar
1 Course Unit

STSC 270 Digital Democracy
Technological infrastructure shapes what forms of political life are possible within a society. Political campaigns, investigative journalism, public engagement, protest, government - all unfold on different time scales, in different forms, and with different consequences depending on what machines mediate them. This course explores the forms of American political life that have taken shape in and through modern digital computing. We will investigate especially a perceived tension at the heart of computing technologies - from artificial intelligence to social media - as they have been introduced to so many corners of American political life: Are computing technologies agents of liberation, or of control? The internet, for example, was embraced by some as an inherently democratizing and liberating force, giving users equal access to voice and information. On the other hand, many feared the internet as an unprecedented platform for corporate and government surveillance and manipulation. This course will analyze and historicize this tension, looking to unpack the complex and controversial role of computers in American political life from the Cold War to @POTUS. Taught by: Dick
Course usually offered in fall term
Activity: Seminar
1 Course Unit

STSC 272 Energy in America
Energy issues are central to all aspects of American life - social, cultural, environmental, political and economic. The United States possesses abundant energy resources, and Americans have long enjoyed high, even profligate energy consumption. With 5% of the world's population, the United States currently consumes 24% of the world energy. How did the United States' energy system come to be? This course looks at how this energy system developed over time, in order to understand how Americans' energy choices have been shaped by environmental conditions, economic arrangements, political practices, social structures, and cultural values. It examines the kinds of energy and power used by Americans, energy adoption and transitions, the development of power systems, the role of consumption, and the influence of energy beliefs. It emphasizes the themes of system, contingency, complementarity, and choice. Ongoing topics are the history of energy at the University of Pennsylvania and in the mid-Atlantic region, the meaning of energy efficiency, and the problem of sustainable energy. Taught by: Greene, A
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 278 Prove It: Mathematics and Certainty
Mathematical knowledge is often held up as our most reliable and certain knowledge. The truths of mathematics serve as exemplars of certainty that are not tied to any specific time and place. Yet, throughout history, mathematics has been understood and practiced in quite different ways, for quite different reasons, and by quite different people. Mathematical certainty has been shaped by different beliefs and practices. Mathematicians and their work have been shaped by rich interactions with different dimensions of social life from religion and politics to architecture and war. Mathematics is not simply surrounded by a society external to it, it is an integral and complex part of it. What concerns have motivated mathematical research through history? How has mathematics been put to work in different domains of culture? What does it mean to be a mathematician in different times and places? Does mathematical knowledge bear traces of the conditions in which it was produced? What counts as proof and to whom? How do we reconcile the changing character of mathematical research with the traditional understanding of mathematical knowledge as time and place independent? This course takes up these questions by looking to different worlds in which mathematics and mathematical certainty have taken shape. Taught by: Dick
One-term course offered either term
Activity: Seminar
1 Course Unit
STSC 279 Nature's Nation: Americans and Their Environment
The United States is "nature's nation." Blessed with an enormous, resource-rich geographically diverse and sparsely settled territory, Americans have long seen "nature" as central to their identity, prosperity, politics and power, and have transformed their natural environment accordingly. But what does it mean to be "nature's nation? This course describes and explores how American "nature" has changed over time. How and why has American nature changed over the last four centuries? What have Americans believed about the nation's nature, what have they known about the environment, how did they know it and how have they acted on beliefs and knowledge? What didn't or don't they know? How have political institutions, economic arrangements, social groups and cultural values shaped attitudes and policies? How have natural actors (such landscape features, weather events, plants, animals, microorganisms) played roles in national history? In addition to exploring the history of American nature, we will look for the nature in American history. Where is "nature" in some of the key events of American history that may not, on the surface, appear to be "environmental?"
Taught by: Greene, A
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 299 Independent Study
Approved independent study under faculty supervision.
One-term course offered either term
Activity: Independent Study
1 Course Unit

STSC 308 Science, Technology and Global Capitalism
Modern capitalism has been defined by the circulation of commodities, from gold in the 16th century to sugar in the 17th, tobacco in the 18th, cotton in the 19th, oil in the 20th, and financial derivatives in the 21st. But the world is always messy and complex, rather than neatly divided into products and goods. How, why, and for whose benefit do we divide nature into the abstractions of the marketplace? Who holds power over where, why, and how that happens? In this seminar, we'll use a wide range of scholarship from the humanities, social sciences, and the sciences, along with primary texts and other sources, in order to understand the close links among global capitalism, science and technology, and the natural world.?
One-term course offered either term
Activity: Seminar
1 Course Unit

STSC 309 Rifle and Compass
This course looks at the scientific and technological aspects of warfare during what is often called the Military Revolution. The main focus will be navigation and gunpowder warfare. The first part of this course will focus on magnetism, military drilling, architecture, geography and physics. The second part of the course will turn to case studies, such as the fall of Constantinople in 1453, the Ottoman-Austrian War of 1661-2 and the expansion of Russia in the early eighteenth century.
Taught by: Kucuk
One-term course offered either term
Activity: Seminar
1 Course Unit

STSC 312 Weapons of Mass Destruction
The course explores the historical development of traditional weapons of mass destruction such as chemical, nuclear and biological agents, in addition to newer and seemingly non-traditional weapons such as land mines and civilian aircraft that can also be employed to cause large numbers of injuries and deaths among civilian and military populations. Through case studies in technology and public health, students will evaluate the medical, scientific, environmental, and cultural ramifications of these weapons and their effect on human heal and society by analyzing the rise of the military-industrial-academic-complex in twentieth century America.
Taught by: Lindee
One-term course offered either term
Activity: Seminar
1 Course Unit

STSC 315 Theories of Color: Ideas and Context
In this course we will investigate ideas about color and color practices from antiquity to the nineteenth century. Our historical survey will follow three intertwined threads. We will examine physical color theories, namely, what various writers thought color was in things themselves and how color was related to light. We will study anatomical and physiological accounts of the eye, especially the way in which ocular anatomy was intimately tied to ideas about color. And we will trace the history of color technology, namely, how people in the past have struggled to bring color under control. As a part of this we will study the long history of alchemy, which was in a sense born out of attempts to mimic precious stones and metals - especially their color - and we will touch on the closely related histories of dyeing, pigments, and painting. When possible we will reproduce notable historical anatomies, particularly the anatomical procedures of Galen, Vesalius, and others, and we will also replicate some key historical experiences and experiments concerning color.
Taught by: Baker
Activity: Seminar
1 Course Unit
Notes: This course can count toward Sector A or B (Stage 2 or 3) of the Visual Studies Major.

STSC 316 Science, Technology and Society in Modern East Asia
The course aims to survey the history of science and technology in East Asian countriesChina, Japan and Koreasince the late 19th century. Since Japan was the only nation in East Asia that succeeded in modernizing itself by adopting Western science, technology and politics, it will be studied first. The Chinese and Korean cases then will be reviewed with different angles. The course will emphasize the mutual influence between science & technology and society to answer how these countries became major industrial powers in the 21st century.
Taught by: KIM
Course not offered every year
Activity: Seminar
1 Course Unit
STSC 328 What is Prediction?
This course is an investigation into the notion of prediction from antiquity to the present. By looking closely at key practices from Homeric divination to modern actuarial science and from early modern astrology to contemporary climate models, the course seeks to historicize the way we engage with the future. As part of the course, students also explore the role that methodology, models, causation and big data have played in predictive practices. The readings include a mixture of primary sources, modern scholarship and journalism.
Taught by: Benson
Activity: Seminar
1 Course Unit

STSC 338 Hybrid Science: Nature, health, and society in Latin America
What role did science and medicine play in the creation and growth of the Spanish and Portuguese empires? And why was the creation of science and health institutions crucial to the revolutionary movements for independence in Latin America? This course examines science and medicine in Latin America by attending to the ways that knowledge of nature and health has been central to the political struggles of the countries in this region. A crucial dynamic shaping the history and culture of this region is the interplay between the healing practices and cosmologies of European settlers, indigenous Americans, and the descendants of African slaves. Bearing this interplay in mind, this course explores how Latin America has been a fertile site of scientific creativity. It also examines the ways in which Latin American scientists and medical experts have refashioned concepts and practices from Europe and North America to fit local circumstances.
Taught by: Gil-Riano
Activity: Seminar
1 Course Unit

STSC 360 Data Dreams
The idea of solving problems by collecting as much data as possible about them is an old dream that has recently been revitalized. This course examines the hunger for data from a historical and social perspective, seeking to understand when, why, and how the collection of vast amounts of data has come to seem valuable and desirable, sometimes in ways that exceed any reasonable expectation of utility or feasibility. Topics include state surveillance, online tracking, the quantified self, citizen science, civic hacking, human genomics, bioinformatics, and climate science.
Taught by: Benson
Activity: Seminar
1 Course Unit

STSC 362 Waters, Roads and Wires
This course studies infrastructures: how and why they develop, how they are maintained, how they reshape environments, and how they interconnect with other infrastructures. We begin by reading about infrastructure and about large technological systems, then explore some specific American structures. Possible topics: the electrical grid, the interstate highway system, hydroelectric dams, Amtrak, urban mass transit systems, disasters and infrastructure (Katrina, Harvey, etc.). As the semester progresses, students will spend more time in class on individual research topics of their choice, and in working groups producing a group project.
Taught by: Greene
Activity: Seminar
1 Course Unit

STSC 363 Technology & Democracy
What is the relationship between technology and politics in global democracies? This course explores various forms of technology, its artifacts and experts in relation to government and political decision-making. Does technology "rule" or "run" society, or should it? How do democratic societies balance the need for specialized technological expertise with rule by elected representatives? Topics will include: industrial revolutions, factory production and consumer society, technological utopias, the Cold War, state policy, colonial and post-colonial rule, and engineers’ political visions.
Taught by: Voskuhl
Activity: Seminar
1 Course Unit

STSC 368 Sustainability & Utopianism
This seminar explores how the humanities can contribute to discussions of sustainability. We begin by investigating the contested term itself, paying close attention to critics and activists who deplore the very idea that we should try to sustain our, in their eyes, dystopian present, one marked by environmental catastrophe as well as by an assault on the educational ideals long embodied in the humanities. We then turn to classic humanist texts on utopia, beginning with More’s fictive island of 1517. The "origins of environmentalism" lie in such depictions of island edens (Richard Grove), and our course proceeds to analyze classic utopian tests from American, English, and German literatures. Readings extend to utopian visions from Europe and America of the nineteenth and twentieth centuries, as well as literary and visual texts that deal with contemporary nuclear and flood catastrophes. Authors include: Bill McKibben, Jill Kerr Conway, Christopher Newfield, Thomas More, Francis Bacon, Karl Marx, Henry David Thoreau, Robert Owens, William Morris, Charlotte Perkins Gilman, Ayn Rand, Christa Wolf, and others.
Taught by: WiggIn
Activity: Seminar
1 Course Unit
**STSC 370 The Many Lives of Data: Population, Environment, and Planning in the United States, 1850 to the Present**

This is a class about the live(s) and afterlives of information from 1850 to the present. Not only can information be reproduced (in a variety of material conditions); it can be repurposed and funneled through a variety of different applications, some of them serving radically different purposes than the first purpose of gathering it. Thoreau’s journals of plant flowering, for instance, have become important indicators of climate change. More controversial is the sale of biomedical information by personal genomics services for drug discovery, or the construction of forensic databases consisting of the DNA of suspects arrested as a result of racial profiling. We will study the ways in which data has become a way for us to understand and define change, stability, place, and time, beginning in the mid-nineteenth century, a period of accelerated and increasingly systematic gathering of data, particularly medical, forensic, and environmental data. The class will proceed both chronologically and thematically in three units, from the gathering and use of biomedical data as a way to make patient populations "legible" (to borrow from James Scott), to data as a way to make the environment understandable, and finally to data as a tool for producing and reproducing social relations. As a final project, students will trace a particular data set from its original gathering to its latest usage. Students will also have an opportunity to create their own course content in the final three weeks of class.

Taught by: bergman
One-term course offered either term
Activity: Seminar
1 Course Unit

**STSC 379 Animals in Science Medicine Technology**

This course explores human-animal relationships: the wide range of these relationships, why they originated and how they have changed over time. How have humans classified, valued, utilized, consumed, behaved toward and understood animals? Where is the boundary between humans and other animals, and how do we know, since humans are also animals? How is that boundary been maintained and redefined? Are humans part of the animal “natural” world- or apart from it? How are humans similar to and different from other kinds of animals? How do we know about animals and what is it we know? To what extent are questions about animals really questions about humans? How has the meaning of animal changed over time? The course focuses in particular to the roles and relationships of animals within science and medicine, and as biotechnologies.

Taught by: Greene, A
One-term course offered either term
Activity: Seminar
1 Course Unit

**STSC 391 Bioethics and National Security**

At least since Augustine proposed a theory of “just war,” armed conflict has been recognized as raising ethical issues. These issues have intensified along with the power and sophistication of weapons of war, and especially with increasing engineering capabilities and basic knowledge of the physical world. The life sciences have had their place in these developments as well, perhaps most vividly with the revelations of horrific experiments conducted by the Nazi and Imperial Japanese militaries, but with much greater intensity due to developments in fields like genetics, neuroscience and information science, and the widely recognized convergence of physics, chemistry, biology and engineering. The fields of bioethics and national security studies both developed in the decades following World War II. During the cold war little thought was given to the fact that many national security issues entail bioethical questions, but this intersection has been increasingly evident over the past two decades. In spite of the overlapping domains of bioethics and national security, there has been remarkable little systematic, institutional response to the challenges presented by these kinds of questions:

- What rules should govern the conduct of human experiments when national security is threatened?
- Is it permissible to study ways that viruses may be genetically modified in order to defeat available vaccines, even for defensive purposes?
- What role may physicians or other health care professionals play in interrogation of suspected terrorists?
- Must warfighters accept any and all drugs or devices that are believed to render them more fit for combat, including those that may alter cognition or personality?
- What responsibilities does the scientific community have to anticipate possible “dual purpose” uses or other unintended consequences of its work? Deploying the resources of ethics, philosophy, history, sociology and theory, this course will address these and other problems.

Taught by: Moreno
Course usually offered in spring term
Activity: Seminar
1 Course Unit

**STSC 400 Undergraduate Seminar in Science Technology and Society**

This is a capstone seminar for STSC majors, and a required seminar for any STSC junior who wishes to write a senior thesis for honors in the major. It is designed to provide the tools necessary to undertake original research by guiding students through the research and writing process. Students will produce either a polished proposal for a senior thesis project, or a completed research paper by the end of the term. Although each student will work on a different topic, the class will focus on general aspects of historical, and social scientific research and guide students through a close reading of key texts in science and technology studies.

Course usually offered in spring term
Activity: Seminar
1 Course Unit
STSC 408 Depicting Data and Picturing Nature
Scientific knowledge has always relied on images, as in the cases of big, beautiful books of pictures like Audubon's Birds of America, photographs taken through telescopes, maps, readouts and today, digital images. These images can be a shorthand or guide to make patterns clearer-or sometimes are taken to represent the natural world itself. With questions about how to represent "big data," the interpretation of medical images, and about the manipulability of digital images, the role of images in contemporary science is hardly straightforward. This course will look at the development of image-making as a part of knowledge production in medicine and the sciences. We will read works by visual specialists, historians, scientists and artists, and critically examine scientific images themselves, developing our own visual literacy.
Taught by: Berkowitz
Course usually offered in spring term
Activity: Seminar
1 Course Unit

STSC 411 Sports Science Medicine Technology
Why did Lance Armstrong get caught? Why do Kenyans win marathons? Does Gatorade really work? In this course, we won't answer these questions ourselves but will rely upon the methods of history, sociology, and anthropology to explore the world of the sport scientists who do. Sport scientists produce knowledge about how humans work and the intricacies of human performance. They bring elite (world-class) athletes to their laboratories-or their labs to the athletes. Through readings, discussions, and original research, we will find out how these scientists determine the boundary between "natural" and "performance-enhanced," work to conquer the problem of fatigue, and establish the limits and potential of human beings. Course themes include: technology in science and sport, the lab vs. the field, genetics and race, the politics of the body, and doping. Course goals include: 1) reading scientific and medical texts critically, and assessing their social, cultural, and political origins and ramifications; 2) pursuing an in-depth The course fulfills the Capstone requirement for the HSOC/STSC majors. Semester-long research projects will focus on "un-black-boxing" the metrics sport scientists and physicians use to categorize athletes' bodies as "normal" or "abnormal." For example, you may investigate the test(s) used to define whether an athlete is male or female, establish whether an athlete's blood is "too" oxygenated, or assess whether an athlete is "too" fast (false start). Requirements therefore include: weekly readings and participation in online and in-class discussions; sequenced research assignments; peer review; and a final 20+page original research paper and presentation.
Taught by: Johnson
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 429 The Neurological Condition
Few aspects of our physical makeup are as closely linked to who we are as people as the nervous system. We define our selves by our capacity to think, to react, by our memories. In large part, we believe we are our brains. Yet such perceptions have a history far deeper than our current neuro-obsessed moment. In this course we explore the neurological condition as the human condition: the growing sense since the nineteenth century that we are defined by our nervous systems, and the science that has fostered this vision. From theories of diminishing "nerve force" and the electric cures of the Victorian era, to fMRIs and Obama's 2013 BRAIN Initiative, we explore how science, medicine, and technology have shaped our understanding of the brain and nervous system as the center of human identity. Course topics include the rise of professional neurology and neuroscience, cultural meanings of nerves and the brain, and the intimate role of patients and human subjects in formulating this science from the nineteenth century to the present.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

STSC 436 Biopiracy: Medicinal Plants and Global Power
Biopiracy has emerged as the name of conflict between multinational pharmaceutical companies attempting to get genetic patents on medicinal plants and indigenous communities in the Global South who have long known and used these plants for medicinal purposes. Today the story of Biopiracy is an unfolding story of plants, patents and power. The extraction and commercial exploitation of plants and knowledge about them from the Global South however is not new. It has been happening at increasing pace for at least the last two centuries. Both the anti-malarial drug quinine and the cancer drug vincristine for instance have their plant-origins in the Global South where local communities used them medicinally long before their discovery by biomedicine. This course will put the current debates around Biopiracy in context and explore how the entanglements of plants and power have changed or not changed.
Taught by: Mukharji
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 442 Hospital as Curing Machine
This course examines the technological, scientific, and spatial evolution of the modern hospital from the miasmatic, vermin-infested medieval European hospital-as-alms house, to the late twentieth-century ideal of the modern hospital as a condenser of sophisticated technologies, scientific expertise, and Taylorist efficiencies. In so doing, we will see how designers of hospital space, consciously or not, have striven to realize the mechanized, technological vision of the hospital as curing machine a phrase first invoked by 18th century French surgeon and anatomist Jacques Tenon. While the early nineteenth-century hospital had been a locus for fears about contagion, death, and disease in a pre-germ theory world, through its eventual integration of antiseptic practices, spatially produced zones of medical expertise (the operating suite, the laboratory, pediatric and maternity wards), novel technologies (incubators, hyperbaric chambers, x-rays, ultrasounds) and factory-like efficiencies the hospital came into its own as the epitome of rational modernist space. But, over the course of its evolution, the modern hospital has changed as well: as an incubator for super-bugs, as an engine for projects of renewal, and as a site for the cultural transformation of the meaning of birth, death, and health itself.
Taught by: Greene, G
Course not offered every year
Activity: Seminar
1 Course Unit
STSC 443 Science and the Senses: Visual Culture, Material Objects

Using various types of readings, podcasts, and visits to area museums and centers of research, this course examines the relationships between seeing, sensing, and knowing in science. What roles do the senses and the material objects they observe play in production of science, and how has that changed historically? Are the senses reliable and standardizable, and if so, how can we talk about them with a common vocabulary? Are some more important than others? We will begin to answer those questions historically, following the role of the senses in science from the early modern period up to the present. We will look at ways in which vision was constructed as the primary sense during the Enlightenment and at ways in which it was made objective and instrumentalized in the modern period. We will also look at objects themselves. How do museum displays, illustrations, jarred specimens, photographs, and movies make and convey knowledge.

Taught by: Berkowitz
Course not offered every year
Activity: Seminar
1 Course Unit

STSC 461 The Child in the City

This course examines the problem of the child in urban space in 19th and 20th century European and American discourses. This course does not propose to recover the subjective experience of the child but, rather, views the child as an object around which numerous adult anxieties connected to industrialization, urbanization, and modernity itself cohered. Discourses on public health, environmental pollution, sexuality, criminality, and racial degeneration all focused their attention, anxieties, and energies on how to deal with the unique vulnerability of the child in modern urban space. This interdisciplinary course focuses specifically on atmospheres, environments, and architectures in urban settings as diverse as Chicago, New York, Paris, and London. We will examine how the built environment was envisioned as part of a set of critical technologies for resolving the threat that urban space posed to the child. We will explore objects and envir as diverse as tenement babycages, wartime floating hospitals, open-air schools, adventu playgrounds in post-WWII London, car-less communities in Radburn, NJ, and American chili books about urban blight and renewal.

Taught by: Greene, G
Activity: Seminar
1 Course Unit

STSC 462 Technological & Business Innovation: Historical Perspectives

This course will explore the relationship between technolgical innovation and business history. By looking at a series of case studies of technologically driven firms – both U.S and international – we will develop a more sophisticated and historically informed model of the relationship between technological, economic, legal and political developments in the late 19th and 20th centuries.

Course not offered every year
Activity: Seminar
1 Course Unit

STSC 471 Guns and Health

The purpose of this course is for students to gain an understanding of the role of guns in health, and population and prevention approaches to violence. The course will include a focus on policies and regulations related to firearms, the primary mechanism by which violence-related fatalities occur in the U.S. We will address the life span of a gun, from design and manufacture through to use. In addition, we will address key aspects of the social context in which firearms exist and within which firearm policy is made.

Taught by: Sorenson
Course usually offered in fall term
Activity: Seminar
1 Course Unit

STSC 472 Invisible Labor in the Human Sciences

This course looks at those disciplines that take people as their subjects of research–including biology and biomedicine as well as anthropology, linguistics, and sociology–to explore the contributions of a wide range of research participants. We will focus on the sciences of human behavior, information, and medicine to analyze the labors of behind-the-scenes actors including tissue donors, survey respondents, student subjects, patients, translators, activists, ethics review boards, data curators, and archivists. Our job will be to analyze the experiences of these technoscientific laborers with a view to systems of knowledge and power in the production and maintenance of Knowledge about humans and their bodies.

Taught by: Kaplan, J

One-term course offered either term
Activity: Seminar
1 Course Unit

STSC 498 Honors Thesis

Research and writing of a senior honors thesis under faculty supervision.

Course usually offered in fall term
Activity: Independent Study
1 Course Unit

STSC 499 Undergraduate Independent Study

Independent primary research under faculty supervision to fulfill the capstone research requirement.

One-term course offered either term
Activity: Independent Study
1 Course Unit
SCIENTIFIC COMPUTING (SCMP)

SCMP 559 Multiscale Modeling of Chemical Systems
This course provides theoretical, conceptual, and hands-on modeling experience on three different length and time scales - (1) electronic structure (Å, ps); (2) molecular mechanics (100 Å, ns); and (3) deterministic and stochastic approaches for microscale systems (μm, sec). Students will gain hands-on experience, i.e., running codes on real applications together with the following theoretical formalisms: molecular dynamics, Monte Carlo, free energy methods, deterministic and stochastic modeling.
Course not offered every year
Also Offered As: BE 559
Prerequisites: Undergraduate courses in numerical analysis and statistical mechanics.
Activity: Lecture
1 Course Unit

SCMP 990 Masters Thesis
For Master's students who have completed the course requirements for the Master's degree and are strictly working to complete the Master's Thesis leading to the completion of a Master's degree. Permission Required.
One-term course offered either term
Activity: Masters Thesis
1 Course Unit
SLAVIC (SLAV)

SLAV 391 Serbo-Croatian II
Activity: Lecture
1 Course Unit

SLAV 394 Serbo-Croatian Inter I
Activity: Lecture
1 Course Unit

SLAV 395 Intermediate Serbo-Croatian II
You will continue learning grammar structures and developing vocabulary related to everyday-life situations. You will further develop your listening, speaking, reading, and writing skills.
Taught by: Scepanovic-Ulia
Activity: Lecture
1 Course Unit

SLAV 399 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
Notes: May be repeated for credit

SLAV 500 History of Literary Theory
Over the last three decades, the fields of literary and cultural studies have been reconfigured by a variety of theoretical and methodological developments. Bracing and often confrontational dialogues between theoretical and political positions as varied as Deconstruction, New Historicism, Cultural Materialism, Feminism, Queer Theory, Minority Discourse Theory, Colonial and Post-colonial Studies and Cultural Studies have, in particular, altered disciplinary agendas and intellectual priorities for students embarking on the professional/study of literature. In this course, we will study key texts, statements and debates that define these issues, and will work towards a broad knowledge of the complex rewriting of the project of literary studies in process today. The reading list will keep in mind the Examination List in Comparative Literature, but we will not work towards complete coverage but will ask how crucial contemporary theorists engage with the longer history and institutional practices of literary criticism. There will be no examinations. Students will make one class presentation, which will then be reworked into a paper (1200-1500 words) to be submitted one week after the presentation. A second paper will be an annotated bibliography on a theoretical issue or issues that a student wishes to explore further. The bibliography will be developed in consultation with the instructor; it will typically include three or four books and six to eight articles or their equivalent. The annotated bibliography will be prefaced by a five or six-page introduction; the whole will add up to between 5000 and 6000 words of prose. Students will prepare position notes each week, which will either be posted on a weblog or circulated in class.
Taught by: Copeland/Platt
Course not offered every year
Activity: Seminar
1 Course Unit

SLAV 501 Elementary Polish I
This course is for students who want to acquire the linguistic skills necessary for communication in everyday situations and that would constitute a solid base for further study of the Polish language. In addition students will become acquainted with various aspects of Polish culture (including Polish films), history and contemporary affairs. Students will learn through classroom exercises based on a modern textbook, completion of individual and group assignments and work with various audio and video materials. The textbook Hurra - Po Polsku 1 is written in the spirit of the communicative approach, which makes it possible to communicate from the very beginning of the learning process. The special attention, however, will be paid on systematic development of all language skills: listening, reading, speaking and writing.
For BA Students: Language Course
Taught by: Dziedzic
Two terms. student may enter either term.
Prerequisites: No prerequisite.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

SLAV 502 Elementary Polish II
This course is a continuation of the SLAV501 680. This is for students who want to acquire the linguistic skills necessary for communication in everyday situations and that would constitute a solid base for further study of the Polish language. In addition students will become acquainted with various aspects of Polish culture (including Polish films), history and contemporary affairs. Students will learn through classroom exercises based on a modern textbook, completion of individual and group assignments and work with various audio and video materials. The textbook Hurra - Po Polsku 1 is written in the spirit of the communicative approach, which makes it possible to communicate from the very beginning of the learning process. The special attention, however, will be paid on systematic development of all language skills: listening, reading, speaking and writing.
For BA Students: Language Course
Taught by: Dziedzic
Two terms. student may enter either term.
Prerequisites: SLAV 501 or Instructor's permission.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

SLAV 503 Intermediate Polish I
This is a first-semester intermediate-level language course that emphasizes the development of the four basic skills (reading, writing, listening, and speaking) within a culturally based context. Class time will focus on communicative activities that combine grammatical concepts, relevant vocabulary, and cultural themes. Students will learn through classroom exercises based on a modern textbook: Hurra - Po Polsku 2, completion of individual and group assignments and work with various audio and video materials. Major course goals include: the acquisition of intermediate-level vocabulary, the controlled use of the Polish cases; the aspect of the verbs, the development of writing skills.
For BA Students: Language Course
Taught by: Wolski-Moskoff
Two terms. student may enter either term.
Prerequisites: SLAV 502 or placement exam.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

SLAV 504 Intermediate Polish II
SLAV 504 Intermediate Polish II
This course is a continuation of the SLAV503 680. This is a second-semester intermediate-level language course that emphasizes the development of the four basic skills (reading, writing, listening, and speaking) within a culturally based context. Class time will focus on communicative activities that combine grammatical concepts, relevant vocabulary, and cultural themes. Students will learn through classroom exercises based on a modern textbook: Hurra Po Polsku 2, completion of individual and group assignments and work with various audio and video materials. Major course goals include: the acquisition of intermediate-level vocabulary, the controlled use of the Polish cases; the aspect of the verbs, the development of writing skills.
For BA Students: Last Language Course
Taught by: Wolski-Moskoff
Two terms. student may enter either term.
Prerequisite: SLAV 503 or placement
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

SLAV 505 Polish for Heritage Speakers I.
The course is addressed to students who have spoken Polish at home and seek to achieve proficiency in the language. The main goal of this course is to provide instruction directed at students continued development of existing competencies in the Polish language. Students will acquire skills that range from learning grammar and spelling, and developing vocabulary, to interpretation and analysis of different literary genres. Students will explore a broad variety of cultural themes. Topics will include: Polish literature - classic and modern, social life, contemporary affairs and films. Upon completion of the course, students will be expected to confidently understand, read, write and speak Polish with an increased vocabulary and a better command of Polish grammar. They will increase their reading skills through interpretation and analysis of different Polish literature genres. Students will be able to organize their thoughts and write in a coherent manner. They will increase their writing skills by writing personal essays, compositions and others. Students will further their knowledge of the Polish language and will engage in class discussion on various topics. Students will gain a better understanding of the Polish culture.
For BA Students: Language Course
Taught by: Dziedzic
Course not offered every year
Prerequisite: Instructor permission required
Activity: Lecture
1 Course Unit
Notes: STUDENTS WHO COMPLETE TWO SEMESTERS OF THIS COURSE SATISFY THE PENN LANGUAGE REQUIREMENT. Polish is used exclusively in the classroom.

SLAV 506 Polish for Heritage Speakers II
Continuation of SLAV505
For BA Students: Last Language Course
Taught by: Dziedzic
Course not offered every year
Prerequisites: SLAV505 or placement test.
Activity: Lecture
1 Course Unit

SLAV 530 Elementary Czech I
An introduction to the fundamentals of the Czech language, acquisition of conversational, reading and writing skills.
For BA Students: Language Course
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

SLAV 575 Slavic Literary Theory in Western Context
This course will compare selected theoretical concepts advanced by Russian Formalists, Prague Structuralists, and the Bakhtin group (e.g., defamiliarization, aesthetic sign, dialogue) with similar or analogous notions drawn from Western intellectual tradition.
Taught by: Steiner
Activity: Seminar
1 Course Unit

SLAV 590 Elementary Ukrainian I
An introduction to the fundamentals of the Ukrainian language, acquisition of conversational, reading and writing skills. This course is designed for students who have no or little background in studying Ukrainian. Students will be able to develop the base for the further study of the Ukrainian language. This course provides a comprehensive introduction to modern Ukrainian language and culture for those who would like to speak Ukrainian or use the language for reading and research. The course stresses all four major communicative skills (speaking, listening comprehension, reading, writing).
For BA Students: Language Course
Taught by: Rudnytzky
Two terms. student may enter either term.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.

SLAV 591 Elementary Ukrainian II
Continuation of SLAV 590. During the second semester, the students would like to speak Ukrainian or use the language for reading and research. The course stresses all four major communicative skills (speaking, listening comprehension, reading, writing).
For BA Students: Language Course
Taught by: Rudnytzky
Two terms. student may enter either term.
Prerequisite: SLAV 590 or Placement
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center.
SLAV 592 Intermediate Ukrainian I
This is a first-semester intermediate-level Ukrainian language course which is designed to make students practice reading, speaking and writing in Ukrainian. Current issues of Ukrainian newspapers, especially the weekly, will serve as the basic source for the study of the contemporary Ukrainian idiom. Reading, translation and discussion of featured articles on such topics as business, education, politics, science, sports et al. including advertising and horoscope style and terminology will not only be used to hone the language skills and build up vocabulary but also to acquaint the student with the latest linguistic developments in Ukraine, such as the loan-words and loan-translations, abbreviations and acronyms, ancient folk proverbs and sayings as well as contemporary technical terms.
For BA Students: Language Course
Taught by: Rudnytzky
Two terms. student may enter either term.
Prerequisites: SLAV 591 or placement test.
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

SLAV 593 Intermediate Ukrainian II
This second-semester intermediate-level Ukrainian language is the continuation of the SLAV 592. Students will be able to practice reading, listening, writing and speaking Ukrainian more in the context of Ukrainian history politics, and culture. Students will be provided with the newspapers in Ukrainian and other authentic materials that will be the basis of both the classroom discussions and homework.
For BA Students: Last Language Course
Taught by: Rudnytzky
Two terms. student may enter either term.
Prerequisite: SLAV 592 or Placement
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

SLAV 594 Advanced Ukrainian I
This advanced Ukrainian course is addressed to the students who have taken SLAV 592 and SLAV 593 or can already speak and read Ukrainian. The course emphasizes on the advanced vocabulary building, conversation and reading skills. It also includes the advanced grammar review with the use of Ukrainian grammar terms. Students will learn more about Ukrainian literature, history, and modern life through the authentic materials, poems and parts literature extracts.
For BA Students: Advanced Language Course
Taught by: Rudnytzky
Two terms. student may enter either term.
Prerequisite: SLAV 592 or Placement
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

SLAV 595 Advanced Ukrainian II
Continuation of SLAV 594. The course focuses on all the language skills (reading, writing, speaking, listening) on the level with the use of the authentic materials mostly from Ukrainian literature and newspapers. Students will work on reading one of the modern Ukrainian plays to be able to perform it at the end of the course. This course is a good foundation for doing the research in Ukrainian or working or studying in Ukraine.
For BA Students: Advanced Language Course
Taught by: Rudnytzky
Two terms. student may enter either term.
Prerequisite: SLAV 594 or Placement
Activity: Lecture
1 Course Unit
Notes: Offered through the Penn Language Center

SLAV 599 Inter Serbo-Croatian II
Activity: Independent Study
1 Course Unit

SLAV 619 East & West in Medieval Europe: Bohemia as Center in the Age of the Luxemburgs
The seminar will examine a range of topics in Medieval Studies viewing European medieval civilization as encompassing the whole ("global") geographic and cultural space of Europe and ignoring reference to contemporary socio-political division of Europe into "Western" and "Eastern." As a case study, the course focuses on the 14th-century Holy Roman Empire from Henry VII to the Emperor Sigismund, and particularly on the reign of Charles IV, in a context in which Prague becomes the imperial capital and Bohemia a center of Europe. A detailed examination of this monarch's vision of a "Global Europe" will allow us to explore a network of connections, a network that stretches from Prague to the farthest western, eastern and southern corners of the European continent. We will examine correspondences and differences between various linguistic, textual, political, and religious communities, while attempting to show how Latin and Slavic European cultures were interwoven. Some of the titles from the reading list are Charles IV's The Life of St. Wenceslas and Autobiography, The Golden Bull, Dante's Letters & Monarchia, Machaut's Jugement of the King of Bohemia, Petrarch's Epistolae & Poems, Froissart's Prison of Love, Johannes von Tepl's The Plowman of Bohemia, The Life of St. Constantin the Philosopher, fragments from Czech, French, Italian, Polish, Hungarian and Rus medieval chronicles, etc. All reading will be done in English, with original language versions always available.
Taught by: Brownlee and Verkholtanetz
Activity: Seminar
1 Course Unit

SLAV 653 Topics in Russian and Soviet Cultural History
Course is topical. Please see department for most recent description.
Course not offered every year
Activity: Seminar
1 Course Unit
SOCIAL WORK (SWRK)

SWRK 593 Design Thinking for Social Impact
Thinking like a designer can transform the way people and organizations develop products, services, processes, and strategy. This approach, called design thinking, brings together what is desirable from a human point of view with what is technologically feasible and economically viable. It also allows people who aren't trained as designers to use creative tools and address a vast range of challenges. Design thinking is a deeply human process that taps into abilities we all have but get overlooked by more conventional problem-solving practices. It relies on our ability to be intuitive, to recognize patterns, to construct ideas that are emotionally meaningful as well as functional, and to express ourselves through means beyond words or symbols.
Course usually offered summer term only
Activity: Lecture
1 Course Unit

SWRK 595 Effective Communication and Storytelling
Great leaders are storytellers. They are able to engage and entertain their communities, and tell a compelling narrative about how the world works. They use language powerfully and communicate in ways that uplift and inspire others. In this class, we will explore the power of telling great stories, and learn how to do it most effectively when promoting your campaigns to make the world a better place. We will also look at the skills of framing language in ways that will win over an audience. Finally, we will look at other key skills of effective communication, including the best strategies for persuasion, negotiation, and conflict resolution.
Course usually offered summer term only
Activity: Lecture
1 Course Unit

SWRK 596 Design and Incorporation of High Impact Nonprofits
Design and Incorporation of High Impact Not-For-Profits is designed for those who have a practitioner’s interest in the design, governance, leadership, and management of high impact not-for-profit organizations. This course is taught through learning best practice theory, applying this theory to a simulation experience, and providing students the opportunity to apply their new knowledge and experience in an interview with a current not-for-profit leader. Students, through the combination of theory and practice, are provided with the essential competencies and tools to design and incorporate a not-for-profit, conduct in-depth analysis of a not-for-profit’s effectiveness including, but not limited to, governance, leadership, social impact, financial sustainability, and systems and policy influence. Through the mock simulation process of designing, incorporating, and governing, students will leave with a "best practice" for not-for-profit manual that includes articles of incorporation, bylaws, governance deliverables, strategic business plan, organizational scorecard, 3-5 year budget, development plan and public policy strategy.
Activity: Lecture
1 Course Unit

SWRK 601 History and Philosophy of Social Work and Social Welfare
This course traces the development of social welfare policy in the United States and its relationship to social work. It analyzes the values and assumptions that form the foundation of existing welfare programs and institutions and explores the social, economic, political and cultural contexts in which they have developed. The course examines the development of cash assistance and social services programs in light of the enduring legacy of poverty, racism, and sexism. The view of "outsiders" in U.S. society - low-income persons, people of color, gays and lesbians - allows us to gain perspective on the source of conflict and consensus in American history, which augments material about institutional racism learned in SWRK 603 and content about behavioral responses learned in SWRK 602. The course traces, as well, the roles that social workers have played in the formulation and implementation of social welfare policy and links these historical examples to contemporary policy practice.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: This course may schedule sequence-wide lectures for all sections at various points in the semester, and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 602 Human Behavior in the Social Environment
This course introduces the student to the individual and family components of social interaction in a variety of different milieus. Theories of self and personality are studied, along with theories related to traditional and non-traditional family styles, different social and ethnic groups, and of assimilation and acculturation. Emphasis is given to the impact of different cultures and traditions on individual functioning. Additional attention is given to selected social characteristics of the larger society, such as factors of socio-economic class which influence individual and family behavior and functioning.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: This course may schedule sequence-wide lectures for all sections at various points in the semester, and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 603 American Racism and Social Work Practice
This course explores racism in America as an historical and contemporary phenomenon. It emphasizes the development of evidence-based knowledge about institutional systems of racism, analytical skill in understanding the complexity of institutional racism and other forms of oppression more broadly defined, self-awareness, and the implications of racism for social work services and practices.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: This course may schedule sequence-wide lectures for all sections at various points in the semester, and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.
SWRK 604 Foundations of Social Work Practice I
This is a first of a four-course sequence designed to help students develop a professional stance and evidence-based framework for social work services to individuals, groups, families, and communities. It integrates the student’s theoretical learning with the experience in the field placement agency. The student is introduced to a holistic process-oriented approach to social work practice and to methods for implementation. The course emphasizes the social context for practice with special attention to agency purpose, functions and structure; the client system and its perceptions of need; goals and resources and the social worker as a facilitator of change.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: This course may schedule sequence-wide lectures for all sections at various points in the semester, and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 614 Foundations of Social Work Practice II
This is the second in a four-course sequence and continues to examine varied practice frameworks and methods for service delivery in working with individuals, groups, families and communities. It emphasizes the eradication of institutional racism and other forms of oppression along with the integration of a culturally-sensitive approach to social work practice. Attention is given to understanding client problems in the context of different social work practice approaches and service requirements and to increased use of professional values to guide and inform practice.
Course usually offered in spring term
Prerequisite: SWRK 604
Activity: Lecture
1 Course Unit
Notes: This course may schedule sequence-wide lectures for all sections at various points in the semester, and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 615 Introduction to Social Work Research
This course presents the broad range of research tools that social workers can use to improve the effectiveness and efficiency of their practice. The course emphasizes the process of theory development, conceptualization, and hypothesis formulation across a broad spectrum of social work practice situations. The course includes methodological considerations relating to concept operationalization; research design (experimental, survey, and field), sampling instrumentation, methods of data collection and analysis, and report preparation and dissemination. The course also emphasizes how social work research can help professionals better understand and more effectively impact problems of racism and sexism in contemporary American society.
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: This course may schedule sequence-wide lectures for all sections at various points in the semester and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 620 Integrative Seminar
All Advanced Standing students are required to take this non-credit Integrative Seminar in the summer upon beginning the program. The seminar meets weekly during the second summer session and supports students as they begin their field placement. In order to enroll in the fall, students must achieve satisfactory performance in the Integrative Practice Seminar and summer field placement.
Course usually offered summer term only
Prerequisite: Advanced Standing MSW students only
Activity: Seminar
0 Course Units

SWRK 701 Health and Mental Health Policy
This course provides an overall view of the historical, social and economic dimensions of the health care delivery system: how health policies are developed and implemented, and how such policies influence social work practice, program planning, and research. Key health policy issues such as financing, cost, access, and the allocation of resources are explored in the context of health reform proposals. Students investigate how health policy affects specific population groups such as women and children, persons with chronic mental illnesses, persons with AIDS, older adults, and minorities.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: MSW Policy Option

SWRK 702 Social Work Practice in Health Care
This course focuses on key issues in social work practice in health care settings. Social aspects of health and illness, including cultural variations, health beliefs and behavior, and the impact of illness on the patient and the family, are examined and their relevance for practice is discussed. Appropriate theoretical models for practice are identified and applied to practice in the areas of prevention, primary care, chronic and long-term care. New roles for social work in varied health delivery systems and inter-professional collaboration are explored.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective

SWRK 703 Impacting Government: Policy Analysis & Coalition Building
This course focuses on developing a theoretical foundation for actionable skills in policy analysis and coalition building across a wide-range of constituencies. The material begins with a structured focus on the ideological underpinnings of social welfare in the United States and the ways in which these perspectives shape our conception of equity, equality, and allocation of resources along the lines of race, class, gender, immigration status, and other identities. We will then utilize this basis for developing analysis frameworks, policy briefs, and media messaging that students will utilize when working with legislative bodies to advocate for and with the populations they serve. Distinct emphasis is placed on becoming conversant across differential systems, ideas, values, and assumptions while remaining grounded in relevant research and empirical approaches.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Macro Practice Elective
SWRK 704 Advanced Clinical Social Work Practice I
Clinical Social Work Practice I and Field Practice builds on the generalist model of practice established in the foundation social work practice courses. The course work and assignments are closely linked to the students’ learning objectives and experiences in the field. This course has students critically examine and deepen their understanding of advanced theoretical frameworks and specific skills to be applied in clinical practice with children, adolescents, adults, and families. Students begin with classic and modern formulations of psychodynamic work and use this as a foundation for understanding theoretically and empirically drive models of family intervention. In addition, use of self and social work values and ethics and working with diverse clients are addressed at an advanced level.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Required for Clinical Practice Concentration; This course may schedule sequence-wide lectures for all sections at various points in the semester, and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 706 Policies for Children and Their Families
This course examines policies for children and their families with a specific focus on child welfare policy. The course examines the interrelationship between: the knowledge base on child abuse and neglect; evaluations of interventions; programs and policies designed to protect maltreated children; and child welfare policy at the state and national level. The course also examines federal and state laws that govern the funding and operation of child welfare systems; the history of child welfare policies; the operation of child welfare systems; and the legal, political and social forces that influence the structure and function of child welfare systems in the United States.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Policy Option

SWRK 708 Advanced Macro Social Work Practice I
Advanced Macro Social Work Practice I and Field builds on the foundation social work practice courses and focuses on three areas: (1) context of macro practice; (2) organizational structure with a focus on nonprofits; and (3) program design and development. The course begins with providing theoretical frameworks for macro practice and then moves to focus on delivery of services at the community level. Knowledge and skill development focuses primarily on social work practice within communities and organizations. Students learn how to organize and build relationships with communities and develop, plan, manage, fund and assess/evaluate community-based programs. Specific skill development includes learning how to research, develop, write, and pitch a grant proposal. Course content is integrated with fieldwork and is specific to the service needs of the populations with whom students are working in their field agencies.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Required for Macro Practice Concentration; This course may schedule sequence-wide lectures for all sections at various points in the semester and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 710 Supervision Seminar
Students in the Employed Practitioners Program are required to take this non-credit seminar in the fall and spring terms of their second year of study. The class meets every other week. In a limited number of cases, advanced-year students may be placed in agencies where there is no available MSW field instructor. In such instances, the student is required to attend the Clinical or Macro Supervision Seminar (depending on their concentration), which meets every other week during the academic year. Students who are required to participate in the clinical or macro supervision seminars will be given 1.5 hours of compensatory time off from their field placement every other week.
Activity: Seminar
0 Course Units
Notes: Non-credit course required for students in the Employed Practitioners Program OR Non-credit course required for students without an MSW supervisor at their field placement

SWRK 711 Contemporary Social Policy
This course introduces students to the analysis of contemporary social welfare policy. Several social welfare policy areas, including social inequality, poverty, health care, and housing are examined. Each topic area is also used to illustrate a component of the policy analysis process, including the analysis of ideologies and values as they shape policy formulation, the process by which legislation is proposed and enacted, the roles of advocacy and lobbying organizations, and the challenges of policy implementation and evaluation.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Policy Option

SWRK 712 City Limits: The Impact of Urban Policy
This course assesses the changing role of public policy in American cities. In the past, government often believed that it could direct urban development. New realities - the rise of an informal labor market, global capital and labor flows, the flight of businesses and the middle class to the suburbs - have demonstrated that government must see itself as one - but only one - 'player' in a more complex, transactional process of policy making that crosses political boundaries and involves business, organized interest groups, and citizens. This seminar uses a case-study method to study how public policy can make a difference in the revitalization of distressed American cities. The seminar is designed for advanced undergraduates and graduate students. Seminar readings and projects will be organized around three themes: 1) history and vision, 2) data and analysis, and 3) policy and implementation. Students will be divided into project teams assigned to work on current development issues that will be reviewed by both public and private-sector experts. Extensive use will be made of real estate, economic development, and social indicator data to understand the complex forces at work in both large and small cities. Students will learn to access, analyze, and map information; to frame and interpret these data within a regional perspective; and to construct profiles of cities and neighborhoods. Students will study recent urban redevelopment initiatives in the Philadelphia region, including Philadelphia's Neighborhood Transformations Initiative and New Jersey's Camden Revitalization plans.
Course usually offered in spring term
Prerequisites: Students must have taken an introduction to research methods.
Activity: Seminar
1 Course Unit
SWRK 713 Understanding Social Change: Issues of Race and Gender
This course builds upon the foundation of historical, psychological, sociological, economic, political, and personal knowledge about institutionalized forms of racism and discrimination developed in SWRK 603, American Racism and Social Work Practice. The course uses understanding elements of oppression to critically examine strategies for addressing racism and sexism in organizations and communities through systematic assessment and planning for social change. The course examines change at three levels: organizations, communities, and social movements.
Course usually offered in spring term
Prerequisite: SWRK 603
Activity: Lecture
1 Course Unit
Notes: This course may schedule sequence-wide lectures for all sections at various points in the semester and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 714 Advanced Clinical Social Work Practice II
The focus of learning in this semester is theories and skills related to clinical practice with individuals and groups, differential intervention, and the broadening of the professional role and repertoire. The course content and assignments are closely linked with the students’ learning objectives and experiences in the field. Students extend and refine their practice knowledge and skills and learn to intervene with cognitive, behavioral, and narrative modalities. This semester focuses also on work with complex trauma across systems and populations. Students consolidate their identification as professionals and learn to constructively use the environment to effect systems changes.
Course usually offered in spring term
Prerequisite: SWRK 704
Activity: Lecture
1 Course Unit
Notes: Required for Clinical Practice Concentration; This course may schedule sequence-wide lectures for all sections at various points in the semester and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 716 Comprehensive School Reform: From 'No Child Left Behind' through 'Race to the Top' to 'Every Student Succeeds Act'
This course examines how K-12 education policy is designed and implemented in the United States. It uses a systems analysis as the framework for looking at who makes what kinds of demands on the education policy system, how these demands are placed on the policy agenda, the decision making process, and resulting education policies and policy outcomes. The course pays particular attention to the roles of federal, state and local governments in education policy, and the impact of our intergovernmental system on the design and implementation of policy. Students will also examine major education policies and debate key education policy issues that arise at each level of government.
Activity: Seminar
1 Course Unit

SWRK 717 Art and Social Work: Art and the Ecology of Justice
How can the arts help us build a more just society? How can the arts transform social structures and systems? Public health crises involving clean water (Flint), police violence (Baltimore), and a lack of economic and educational opportunity following reentry (Philadelphia) make legible the need for a new visual language that critiques these conditions and challenges entrenched structural inequalities. We will engage the work of creative practitioners who are mapping new relationships between art and social justice and directly impacting individual and communal well-being. In so doing, the course seeks to challenge traditional constructions of public health, which often isolate individual histories from their social life and their relation to families, communities, and geographies. Readings will build upon disciplinary perspectives in the arts, humanities, and social policy. Requirements include weekly readings, class participation, and a collaborative final project. The course will meet in the Health Ecologies Lab at Slought Foundation, an arts organization on campus.
Course not offered every year
Activity: Seminar
1 Course Unit

SWRK 718 Advanced Macro Social Work Practice II
Advanced Macro Social Work Practice II and Field helps students broaden and deepen the specific knowledge and skills required to become an effective and creative social work practitioner. The course focuses on five areas of macro practice: (1) community assessment and practice; (2) policy advocacy; (3) fiscal management and fundraising; (4) global human rights; and (5) emerging areas of macro practice. Students learn how to conduct a community practice analysis, engage in policy advocacy, develop an idea for a social enterprise, write an agency fundraising plan, and conduct an agency fiscal evaluation. Students learn to utilize administrative skills to promote social change within a variety of systems that influence the lives of client populations. Course content is integrated with fieldwork and is specific to the service needs of the populations with whom students are working in their field agencies.
Course usually offered in spring term
Prerequisite: SWRK 708
Activity: Lecture
1 Course Unit
Notes: Required for Macro Practice Concentration; This course may schedule sequence-wide lectures for all sections at various points in the semester and attendance is mandatory for all registered students. Joint lectures are scheduled on Mondays between 6:30-8:30PM; students should not register for other courses on Monday nights that would conflict with this time slot.

SWRK 721 Social Work Healthcare Proseminar
Activity: Seminar
0 Course Units
Notes: non-credit seminar for SWIHCS students only
SWRK 722 Practice with Children and Adolescents
This course provides a foundation for social work practice with children and adolescents. Beginning with an overview of normative child and adolescent development and psychosocial developmental theory, the course covers various methods for helping at-risk children and adolescents and their families. Emphasizing the complex interplay between children and adolescents and their social environments, consideration will be given to biological, temperamental, and developmental status; the familial/cultural context; the school context; and other aspects of the physical and social environment. Particular attention is paid to working with socially, emotionally, financially, and physically challenged and deprived children and adolescents and their families.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective; Option for Home and School Visitor (HSV) specialization

SWRK 724 Developmental Disabilities
This course enhances the students' ability to practice social work with and on behalf of people with developmental disabilities and their families. The course provides a base of knowledge about developmental disabilities and differences, their causes and characteristics. Students learn how disabilities and learning differences impact personal, familial, educational, social, and economic dimensions for the individual, family, and society, with attention to the person's special life cycle needs and characteristics. The course also emphasizes legislative, programmatic, political, economic, and theoretical formulations fundamental to service delivery.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective; required for students in the HSV program

SWRK 726 Brief Treatment and Crisis Intervention
This course focuses on theory and practice of planned brief treatment in social work practice, primarily with individuals but with attention to couples, families and other groupings. The course covers the history of and different approaches to brief treatment. Topics include treatment issues such as criteria for selection of clients, understanding the importance of time in the treatment relationship, the use of history, the importance of focusing, the process of termination and other issues related to brief interventions. Particular attention will be paid to the use of brief treatment approaches in crisis situations. The course presents various methods of assessing an individual's crisis and of helping clients mobilize their strengths to utilize customary methods of coping and learn newer ways of coping.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective

SWRK 727 Practice with Families
This course provides students with assessment and intervention skills for social work practice with varied family/partner configurations. The course begins with a grounding in family systems theory and proceeds to explore patterns of interaction in terms of the wide range of problems that families and partners bring to social agencies. Emphasis is given to exploring ways of supporting change in interaction patterns. Readings are augmented by videotapes of family sessions and simulations of clinical situations from students' field practice.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective

SWRK 729 Social Statistics
This course provides students with a broad range of statistical methods and applications. It introduces social work students to the use of quantitative data for planning and evaluating social programs and social policy. Course topics include conceptualization and measurement of variables and basic techniques and concepts for exploring and categorizing data, for generalizing research findings and testing hypotheses, and for statistical data processing. Students will gain experience in using a Windows-based statistical software package on personal computers. Emphasis is placed on the practical application of data to address social policy and social work practice issues. Students have the opportunity to critique the application of data analysis and presentation in technical reports and professional journals.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Research Option

SWRK 730 Community Mapping
Geographic space is important to family and community well-being, as we know. Community Mapping introduces students to geographic information systems (GIS), computer software for making maps and analyzing spatial data. Students will learn how maps have been used in social welfare history as well as how GIS can be used for needs assessments, asset mapping, program evaluation, and program planning. The course builds on research skills developed in SWRK 615. For the final project, students have an opportunity to apply their GIS skills to creating maps related to their field placement. The use of such maps may lead to both program and policy change in neighborhoods and communities.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Macro Practice Elective
SWRK 731 Clinical and Macro Child Welfare Practice
Students enrolled in this course will learn about the various contexts in which child welfare practice and policy services take place and the skills and modalities that are used with children, youth, and families who are the focus of child welfare intervention. Students learn about the social conditions and unmet needs that have typically precipitated child welfare policy and ideological debates informing child welfare policy. How to structure organizations and implement planning in support of strengthening front-line practice is also addressed. Taking stock of these policies and organizational factors, students gain a firm understanding of how they influence, shape, and govern direct clinical practice in child protection and casework. Particular attention will be devoted to developing students’ practice skills in safety assessment and safety planning, risk assessment, and permanency planning. Implementation of evidence-based, trauma-informed interventions to promote positive developmental outcomes among the racially/ethnically diverse pool of children and adolescents placed in out-of-home care will also be a focus of attention. Other topics include separation, loss, and identity development; disproportionality and disparity; and self-care in child welfare practice. In the spirit of bridging connections between macro and clinical practice, course content will delve into how direct casework services influence dependency actions in the juvenile courts. How these direct practices or interventions influence case outcomes as reported by a number of federal data reporting systems will also be discussed. A social justice framework will be applied to understand how child welfare policies and organizational services sustain child and family inequalities, especially for historically oppressed and marginalized populations who are disproportionately represented in the child welfare system. Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Clinical and Macro Practice Elective

SWRK 732 Integrative Seminar in Child Welfare
This capstone course in the Child Well-Being and Child Welfare specialization will integrate direct/micro and macro levels of practice; research in child welfare and related fields, as the research relates to all levels of practice; the relationship of child maltreatment and other social problems; and perspectives from several disciplines, including social work, other mental health professions, law, and medicine, as these disciplines address problems of child maltreatment and child welfare. The seminar will highlight issues of social justice, disproportionality - particularly the over-representation of children and families of color in the child welfare system, and disadvantaged populations, including children in general and poor children in particular. Faculty from other disciplines will be features as guest speakers throughout the course. Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: Clinical and Macro Practice Elective

SWRK 736 Building Community Capacity
This course provides an introduction to community organization and community capacity building. The course encompasses strategies, models, and techniques for the creation of organizations, the formation of federations of existing organizations; and coalition-building, all designed to address problems requiring institutional or policy changes or reallocation of resources to shift power and responsibility to those most negatively affected by current socio-economic and cultural arrangements. The course emphasizes development of strategies and techniques to organize low-income minority residents of urban neighborhoods, and to organize disenfranchised groups across geographic boundaries as the first required steps in an empowerment process. One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Macro Practice Elective

SWRK 737 Bioethics in Social Work in Diverse Healthcare Settings
As medical technology develops and evolves, ethical dilemmas are occurring more frequently in many diverse healthcare settings. Social workers play an integral and unique role in bioethics: primarily as patient advocates but also as guardians of autonomy and dignity. This can come into direct conflict with decisions patients, families, and healthcare teams are asked to make on a daily basis in healthcare settings. This course will explore many of the major ethical challenges confronting medicine, social work, and biomedical sciences. We will examine legal, institutional and personal positions, beliefs, and values as we consider and debate opposing arguments. You will be challenged to think and write critically, utilizing philosophical, bioethical, and social work frameworks to structure your arguments and ethical decision making. This course will prepare students to actively participate in ethics committees, mediation, patient/family conferences with diverse populations and interdisciplinary collaborative discussions regarding ethical issues in medical settings. Activity: Lecture
1 Course Unit

SWRK 738 Anxiety and Depression
Anxiety and depression are two of the most common mental disorders seen in social work clients, and frequently they occur concurrently. This course describes the medical and "physical" concomitants and psychosocial factors associated with both conditions and introduces diagnostic and assessment procedures and methods of intervention that social workers use in working with clients with these conditions. The course also considers how culture, social class, gender, and other social differences affect the expression of these disorders and their concomitant treatment. One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective
SWRK 739 Illness and Family Caregiving
This course focuses on social work practice in medicine and the relationships between physical health, social environments, and psychosocial functioning. Student learning will be grounded in the biopsychosocial-spiritual model, and will address a number of domains, including the impact of illness on families over the life course, the impact of a diagnosis on family functioning, medical decision making, coping, health beliefs and spirituality, culture and social class. Classroom content will include conceptualization of illness challenges from the presentation/prevention of symptoms to the end of life, in addition to writing case material, building self-awareness and identifying clinical interface issues, and the compilation of a “clinician’s toolbox” for direct practice on the front lines. Activities will include the unique opportunity to participate in hands-on, interdisciplinary training at the Simulation Center in the School of Nursing.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective

SWRK 740 Strategic Planning and Resource Development for Public and Nonprofit Organizations
Resilient organizations engage in a continuous process of self-review and refocusing. Referred to as “strategic planning,” this process requires the active participation of a broad range of agency “stakeholders” who, in their work together, seek to realign the organization’s goals, structures, and programs to make them more responsive to the changing needs of their service populations. Building on the content of foundation practice foundation courses, “Strategic Planning and Resource Development” has been designed to strengthen the student’s leadership capacity for engaging in strategic planning and resource development practice across a broad range of governmental (GOs) and civil society organizations (CSOs). The importance of organizational flexibility, innovation, and the creation of cooperative public-private partnerships is emphasized throughout the course.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Macro Practice Elective

SWRK 741 Gender & Social Policy
Gender and Social Policy develops an advanced understanding of social policies through a focus on social issues and conditions through the lens of gender, economic and critical theory. The specialized focus on gender and social policy provides students with the opportunity to develop more specialized knowledge about how market dynamics and government policies respond to the needs and risks faced by women. Specific emphasis is placed on utilizing theoretical frameworks to evaluate the intersection between social policy, history and social science in relationship to gender issues. Students are also expected to conduct a policy analysis that includes an evaluation of how current and former social movements surrounding gender issues shaped their policy of interest.
Taught by: Baker
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Policy Option

SWRK 742 Practice with At-Risk Youth
The discourse on juvenile justice in the United States, once driven by themes of treatment and rehabilitation, has been dominated in recent years by vocabularies of punishment and incapacitation. The juvenile court, an enterprise founded by social reformers and the social work profession at the turn of the century to “save children,” is now under severe political and legislative pressure to impose harsher penalties on younger and younger offenders who are increasingly portrayed as violent “super-predators,” while its most vulnerable segments, children and youth, stand in greatest need of what a social service system can offer. Not surprisingly, those most likely to wind up under supervision are economically poor, under-educated, disproportionately of color and disproportionately at-risk to become victims of violent crimes. How does the profession situate itself in this discourse and what are individual social workers to do?
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Clinical and Macro Practice Elective; Option for Home and School Visitor Requirement

SWRK 743 Action Research
Action research is a form of social research that combines research with intervention. It is characterized by a collaborative relationship between the researcher and a client organization that is in an immediate problematic situation. The research process is directed toward addressing the problem situation and producing knowledge that contributes to the goals of social science. Action research is compatible with many of the values and principles of social work. This course also addresses issues of social work ethics and values encountered by the action researcher.
One-term course offered either term
Prerequisite: SWRK 615
Activity: Lecture
1 Course Unit
Notes: Research Option

SWRK 744 Direct Practice Research
This course provides graduate social work students with research knowledge and skills aimed at enhancing their direct practice with clients. The course examines methods of assessment, methods for choosing and evaluating techniques of intervention, methods for determining the effectiveness of practice and the use of research in social work decision-making. A successful outcome of the course will be that students perceive a more positive relationship between research and social work practice and possess a set of tools that they will be able to utilize in their future careers as social workers. The course starts from an assumption that students have some familiarity with research and are primarily engaged in direct practice with individuals, families or groups. Course usually offered in fall term
Prerequisites: SWRK 615, Introduction to Social Work Research
Activity: Online Course
1 Course Unit
Notes: Research Option; Course may be offered online or in classroom setting; Online section is designed for clinical direct practice students only and requires an orientation meeting.
SWRK 746 Political Social Work
This course focuses on the role of social workers and the social work profession in advocacy and the political arena. It examines the methods of advocacy (e.g., case, class, and legislative) and political action through which social workers can influence social policy development and community and institutional change. The course also analyzes selected strategies and tactics of change and seeks to develop alternative social work roles in the facilitation of purposive change efforts. Topics include individual and group advocacy, lobbying, public education and public relations, electoral politics, coalition building, and legal and ethical dilemmas in political action.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Macro Practice Elective
Program Fee

SWRK 748 Microfinance and Women's Empowerment in India
This course examines microfinance and its engagement with marginalized communities such as those in India. It is designed to provide students with an understanding of the phenomena of microfinance and its role in poverty alleviation. By studying the use of self-help groups with NGO facilitation, their impact on women's empowerment will be examined and understood through interaction with women engaged in microfinance activities.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Application required - www.sp2.upenn.edu/global/courses;
Program Fee

SWRK 749 Civil Society Promoting Coexistence in Israel
This course offers a unique opportunity to experience the challenges and complexities of coexistence in Israel, the Holy Land for Christians, Jews and Muslims; a key point of interest and dispute for the international community, and the homeland shared and claimed by both Israelis and Palestinians. The course will focus on activities carried out by nonprofit organizations operating within the Israeli civil society, dealing with issues related to coexistence and to the protection and advancement of the civil and social rights of different populations, with special emphasis on the Arab-Palestinian population in Israel. These activities include educational and social services programs, community work and advocacy activities, aimed at creating dialogues and building coexistence among the different populations in the Israeli society and Palestine.
Course usually offered summer term only
Activity: Seminar
1 Course Unit
Notes: Application required - www.sp2.upenn.edu/global/courses;
Program Fee

SWRK 755 International Social Work: Practicing in the Global South
This interdisciplinary course will introduce students to societal problems in the developing world, familiarize them with global professions in social work, education, public health, etc.; identify numerous strategies and skills social workers and other professionals have used to collaboratively build interventions within the human rights, social welfare, education, health care and sustainable community development arenas. The course will expose students to views of development as they relate to individual, interpersonal, family, community, societal and international change. Students will learn about the history of specific global problems, how cultures affect response, different social services delivery systems and initiatives aimed at resolution. Students will explore a specific development issue within a country and community.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

SWRK 756 Human Sexuality
The aim of this course is to increase students' ability to deal more comfortably with the sexual aspect of human functioning. Readings, written assignments, and classroom presentations are directed to realizing the diversity, complexity, and range of human sexual expression. Current information about sexuality from the biological and physiological sciences is reviewed to increase comfort and skill in discussion and handling of sex-related behavior, personal and societal attitudes will be explored. A variety of sex-related social problems encountered by social workers in family, education, health, and criminal justice settings are discussed. Diagnostic interviewing and treatment methods are presented in role play, group exercises and case studies.
Course usually offered in spring term
Activity: Lecture
1 Course Unit

SWRK 757 Loss through the Life Cycle
This course considers loss as a central theme throughout the life cycle. Content focuses on the physical, psychosocial, spiritual, and cultural aspects of loss, dying and bereavement processes and the interaction among individuals, families and professionals. Students examine historical trends of family, community, and institutional support for the terminally ill and those experiencing traumatic loss and learn ways to advocate for a system of services that supports full decision-making on the part of the client. Course materials, journals, and special projects identify how self and other factors impact service delivery to individuals, families, and communities experiencing loss, including ethical considerations prompted by cost, technology, and end of life issues.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective

SWRK 759 Substance Use Interventions
This course addresses intervention approaches used in social work practice with individuals, families, and groups who misuse addictive substances themselves or are affected by another's misuse. Students learn about addictive substances, models of intervention, how to engage and assess clients, and how to intervene and evaluate the effectiveness of their interventions. The course incorporates theory and research findings on various strategies of intervention.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective; Attendance at first class required
SWRK 760 Mental Health Diagnostics
This course familiarizes students with mental health and mental disorders within the context of the life cycle, viewed from a biopsychosocial perspective. Prevalent categories of psychiatric disorders are considered with respect to their differentiating characteristics, explanatory theories, and relevance for social work practice, according to the DSM and other diagnostic tools. The course includes biological information and addresses the impact of race, ethnicity, social class, age, gender, and other sociocultural variables on diagnostic processes.
Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective; Required for Clinical Practice Concentration

SWRK 765 Supervision and Leadership in Human Services Organizations
This course builds on social work knowledge, values, and skills gained in foundation practice courses and links them to the roles and functions of social workers as supervisors and managers in human service organizations. Course focus is on providing students with an overview of basic supervisory and human resource development concepts so they may be better prepared as professional social workers to enter agencies and provide direct reports (supervisees) with meaningful and appropriate direction, support, and motivation.
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: Clinical and Macro Practice Elective

SWRK 766 Organizational Politics and the Dynamics of Change
This is one of the courses referred to as "The Power Lab at Penn." This course explores how and when organizational change is possible. It is based on two bodies of thought: (1) the behavior of individuals within groups and the behavior of groups within organizations, and (2) the ways conflicts emerge and develop a "life of their own" within human systems. The dilemmas associated with both creating and changing human systems are investigated using a paradoxical lens, spotlighting counterintuitive ideas such as "to change, preserve the status quo," and "to grow, cutback." The effectiveness of the change strategies adopted by the "powerful," "the powerless," and those caught "in the middle" is examined. This intensely experiential course is designed for those providing group and institutional leadership at any level of a human enterprise, managing work groups, chairing committees, serving on special task forces, conducting support groups facilitating groups in clinical settings, etc. Participants will focus on two topics: 1) An in-depth understanding of group dynamics while they are in action; 2) The organizational relationship between groups that are in a powerful position, groups locked in a powerless state and those caught in the middle between the powerful and the powerless. Course Structure: This course has six components: (1) A pre-course discerning process, which consists of a one evening plus one full day Primer workshop; (2) Module 1 which is focused on group dynamics; (3) reading an assigned book and writing a paper based on Module 1 experiences; (4) Module 2 which addresses power relationships among groups with differential resources; (5) reading two assigned books and writing a paper based on Module 2 experiences; and (6) a post-course debriefing. The Primer provides all potential participants with a common conceptual base for engaging in the essential learning and lays out the intellectual foundations of the course.
Course not offered every year
Prerequisites: Permit required; all potential participants are required to attend a Primer class which consists of one evening session AND an all day session. Permits are granted only after students have completed the primer classes.
Activity: Lecture
1 Course Unit
Notes: Students from all graduate programs at Penn are welcome to apply. Contact the NPLD program for more information.

SWRK 768 Social Policy Through Literature
Fiction provides a lens to look at social issues and social policy through the rich and understandable lives of human beings, their challenges, and their triumphs in the holistic context of their worlds. Through appreciation of the human condition as portrayed in literature, students learn to frame issues more precisely and present arguments in compelling and convincing ways, thus enhancing the capabilities of social workers, social policymakers, and other agents to influence policy change.
Course not offered every year
Activity: Lecture
1 Course Unit
SWRK 769 Aging: The Intersection of Policy and Practice
This course examines a variety of social welfare policies that affect the rights and interests of older adults. These include policies related to economic security, health, long term care, and civil rights. In addition, the course reviews the policy-making process with a discussion of the influence of legislative sanctions and case law in establishing aging policy in the U.S. The focus of the course is on critical analysis of the key assumptions driving policy and policy change, e.g. social responsibility vs. individual responsibility. Finally, the course includes a critical examination of the intersection between policy and practice, that is, the influence that policy has on the design of interventions and service delivery practices at the state and local level and the impact of changing policies on communities, providers, and older adults.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Macro Practice Elective; required for students in the PAC program

SWRK 772 Postcolonial Social Work Practice: International Social Welfare in India
In this course, students examine the global welfare system and its engagement with marginalized communities. This six-week course in Kolkata, India, centers around a sex workers’ collaborative in Sonagachi, one of Asia’s largest red light districts. Interviews with the collaborative’s workers and study of their grassroots movement are combined with class discussions and research projects in which students engage with texts on HIV, sex work, feminist postcolonial theory and international social work.
Taught by: Ghose
Course usually offered summer term only
Activity: Lecture
1 Course Unit
Notes: Application Required; Program Fee

SWRK 773 Mental Health Challenges in Childhood and Adolescence
This course will be an opportunity for the student and the instructor to explore the concept “psychopathology” as it has been and is applied to childhood and adolescence. There are some psychopathological challenges that are unique to childhood and some which can manifest themselves throughout childhood into adolescence and adulthood. The social worker/practitioner will encounter a wide range of symptomatic presentations among his/her clients. At this time in the fields of clinical social work, psychology, psychiatry, and psychotherapy there are numerous frameworks available to the practitioner to aid in an understanding of symptoms in children and adolescents. During the next several weeks three conceptual frameworks will be articulated. These three frameworks will elucidate the possible meaning, origin, and/or function of the symptoms and offer to the student a vocabulary with which to engage the situation. At the turn of the 19th century into the 20th century, psychoanalysis emerged in Europe as a method of understanding symptoms from the point of view of internal conflict within the child or adolescent. After World War II in the U.S.A., a model of understanding symptoms from a systemic/cybernetic point of view revolutionized the diagnostic processes involved in working with children and adolescents. Since the late 1980’s, postmodern ideas, primarily from Europe and Australia, have greatly influenced and informed the understanding of psychopathology in children and adolescents. Narrative, social constructivist, and linguistic usage patterns have become a common vocabulary in the discourse on psychopathology. This course is not intended to be a reading of the history of child psychopathology. It is intended to expose the student to the most influential paradigms in the field of child psychopathology.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: MSW Elective

SWRK 774 Program Evaluation
This course introduces students to theoretical and practical aspects of social service program evaluation. Students learn about the design and implementation of all phases of an evaluation, from needs assessment to analysis of findings. Skills such as survey construction and budgeting are introduced. Intensive analysis of existing studies illustrates how evaluations are designed and how findings affect social programs and policy.
One-term course offered either term
Prerequisites: SWRK 615, Introduction to SW Research
Activity: Lecture
1 Course Unit
Notes: Research Option

SWRK 775 Intimate Violence
The purpose of this course is to familiarize students with the definition, theories, causes, processes, consequences, and social interventions in intimate violence. The course will attempt to provide insight on the phenomenon of intimate violence by examining the ways in which it affects survivors, perpetrators, and their children. This will be accomplished by reviewing the current research as well as by exploring how intimate violence is constructed by the participants on the personal, interpersonal, and social structural level.
Course not offered every year
Activity: Lecture
1 Course Unit
SWRK 777 Cognitive Behavioral Therapy
This Cognitive Behavioral Therapy course will be taught in a one-week intensive class Monday-Friday 9am-5pm. Students are expected to start a pre-course assignment approximately 2 months prior to the first day of the course. Students will receive an information request from the instructor during course registration and must reply in a timely fashion. Cognitive Behavioral Therapy (CBT) is the world’s most effective, empirically-based psychotherapy with strong scientific evidence. CBT is a collaborative and empowering psychotherapy that educates and helps clients to motivate themselves, set goals, develop, and implement treatment plans to reach those goals. This experiential/didactic advanced clinical skills course will present a CBT model to evidence-based practice that can serve as a conceptual framework for clinical applications to a wide variety of presenting problems and populations. The purpose of this course is to introduce graduate students to the theory of CBT and to begin to apply the basic principles through the stages of a self-directed case.
One-term course offered either term
Prerequisite: Completion of MSW Foundation year curriculum or equivalent
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective

SWRK 778 Dialectical Behavioral Therapy
In this course we will examine the underlying theories, empirical foundations, and fundamental skill sets associated with dialectical behavioral therapy (DBT). Students will be expected to participate in role plays, lead mindfulness exercises, and carry out chain analyses.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective

SWRK 780 Policy and "Difference" in Postmodernity
Social constructions of "difference" permeate the institutions, spaces, and assumptions of our society. These social constructions include but are not limited to the racialized, gendered, sexed, classed, and dis/abled constructions of the body. By leaning on postmodern thinkers such as Iris Marion Young, Pierre Bourdieu, Judith Butler, Jacques Derrida, Ernesto Laclau, and Michel Foucault, this seminar course will begin by engaging the questions of what is "difference" and how is "difference" discursively constructed and reproduced in society. Using a postmodern lens, the remainder of the course will engage various social science texts that deal with the varieties of "difference" (i.e. race, gender, class, sexuality) and the explicit and/or implicit policy implications of these works. Thus, we will critically engage policies such as welfare, affirmative action, economic policies of taxation, and same-gender marriage, among others. The underlying questions throughout the course will be to what extend does social policy enable the possibilities of freedom, justice, and democracy for the "Other", the deviant, the abject, the marginalized, those of assumed "difference"? And, to what extent does policy constrain those possibilities at the same time?
Taught by: Dixon-Roman
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Policy Option

SWRK 781 Qualitative Research
Qualitative research encompasses a variety of methods that enable the researcher to enter into the "lived experience" of research participants. These methods are particularly sensitive to the voices of populations whose perspectives are silenced by dominant societal discourses. The course begins by giving attention to underlying philosophical issues and traditions of qualitative research and proceeds to examine qualitative research design, methods of data collection, strategies to ensure rigor, data analysis, and presentation of findings. Students will learn about research interviewing, focus groups, and participant observation and ways in which qualitative research can be used to inform and evaluate social work practice and programs. Students will have the opportunity to apply qualitative research methods to in-class activities and individual or group projects.
Course usually offered in fall term
Prerequisites: SWRK 615, Introduction to Social Work Research
Activity: Lecture
1 Course Unit
Notes: Research Option

SWRK 783 Advanced Mental Health Practice with U.S. Veterans
Although this course is open to all students, it is designed for students in the clinical concentration and is required for students in the Cohen Veterans Network Scholars program. The course will focus on clinical knowledge and evidence-based practice skills for common mental health problems in veteran setting. The course will introduce students to the assessment and treatment of Post-Traumatic Stress Disorder (PTSD), Depression and Anxiety Disorders, Substance Abuse, Military Sexual Trauma (MST) and Suicide Assessment and Management among veteran populations. Other topics may include cultural competency, homelessness, and combat stress disorders. Since this is a seminar course, some classes will be taught by social workers/psychologists from the Veterans Hospital in Philadelphia and the Cohen Veterans Outpatient Clinic.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective; Required for Cohen Veteran Network students

SWRK 785 Criminal Justice Policies: Implications for Social Work
The United States prison population has risen more than three hundred percent in the last three decades. More people are currently incarcerated than at any other point in the history of the United States, and that of the world. This unprecedented period of incarceration has gone largely invisible although it represents one of the greatest social epidemics in the history of the United States. This course provides a critical analysis of the criminal justice system in the United States from a historical and contemporary perspective. It examines the implications of significant criminal justice policies such as the Rockefeller Drug Laws, 3-Strike Legislations, and Mandatory Minimums on the current state of incarceration, and the phenomenon of "Reentry" and "Recidivism". The intersections of criminal justice and social work practice are unmistakable when examining staples of social work practice such as homelessness, mental health and substance abuse, thus the course is intended to facilitate a more informed/holistic practice for all social work students.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Policy Option
SWRK 786 Social Work Practice & Trauma
This course integrates trauma theory and practice and expands practice knowledge to include the treatment and assessment of the survivors of trauma. Emphasis is placed on differentiating PTSD from Complex Trauma in order to identify appropriate, evidence-based intervention strategies. Topics covered in the course include an historical overview of the development of our understanding of trauma and the exploration of various types of trauma including war trauma, domestic violence, childhood sexual and physical abuse, natural disasters, the experiences of political refugees and organizational trauma. Among the interventions covered in this course are CBT, EMDR, group and psychodynamic treatment. Students will consider issues that affect those treating the survivors of trauma, such as vicarious trauma, and will explore approaches to self-care. This is an advanced clinical course. Through assignments and class discussions, students are encouraged to use their experiences in the field to deepen their understanding of the material covered in the course.
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective

SWRK 787 Social Impact Strategy, Analysis, and Leadership
Around the world, new types of organizations are emerging, advances in technology and access to information continue, and there is a growing recognition that all sectors - business, public, and private nonprofit - have a role to play in creating social impact. While the desire to create social impact is clear, the field is just beginning to grapple with ways to translate these aspirations into real and meaningful change. Since 2006, Penn's Center for High Impact Philanthropy has been a pioneer in developing approaches for identifying, assessing, and growing opportunities for social impact. Team-taught by the center for High Impact Philanthropy, the course will be directed by the Center's founding executive director, Katherina 'Kat' Rosqueta, and will include guest lectures from other leading faculty and social impact innovators working in Philadelphia and around the world. Through hands-on practice, team projects, and highly interactive case-based discussions, students will gain the skills needed to: analyze opportunities for impact and potential for impact, including how to determine the scale and scope of an opportunity and how to use the tools of social impact economics to determine the cost implications of the opportunity; confidently address the strategic issues and key tasks faced by managers/leaders with a social impact mandate; influence others towards social impact by leveraging relevant research and real-world examples of effective communication and stakeholder management; and apply their research and effective storytelling skill to present their impact analysis in projects using different formats (e.g. video short, venture capitalist/donor pitch, policy brief).
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective and Macro Practice Elective; Application required

SWRK 788 Harm Reduction on the Borders: Substance Use and HIV Treatment in Puerto Rico
This course examines the U.S.-based substance use and HIV treatment systems, and its engagement with injection drug users in Fajardo, Puerto Rico. It is designed to provide the students with an understanding of the political economy of harm reduction initiatives, and the manner in which it is shaped by the complicated relationship between Puerto Rico and the U.S. Students are expected to gain an understanding of Puerto Rico's welfare environment, the role of social welfare and social workers in such a context, and the interweaving of social control and social change embedded in welfare initiatives in "borderlands" such as Fajardo. During the four week course in Fajardo, students will complete a placement in a needle exchange program, and engage with texts on HIV, substance use, postcolonial theory and international social work.
Course usually offered summer term only
Activity: Seminar
1 Course Unit
Notes: Clinical Practice Elective and Macro Practice Elective; Application required

SWRK 792 Psychodynamic Theory
The purpose of this course is to review the evolution of psychodynamic theory and consider key concepts in psychoanalysis, ego psychology, object relations theory, self-psychology, attachment theory, relational and intersubjective theories and current findings in cognitive neuroscience. Participants will explore human psychological functioning as explained by these various psychodynamic theories and through the biopsychosocial lens that informs social work practice. Students will examine how external factors such as race, class, gender, culture and biology are interwoven with often unconscious, internal psychological determinants, creating the complexities of human behavior that challenge us in our clinical work. Case presentations by students, the instructor and guest lecturers will demonstrate how concepts from psychodynamic theory can be applied to social work practice with diverse clients in varied settings.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective
SWRK 793 Global Health and Health Policy
This participatory interdisciplinary seminar course examines contemporary issues in public health policy and global health. The organizing framework is social determinants of health. We consider evidence that inequalities in education, income, and occupation influence health status, and the policy dilemma that broad interventions to improve population health may increase health disparities. We critically examine whether prevention is always better than cure, and what modern medicine has to offer in terms of health. We explore the public policy process in health using the "tobacco wars" as a case example, of how politics, policy, law, commercial interests, and research intersect to affect the public's health. We examine whether global health is in a state of decline, and the extent to which failures in public health, public policy, and foreign policy have contributed to increasing threats to world health. Likewise we will examine the potential for greater integration of health into foreign policy to create global infrastructure upon which to advance health. We will examine the global health workforce and the impact of widespread global migration of health professionals on receiving and sending countries. There are no prerequisites. The course is designed for graduate students in the social and behavioral sciences, health professions, public health, business and law. Advanced undergraduate students will be admitted with permission.
Course not offered every year
Activity: Lecture
1 Course Unit

SWRK 794 Practice with Older Adults and Families
This course focuses on practice with older adults and families within a life course and resiliency perspective. It examines the nature of the aging process, needs and life issues, the ways in which persons adapt to changes, and the ways in which interventions may assist with these adaptations. Students learn assessment, case management, and intervention skills, including the use of rapid assessment and diagnostic tools, needed to work effectively with older populations and family caregivers in a variety of community-based and institutional settings. The course emphasizes evidence-based practices that enhance quality of life, dignity, respect for differences, and maximum independent functioning.
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Clinical Practice Elective; Required for Penn Aging Concentration (PAC) students

SWRK 796 Family Economic Mobility
In this course, the experiences and voices of mothers, fathers, children, employers, children's school teachers, human service workers, job training providers, policymakers, and others in cities across America graphically illustrate the "real life" economic challenges facing today's families and organizations. These people, organizations, and policies dramatically show how economic, educational, and cultural practices and conditions intersect to perpetuate inequality among low-income and even many middle-income working families. The labor market, welfare and workforce programs, public schools and government are some of the institutions implicated in this intersection. In the course, notions such as "work ethic," "family-friendly workplace," "good jobs" and "hard work pays off" are deconstructed in terms of their meaning for today's families, organizations and policies. At base, this course examines occupational mobility in America from multiple perspectives within the broad framework of capitalism, democracy, race, ethnicity, and gender. Students read classic and contemporary literature from occupational social work, sociology, cultural anthropology, and political science to explore generative roles and directions for "meso-oriented" clinical, macro, and policy professionals.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Policy Option

SWRK 797 Social Policy in Revolutionary Cuba (1959-2017)
Cuba represents one of the world's long-standing institutionalized revolutions whose narrative and policies have changed from a strong nationalism yearning for independence, to an alignment with communism's ideology and modus operandi, to a nostalgic, post-Soviet Union "socialism" ruled by a binary, state-controlled capitalism. In addition to the myriad of social and political changes affecting the island, the transition of leadership from Fidel Castro to his brother, Raúl, and the death of the former in 2016, has put into question the theoretical pillars of the Revolution, thus undermining its initial legitimacy. This course is designed to provide students with the critical and analytical tools to dissect Cuban revolutionary politics, policies, and identity mutations within the island's historical trajectory. We will begin by critically reviewing key points of diplomatic and historical relationships between the U.S and Cuba, followed by an analysis of the notion of independence - upon which Castro relied to gather massive support - in the context of the 60's debates on decolonization and underdevelopment. In addition, we will delve into the theoretical foundations of the Revolution focusing, among other texts, on the literature by Cuba's "founding father" Jose Marti, who deeply influenced the Spanish-American war (1898)'s outcomes as well as Fidel Castro's vision for Cuba. Throughout the course, students will also have the opportunity to critically read and discuss main Cuban social policies such as its famous Literacy Campaign, and other Education, Housing, Cultural, Health, and Immigration policies, as well as the island's complex relationship with technological development and communications. Finally, we will study identity and race dynamice, which are inextricably embedded in Cuba's political landscape.
Course usually offered in spring term
Activity: Lecture
0 Course Units
Notes: Application deadline: 11/20/17 at 5pm; Class dates in Havana: May 17-May 31; Pre-departure sessions at Penn: April (TBA); application available at: www.sp2.upenn.edu/global/courses
SWRK 798 Advanced Topics
Titles and Topics vary. See department website for descriptions: https://www.sp2.upenn.edu/academics/master-of-social-work/academics/course-descriptions/
One-term course offered either term
Activity: Lecture
1 Course Unit

SWRK 799 Independent Study
Independent studies provide a flexible opportunity for standing faculty and students to work together in pursuing a topic of special interest that is not sufficiently covered by other courses in the curriculum. The content of independent studies is highly specialized and, as such, requires a plan of study developed jointly by the student(s) and the supervising standing faculty member. Part-time faculty members are not eligible to offer independent studies.
Activity: Independent Study
1 Course Unit

SWRK 803 History and Philosophy of Social Welfare
This seminar traces the evolution of social welfare from ancient to modern times focusing on its implications for the development of contemporary social welfare in the United States. The course examines the development of social welfare systems and the underlying philosophies in the context of the social, economic, political, and cultural environments in which they emerged. Topics include the evolution of modern conceptions of the "welfare state," the role of public, private and voluntary sectors in the social services, trends in social and family history and their relationship to social welfare, the professionalization of social work, and methods of historical and social policy analysis.
Taught by: Stern
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: PhD students only

SWRK 804 Methods of Inquiry: Quantitative Research Methods
The purpose of this course is to teach the basics of practice research, with an emphasis on intervention research. This course will focus on research ethics, building a conceptual framework, source credibility, question and hypothesis formulation, design, sampling, measurement, and scale construction and selection. Special emphasis will be placed on the development of designing feasible and practical research studies to answer questions of importance to social work practice. The course will emphasize the selection and development of outcome measures, intervention manuals, and fidelity measures. It will closely examine the use and development of practice guidelines, evidence-based practice and meta-analytic procedures.
Course usually offered in fall term
Prerequisites: Must be enrolled in D.S.W. program.
Activity: Online Course
1 Course Unit

SWRK 805 Methods of Inquiry: Qualitative Research Methods
This course will cover the essentials of qualitative research. Students will learn how to "situate themselves" in the research process so as to best capture the lived experience of the subjects under investigation. The course will explore the appropriate use of intensive interviews, grounded theory and ethnography. Mixed methods that employ both qualitative and quantitative approaches, will also be covered.
Course usually offered in spring term
Prerequisites: SWRK 804. Must be enrolled in D.S.W. program
Activity: Online Course
1 Course Unit

SWRK 811 Social Theory
Course reading consists of the original works of theorists who offer classical, contemporary and postmodern perspectives on social thought, social interaction and issues germane to social welfare. Through intensive examination of multiple theoretical frameworks, students are expected to increase their analytical and critical orientation to theory. This more nuanced understanding about epistemology, underlying assumptions, and theory construction can then be used to inform the student's substantive field of study and methodological orientation to research. This course is conducted in mixed lecture-seminar format. Students have the opportunity to practice pedagogical techniques and exercise class leadership.
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: Required for PhD Program

SWRK 812 Clinical Theory I
The purpose of this course is to broaden and deepen participants' mastery of several theories of development, personality, and behavior that have contributed to social work's knowledge base across the decades and continue to inform clinical social work epistemology today. Drawing primarily from original sources, we will consider key assumptions, constructs, and propositions of each theory in terms of its congruence with social work's principles, values, and mission and in relation to the profession's person-in-environment perspective. In this first semester, we will study the evolution of theories central to psychodynamic thought, from Freud's early biological model of the mind, through various relational perspectives, to contemporary work in the fields of attachment and interpersonal neurobiology. This examination will constitute a case study of the manner in which theories are socially constructed and will lay the foundation for critical inquiry into the social and political biases inherent in the Western European intellectual tradition from which most theories of human behavior have emerged.
Course usually offered in fall term
Prerequisites: Must be Enrolled in D.S.W. program
Activity: Online Course
1 Course Unit

SWRK 813 Clinical Theory II
The purpose of this course is two-fold. First, the course is aimed at continuing to broaden and deepen students' mastery of theories of behavior and cognition as related to clinical practice. The course is designed to segue from psychodynamic theories from last semester into behavioral and cognitive theories this semester. The history and fundamentals of behavioral theory, and its iterations will be reviewed to ground you firmly in a tradition that emphasizes empirical research. We will critically analyze and discuss the evidence and its application, and you will have opportunities to deepen or expand your knowledgebase of trending approaches to try in your practice either through the material presented or through your choice of the final assignment. Case conceptualizations are emphasized as critical to informing behavioral and cognitive interventions. The second aim of the course involves using discussion and the research literature to critically examine the effectiveness and feasibility of ascribing to a single theoretical orientation. As an alternative, a more process-oriented approach through psychotherapy will be explored.
Course usually offered in spring term
Prerequisites: SWRK 812. Must be enrolled in D.S.W. program.
Activity: Online Course
1 Course Unit

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SWRK 814 Applied Statistics
This course is designed to provide students with a range of statistical methods and applications used for research in human services and clinical practice settings. Topics covered include types of measurement and variables, and basic concepts and techniques for exploring and categorizing data, for generalizing data from sample to population and tests of significance. An emphasis will be placed on the practical applications of data to address social work practice issues. Students will learn how to choose and apply statistical tools to data sources, when and how statistical tools can be used to analyze data, and how to interpret others’ quantitative studies. Students will gain hands-on experience in using windows-based statistical software to manage and analyze quantitative data.
Prerequisites: Must be enrolled in D.S.W. program
Activity: Online Course
1 Course Unit

SWRK 815 Dissertation Seminar I
This seminar is designed to prepare participants for dissertation proposal writing and defense. Each component of this workshop moves the student closer to the two culminating assignments: a concisely crafted and well-supported 15-25 page written draft of the dissertation proposal and a presentation of the proposal with accompanying Powerpoint.
Activity: Online Course
1 Course Unit

SWRK 816 Dissertation Seminar II
This seminar continues the student’s dissertation work beyond the proposal. Under the direction of the dissertation chair and committee, the student begins the process of collecting and analyzing data in preparation for the final write-up and defense of the dissertation.
Prerequisites: SWRK 815. Must be enrolled in the DSW program.
Activity: Online Course
1 Course Unit

SWRK 852 Social Work Research
This is the foundation course in social work research. It deals with the nature of scientific inquiry; theory and its relation to research design and hypothesis testing; and various models of data collection, sampling, and analysis of research and is supported in following personal interests within the structure of ethical scientific research. Each student prepares an original study which demonstrates integration of the semester’s work. Students learn to work on their own. Students completing this class are prepared for more advanced coursework in research.
Taught by: Solomon
Course usually offered in fall term
Prerequisites: Completion of concurrent enrollment in a course on introductory Social Statistics.
Activity: Lecture
1 Course Unit

SWRK 855 Advanced Research Methods
The methodology of accountability research in human service programs is studied. Emphasis is placed on social program evaluation, idiographic research, and secondary data analysis in policy research as specialized methods of social work research. Students undertake a laboratory experience in an ongoing program evaluation project.
Course usually offered in spring term
Prerequisites: SWRK 852 and Introduction to Statistics
Activity: Lecture
1 Course Unit
Notes: PhD course

SWRK 861 Policy Analysis
This course examines alternative models of policy development and applies them to current issues in social welfare. It emphasizes frameworks for policy research and secondary analysis of governmental data. Topics include: race, class, and sex in policy outcomes; major social welfare programs; and the design, implementation, and evaluation of social service systems.
Course usually offered in spring term
Prerequisite: Must have successfully completed a course in multivariate statistics
Corequisite: PhD course
Activity: Lecture
1 Course Unit

SWRK 900 Clinical DSW
Topics vary; see department for current course descriptions
Course offered summer, fall and spring terms
Prerequisites: Must be enrolled in D.S.W. program
Activity: Seminar
0 Course Units

SWRK 901 Proseminar
This course is a weekly, 90-minute (.5 course unit) proseminar. The course contains two main components: a research seminar (i.e., faculty and student presentations of their in-progress research) and skills training (e.g., how to write an abstract, software demonstrations). The two are interwoven throughout the academic year (e.g., 2 weeks of the month devoted to the research seminar and 2 weeks of the month devoted to skills training). The proseminar is required of all students until they successfully defend their dissertation proposal.
One-term course offered either term
Corequisite: PhD course
Activity: Lecture
0.5 Course Units

SWRK 902 Trauma-informed Social Work Practice
The majority of clients who present to a wide variety of social services have been exposed to adversity and trauma, often beginning in childhood. As a result, the current standard of care requires that human service delivery systems of all kinds need to be "trauma-informed." This course will explore what that actually means, since administering "trauma-specific treatment" alone is not sufficient to encompass the complexity of the multigenerational, widespread problems that confront us in the world around us. Based on an understanding that our organizations are living systems, students will draw parallels between the individual experience of trauma and the organizational aspects of trauma and loss. Using these parallel processes as a basis, students will explore a trauma-informed, parallel process of organizational recovery called the "Sanctuary Model.”
Prerequisites: Must be enrolled in D.S.W. program
Activity: Online Course
1 Course Unit
**SWRK 903 Relational Theory**

This course will introduce the relational turn in theories of developments and psychotherapy. Relational theory emerged in the epistemological shift to postmodernism and social constructionism, characterized by concepts of knowledge as perspectival, constructed increased skill in developing a literature search, 3) developing a capacity to create operational hypotheses or questions, 4) developing a research design, and 5) designing a data analysis and interpretation plan. The aim of this course is to identify the shared principles of relational theories and apply these principles to clinical social work practice. Students will critically evaluate and compare and contrast relational psychoanalysis with relational-cultural theory. Students will evaluate the viability of relational theory in the field of clinical social work and consider the application of relational theory beyond the therapy room to the supervisory, agency and teaching contexts. The focus on case studies as examples will be key to understanding the clinical applications of the various medications we will discuss.

Prerequisites: Enrolled in the D.S.W. program

Activity: Online Course

1 Course Unit

**SWRK 904 Teaching**

This class will focus on classroom dynamics, class culture and instructor skills using an organismic model in which the class has a life of its own and is capable of growth and development. In addition, students will learn underlying theories, research, practice wisdom, etc. that we need to communicate to our students. The course should be helpful in thinking about issues that are central to effective teaching regardless of the practice models you present to your students or the content of courses including policy, research, etc. Students will have an opportunity to share their current or past teaching with a particular emphasis on those difficult moments when they had second thought about classroom teaching as a career. Examples will be used to help illustrate the theoretical content and the readings and bring the ideas to life as they address the real day-to-day issues we all face in teaching.

Prerequisites: Enrolled in the D.S.W. program

Activity: Online Course

1 Course Unit

**SWRK 905 Family-Based Interventions**

This advanced-level course focuses on social work interventions with children, couples and families. Theories and research that ground family-based interventions are explored and interrogated. Through case conceptualizations, role plays and other in-vivo exercises, students will practice techniques for assessment and treatment of family systems.

Prerequisites: Must be enrolled in D.S.W. program

Activity: Online Course

1 Course Unit

**SWRK 968 Social Welfare and Social Economics**

This course examines the social welfare aspects of major economic decisions in the United States. Particular attention is paid to exploring the implications of social choices in relation to the goals of the achievement of increased equity and equality in the distribution of income and power, the elimination of unemployment, and the control of inflation. The growth of public welfare programs and the base of funding for social services are examined in terms of the nation's economic and political objectives.

Activity: Lecture

1 Course Unit

**SWRK 995 Doctoral Dissertation**

Doctoral Dissertation

Activity: Dissertation

1 Course Unit
SOCIOLOGY (SOCI)

SOCIO 001 Introduction to Sociology
Sociology provides a unique way to look at human behavior and social interaction. Sociology is the systematic study of the groups and societies in which people live. In this introductory course, we analyze how social structures and cultures are created, maintained, and changed, and how they affect the lives of individuals. We will consider what theory and research can tell us about our social world.
For BA Students: Society Sector
Taught by: Imoagene, Jacobs, Lareau, Wilde, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCIO 002 Social Problems and Public Policy
This course approaches some of today's important social and political issues from a sociological vantage point. The course begins by asking where social problems come from. The main sociological perspectives of Marx, Weber and Durkheim are developed in connection with the issues of inequality, social conflict and community. We then turn to the social construction of social problems by examining how various issues become defined as social problems. This involves a consideration of the role of the media, social experts and social movements. The last section of the course considers how social problems are addressed. Here we discuss the relative strengths and weaknesses of government programs and regulations versus market-based approaches. We also discuss the role of philanthropy and volunteerism. Finally, we consider the risk of unanticipated consequences of reforms. Along the way, we will consider a variety of social issues and social problems, including poverty, immigration, crime, global warming, and education.
Taught by: Bosk, Jacobs
Course not offered every year
Activity: Seminar
1 Course Unit

SOCIO 003 Deviance and Social Control
A sociological analysis of the origins, development, and reactions surrounding deviance in contemporary society. Topics include labeling theory, stigma, social organization, tradition, social power, crime, sexual deviance, drug use, and racism. Theoretical and methodological issues will be discussed and evaluated.
For BA Students: Society Sector
Taught by: Bosk
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCIO 004 The Family
Most men and women get married during their lifetimes. In addition, most men and women become fathers and mothers at some point. This class presents social science evidence on the family. For example, it shows how "greedy" workplaces, which require long work hours, create work-family conflicts for husbands and wives. The class also illuminates how men and women have different experiences within families. The lectures will also examine how economic inequality shapes family life. Students will have the opportunity to apply key concepts to daily life. All are welcome.
For BA Students: Society Sector
Taught by: Lareau, Gonalons
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCIO 005 American Society
What is American Society? The literary critic, Leslie Fielder once wrote,"...to be an American...precisely to imagine a destiny rather than to inherit one; since we have always been, insofar as we are Americans at all, inhabitants of myth rather than history..." In this course we will explore the elements of the myth that form the basis of the civil religion as well as the facts on the ground that contradict our conceptions of American Society. Examples of mythic elements and their contradiction that we will explore are: A nation founded to pursue liberty and freedom yet allowed slavery, equality of opportunity and persistent structural inequality, and a welcoming of the Immigrant coupled with a suspicion of the outsider.
For BA Students: Humanities and Social Science S
Taught by: Bosk
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Also fulfills General Requirement in Society for Class of 2009 and prior

SOCIO 006 Race and Ethnic Relations
The course will focus on race and ethnicity in the United States. We begin with a brief history of racial categorization and immigration to the U.S. The course continues by examining a number of topics including racial and ethnic identity, interracial and interethnic friendships and marriage, racial attitudes, mass media images, residential segregation, educational stratification, and labor market outcomes. The course will include discussions of African Americans, Whites, Hispanics, Asian Americans and multiracials.
Taught by: Charles, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit
SOCI 007 Population and Society
The course serves as an introduction to the study of population and demography, including issues pertaining to fertility, mortality, migration, and family formation and structure. Within these broad areas we consider the social, economic, and political implications of current trends, including: population explosion, baby bust, the impact of international migration on receiving societies, population aging, racial classification, growing diversity in household composition and family structure, population and environmental degradation, and the link between population and development/poverty.
For BA Students: Society Sector
Taught by: Flippen, Kohler, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 010 Social Stratification
In this course we study the current levels and historical trends of inequality in the United States especially in cross-national comparative perspective. We discuss causes and consequences of inequality as well as various policy efforts to deal with inequality. Topics include intergenerational social mobility, income inequality, education, gender, race and ethnicity among others.
For BA Students: Society Sector
Taught by: Jacobs, Staff
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 011 Urban Sociology
This course is a comprehensive introduction to the sociological study of urban areas. This includes more general topics as the rise of cities and theories urbanism, as well as more specific areas of inquiry, including American urbanism, segregation, urban poverty, suburbanization and sprawl, neighborhoods and crime, and immigrant ghettos. The course will also devote significant attention to globalization and the process of urbanization in less developed counties.
Taught by: Flippen
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 012 Globalization
This course analyses the current state of globalization and sets it in historical perspective. It applies the concepts and methods of anthropology, history, political economy and sociology to the analysis and interpretation of what is actually happening in the course of the semester that relates to the progress of globalization. We focus on a series of questions not only about what is happening but about the growing awareness of it and the consequences of the increasing awareness. In answering these questions we distinguish between active campaigns to cover the world (e.g. Christian and Muslim proselytism, free-trade agreements, democratization) and the unplanned diffusion of new ways of organizing trade, capital flows, tourism and remote interaction via the Internet. The body of the course deals with particular dimensions of globalization, reviewing both the early and recent history of each. The overall approach is historical and comparative, setting globalization on the larger stage of the economic, political and cultural development of various parts of the modern world. The course is taught collaboratively by an anthropologist, an historian, and a sociologist, offering the opportunity to compare and contrast distinct disciplinary approaches. It seeks to develop a general social-science-based theoretical understanding of the various historical dimensions of globalization: economic, political, social and cultural.
For BA Students: Humanities and Social Science S
Taught by: Guillen, Spooner
Course usually offered in fall term
Activity: Lecture
1 Course Unit

SOCI 027 Introduction to Africana Studies
The aim of this course is to provide an interdisciplinary examination of the complex array of African American and other African Diaspora social practices and experiences. This class will focus on both classic texts and modern works that provide an introduction to the dynamics of African American and African Diaspora thought and practice.
For BA Students: Humanities and Social Science S
Taught by: Charles, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 033 Technology & Society
Technology plays an increasing role in our understandings of ourselves, our communities, and our societies, in how we think about politics and war, science and religion, work and play. Humans have made and used technologies, though, for thousands if not millions of years. In this course, we will use this history as a resource to understand how technologies affect social relations, and conversely how the culture of a society shapes the technologies it produces. Do different technologies produce or result from different economic systems like feudalism, capitalism and communism? Can specific technologies promote democratic or authoritarian politics? Do they suggest or enforce different patterns of race, class or gender relations? Among the technologies we'll consider will be large objects like cathedrals, bridges, and airplanes; small ones like guns, clocks and birth control pills; and networks like the electrical grid, the highway system and the internet.
For BA Students: Society Sector
Course usually offered in spring term
Activity: Lecture
1 Course Unit
SOCI 041 Freshman Seminars
Two terms. Student may enter either term.
Activity: Seminar
1 Course Unit
Notes: Freshman Seminars. Topics vary from semester to semester. See Freshman Seminar and Sociology websites for current offerings.

SOCI 100 Introduction to Sociological Research
One of the defining characteristics of all the social sciences, including sociology, is a commitment to empirical research as the basis for knowledge. This course is designed to provide you with a basic understanding of research in the social sciences and to enable you to think like a social scientist. Through this course students will learn both the logic of sociological inquiry and the nuts and bolts of doing empirical research. We will focus on such issues as the relationship between theory and research, the logic of research design, issues of conceptualization and measurement, basic methods of data collection, and what social scientists do with data once they have collected them. By the end of the course, students will have completed sociological research projects utilizing different empirical methods, be able to evaluate the strengths and weaknesses of various research strategies, and read (with understanding) published accounts of social science research.
Taught by: Armenta, Koppel, Park, Smith, Wilde
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 101 Bioethics
This course will take an historical approach to the development of modern bioethics, which is the study of ethical issues in medicine and the life sciences. The first part of the course will be devoted to an introduction to the standard principles of academic bioethics and the way they have structured the field over the last 35 years. We will then consider topics to which the principles have long been applied, such as the care of gravely ill newborns, death and dying, and the ethics of research involving human subjects. The last part of the course will address more recent life sciences policy areas including genetics, cloning, stem cells, biodefense, and neuroscience in relation to national security. Throughout the course I will emphasize the interplay between the development of bioethics and its cultural context.
Taught by: Moreno
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 103 Asian Americans In Contemporary Society
This class will introduce you to sociological research of Asian Americans and engage in the "model minority" stereotype. We begin by a brief introduction to U.S. immigration history and sociological theories about assimilation and racial stratification. The class will also cover research on racial and ethnic identity, educational stratification, mass media images, interracial marriage, multiracial, transracial adoption, and the viability of an Asian American panethnic identity. We will also examine the similarities and differences of Asian Americans relative to other minority groups.
For BA Students: Society Sector
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 105 Industrial Relations and Human Resource Management
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 110 The Rich and The Poor
Who is rich? Who is poor? This course examines how wealth and income are distributed in the United States, and how its distribution affects individuals, groups, institutions, and society. We will gain a fuller understanding of what social class is and discuss how it affects all aspects of life, including: quality of schooling, access to employment, child rearing, and even tastes, preferences, and identity.
Taught by: Armenta, Lareau, Staff
Course not offered every year
Activity: Lecture
0 Course Units

SOCI 111 Health of Populations
This course is designed to introduce students to the quantitative study of factors that influence the health of populations. Topics to be addressed include methods for characterizing levels of health in populations, comparative and historical perspectives on population health, health disparities, health policy issues and the effectiveness of interventions for enhancing the health of populations. These topics will be addressed both for developed and developing world populations. The course will focus on specific areas of health and some of the major issues and conclusions pertaining to those domains. Areas singled out for attention include chronic diseases and their major risk factors, such as smoking, physical activity, dietary factors and obesity. Throughout the course, the focus will be on determining the quality of evidence for health policy and understanding the manner in which it was generated.
Taught by: Elo, Kohler
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 112 Discrimination: Sexual and Racial Conflict
This course is concerned with the structure, the causes and correlates, and the government policies to alleviate discrimination by race and gender in the United States. The central focus of the course is on employment differences by race and gender and the extent to which they arise from labor market discrimination versus other causes, although racial discrimination in housing is also considered. After a comprehensive overview of the structures of labor and housing markets and of nondiscriminatory reasons (that is, the cumulative effects of past discrimination and/or experiences) for the existence of group differentials in employment, wages and residential locations, various theories of the sources of current discrimination are reviewed and evaluated. Actual government policies and alternatives policies are evaluated in light of both the empirical evidence on group differences and the alternative theories of discrimination.
For BA Students: Society Sector
Taught by: Madden
Course not offered every year
Activity: Lecture
1 Course Unit
SOCI 117 Sociology of Work
The material world is shaped and maintained through work, but so is the social world. How work is organized, allocated, and rewarded determines the opportunities people have for developing their own capacities, the kinds of ties they will have with others, and how much control they will have over their own lives. We will consider various sociological perspectives on work and compare alternative ways of organizing work, with a focus on the contemporary United States.
Taught by: Jacobs, Leidner
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 118 Sociology of Bioethics
The Sociology of Bioethics explores the sociological approach to bioethics. The Sociology of Bioethics is not a course in bioethics itself; rather than discussing the merits of a position (Is assisted suicide ethical?), we will ask how the debate has been framed, who is promoting which arguments, why the debate has arisen now, and how the issue is reflected in policy. In order to do so we will make use of social science research, along with philosophical treaties, legislation, and the popular media. The course is also not designed as a comprehensive treatment of the field; it will focus instead on choice topics that we will explore in depth. Our goal is to understand the nature of the bioethics profession and its modes of argumentation, and to explore the cultural, social, political, and professional underpinnings of bioethical debates.
Taught by: Bosk
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 120 Social Statistics
This course offers a basic introduction to the application/interpretation of statistical analysis in sociology. Upon completion, you should be familiar with a variety of basic statistical techniques that allow examination of interesting social questions. We begin by learning to describe the characteristics of groups, followed by a discussion of how to examine and generalize about relationships between the characteristics of groups. Emphasis is placed on the understanding/interpretation of statistics used to describe and make generalizations about group characteristics. In addition to hand calculations, you will also become familiar with using PCs to run statistical tests.
Taught by: Allison, Charles, Guillot, Koppel, Park, Parrado
One-term course offered either term
Activity: Recitation
0 Course Units

SOCI 122 The Sociology of Gender
Gender is an organizing principle of society, shaping social structures, cultural understandings, processes of interaction, and identities in ways that have profound consequences. It affects every aspect of people's lives, from their intimate relationships to their participation in work, family, government, and other social institutions and their place in the stratification system. Yet gender is such a taken for granted basis for differences among people that it can be hard to see the underlying social structures and cultural forces that reinforce or weaken the social boundaries that define gender. Differences in behavior, power, and experience are often seen as the result of biological imperatives or of individual choice. A sociological view of gender, in contrast, emphasizes how gender is socially constructed and how structural constraints limit choice. This course examines how differences based on gender are created and sustained, with particular attention to how other important bases of personal identity and social inequality—race and class—interact with patterns of gender relations. We will also seek to understand how social change happens and how gender inequality might be reduced.
For BA Students: Society Sector
Taught by: Leidner
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 125 Classical Sociological Theory
This course will cover the founding classics of the sociological tradition including works of Tocqueville, Marx and Engels, Weber, Durkheim, Mauss, Simmel, and G.H.Mead. We will also examine how the major traditions have continued and transformed into theories of conflict, domination, resistance and social change; social solidarity, ritual and symbolism; symbolic interactionist and phenomenological theory of discourse, self and mind. This course satisfies the theory requirement for sociology majors.
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 126 Contemporary Sociological Theory
This course will explore contemporary social theory with an emphasis on theories and theoretical orientations related to social interaction, identity, culture, and inequality. For example, we will discuss sociological theories from the last half century about race and racism, gender, social class, education, emotion, and violence. Importantly, we will consider theory in the context of its application to empirical social science research and real world concerns. The course fulfills the theory requirement for sociology minors and all sociology majors.
One-term course offered either term
Activity: Lecture
1 Course Unit
SOCI 128 Introduction to Demographic Methods
This course provides an introduction to basic demographic concepts, data, indicators, and techniques. The course emphasizes hands-on applications of techniques in the analysis of population dynamics in the U.S. and elsewhere. Students will learn about the main sources of demographic data, including censuses, surveys, and vital statistics, and methods to estimate demographic processes (e.g., mortality, fertility). Students will leave the course with a solid grounding in a) the sources and limitations of demographic data; b) the construction of basic demographic indicators; and c) appropriate use of basic demographic techniques to answer questions about human populations.
Taught by: Elo, Hannum, Smith
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 134 Health and Social Policy
Health and Social Policy is an interdisciplinary course examining health care and social policy from domestic and international perspectives. The course is designed to engage students in critical thinking about social determinants of health, the organization and outcomes of health care systems and institutions, global health priorities and challenges, and the implications for public policy. Topics include the social inequalities and health; how organizational context of health care impacts outcomes; management of human resources in health nationally and globally; analysis of medical error, its causes, and consequences; review and critique of public policies in U.S. health care; and global health priorities and international health policy. Issues of current public debate in health and health care will provide a context for learning. There are no prerequisites. The course is intended for general lists as well as for those planning careers in health care.
For BA Students: Society Sector
Taught by: Aiken, Lake
Course usually offered in spring term
Activity: Lecture
1 Course Unit

SOCI 135 Law and Society
After introducing students to the major theoretical concepts concerning law and society, significant controversial societal issues that deal with law and the legal systems both domestically and internationally will be examined. Class discussions will focus on issues involving civil liberties, the organization of courts, legislatures, the legal profession and administrative agencies. Although the focus will be on law in the United States, law and society in other countries of Africa, Asia, Europe and Latin America will be covered in a comparative context. Readings included research reports, statutes and cases.
Taught by: Bosk, Fetni
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 137 The Sociology of Media and Popular Culture
This course relies on a variety of sociological perspectives to examine the role of media and popular culture in society, with a particular emphasis on the power of the mass media industry, the relationship between cultural consumption and status, and the social organization of leisure activities from sports to shopping.
For BA Students: Society Sector
Taught by: Grazian
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Also fulfills General Requirement in Arts Letters for Class of 2009 and prior

SOCI 140 Social Conflict
This course will emphasize violent conflict, what leads up to it, and what determines whether it actually happens or not. Micro-sociological observations of conflict and violence as it appears in real-life observations, photos and videos. Topics include: fights and brawls; military combat; crowd and crowd-control violence; bullying and holdups; fair fights and dueling; carousing; sports violence; police violence; gangs violence; terrorist and clandestine violence; school and workplace rampages.
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 143 Modern Social Movements
Throughout modern times groups of people have come together in an attempt to change their social world. Their successes and failures teach us about society, organizations, and individuals. This course will examine case studies of historical and contemporary social movements. Using these case studies, this course will evaluate different approaches to understanding social movements, and investigate what these different approaches suggest about individuals, the society in which they live, and the potential for social change.
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 152 American Health Policy
This lecture course will introduce students to a broad range of topics that fall under the heading of American health policy. Its main emphasis will be on the history of health care in America from the U.S. Civil War to Obamacare. The primary objective of the course will be to consider why the U.S., until very recently, remained one of the only industrialized nations to have a private, non-nationalized health care system. Some of the themes addressed include: private health insurance(such as Blue Cross/Blue Shield), industrial health and workmen's compensation, the welfare state (in Europe, Canada, and the U.S.), women's health, especially maternal and infant care programs, Medicare/Medicaid, the Clinton Health Plan of 1993, injured soldiers and the Veterans Administration.
Taught by: Linker
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 153 Language and Social Identity
Activity: Seminar
1 Course Unit

SOCI 159 Population and Public Health in Eastern Europe
Activity: Lecture
1 Course Unit
SOCI 161 The History of the Information Age
Certain new technologies are greeted with claims that, for good or ill, they must transform our society. The two most recent: the computer and the Internet. But the series of social, economic and technological developments that underlie what is often called the Information Revolution include much more than just the computer. In this course, we explore the history of information technology and its role in contemporary society. We will explore both the technologies themselves—calculating machines, punched card tabulators, telegraph and telephone networks, differential analyzers, digital computers, and many others—and their larger social, economic and political contexts. To understand the roots of these ideas we look at the prehistory of the computer, at the idea of the post-industrial or information society, at parallels with earlier technologies and at broad historical currents in the United States and the world.
For BA Students: Humanities and Social Science S
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 162 Environmental Sociology
This course will give the student an introduction to the sociological study of medicine. Medical sociology is a broad field, covering topics as diverse as the institution and profession of medicine, the practice of medical care, and the social factors that contribute to sickness and well-being. Although we will not explore everything, we will attempt to cover as much of the field as possible through four thematic units: (1) the organization and development of the profession of medicine, (2) the delivery of health-care, especially doctor-patient interaction, (3) the social and cultural factors that affect how illness is defined, and (4) the social causes of illness. The class will emphasize empirical research especially but not only quantitative research.
For BA Students: Society Sector
Taught by: Schnittker
Activity: Lecture
1 Course Unit

SOCI 163 Educational Inequality
This introductory course examines the multi-disciplinary science of law-making, law-breaking, and law-enforcing. It reviews theories explaining where, when, by whom and against whom crimes happen. Police, courts, prisons, and other institutions are also critically examined. This course meets the general distribution requirement.
For BA Students: Society Sector
Taught by: Schnittker
Activity: Lecture
1 Course Unit

SOCI 175 Medical Sociology
This course will give the student an introduction to the sociological study of medicine. Medical sociology is a broad field, covering topics as diverse as the institution and profession of medicine, the practice of medical care, and the social factors that contribute to sickness and well-being. Although we will not explore everything, we will attempt to cover as much of the field as possible through four thematic units: (1) the organization and development of the profession of medicine, (2) the delivery of health-care, especially doctor-patient interaction, (3) the social and cultural factors that affect how illness is defined, and (4) the social causes of illness. The class will emphasize empirical research especially but not only quantitative research.
For BA Students: Society Sector
Taught by: Schnittker
Activity: Lecture
1 Course Unit

SOCI 200 Criminal Justice
This course examines how the criminal justice system responds to crime in society. The course reviews the historical development of criminal justice agencies in the United States and Europe and the available scientific evidence on the effect these agencies have on controlling crime. The course places an emphasis on the functional creation of criminal justice agencies and the discretionary role decision makers in these agencies have in deciding how to enforce criminal laws and whom to punish. Evidence on how society measures crime and the role that each major criminal justice agency plays in controlling crime is examined from the perspective of crime victims, police, prosecutors, jurors, judges, prison officials, probation officers and parole board members. Using the model of social policy evaluation, the course asks students to consider how the results of criminal justice could be more effectively delivered to reduce the social and economic costs of crime.
For BA Students: Society Sector
Taught by: MacDonald
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 211 Sample Survey Methods
This course provides an introduction to survey data collection. In meeting this objective, we examine the major planning tasks necessary for conducting surveys, including problem formulation, study design, questionnaire and interview design, pretesting, sampling, interviewer training and field management, code development and coding of data, and data cleaning and management. We critically explore the design of surveys and collection of data from epistemological and ethical perspectives. Students will leave the class with a solid understanding of the basic process of survey data collection and a familiarity with its strengths and weaknesses as a method of inquiry into human behavior.
Taught by: Hannum, Parrado
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 222 Field Methods of Sociological Research
This course is designed to introduce students to field methods in sociological research, with a focus on participant-observation and interviewing. During this course, students will read original research based on field methods and discuss their strengths, limitations, and ethical dilemmas. Most importantly, students will design their own research projects and become ethnographers and interviewers. Students will be guided through the fieldwork process from data collection to analysis, and will turn in multiple assignments and original research paper.
Taught by: Armenta, Bosk, Koppel, Lareau
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 233 Criminology
This introductory course examines the multi-disciplinary science of law-making, law-breaking, and law-enforcing. It reviews theories explaining where, when, by whom and against whom crimes happen. Police, courts, prisons, and other institutions are also critically examined. This course meets the general distribution requirement.
For BA Students: Society Sector
Taught by: Adler
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 235 Law and Social Change
Beginning with discussion of various perspectives on social change and law, this course then examines in detail the interdependent relationship between changes in legal and societal institutions. Emphasis will be placed on (1) how and when law can be an instrument for social change, and (2) how and when social change can cause legal change. In the assessment of this relationship, emphasis will be on the laws of the United States. However, laws of other countries and international law relevant to civil liberties, economic, social and political progress will be studied. Throughout the course, discussions will include legal controversies relevant to social change such as issues of race, gender and the law. Other issues relevant to State-Building and development will be discussed. A comparative framework will be used in the analysis of this interdependent relationship between law and social change.
Taught by: Fetni
One-term course offered either term
Activity: Lecture
1 Course Unit
SOCI 238 Media Culture & Society in Contemporary China
This course studies contemporary Chinese media, culture, and society in the context of globalization. Major topics include Internet expression and censorship, mass media commercialization, entertainment media, middle class and consumerism, environmental degradation, new forms of inequality, and civil society and popular protest. Taking a sociological approach, this course introduces methods and theories for analyzing media, institutions, inequality, and social change.
Taught by: Yang
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 239 Sociology of Religion
How do the many religious institutions in our society differ, and what common qualities do they share? Why do some religious institutions adapt to modernity while others do not? In particular, why are the politics of sex and gender so fundamental to the current organization of the American religious landscape? These questions will be the central motivating questions for the semester. The course will begin with an introduction to current theories in the sociology of religion. We will then apply and critique those theories as we learn more about the histories, members, practices and beliefs of all the major religious groups in the US today, including Mainline, Fundamentalist and Evangelical Protestantism, Roman Catholicism, Judaism, and other groups such as the Seventh Day Adventists, Jehovah's Witnesses and Mormons. Students will pick two religious groups (one liberal and one conservative) to observe over the course of the semester and will write papers comparing and contrasting the two groups.
Taught by: Wilde
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 250 Minorities And The Media
This course considers the theory and practice of minority representation in the public domain: film, theater, television, music, advertising and museums. How has "minority" been defined - who is included and why? How have notions of "minority" status been constructed in our public languages and what may be the impact of those images on both minority and non-minority populations? Our focus will be on representation and how it may work to marginalize or empower members of minority populations. While we will concentrate primarily on ethnic minorities, we will also consider how these same issues might affect sexual minorities. Our discussions will be supplemented by film and video examples. While the course will be theoretically situated in communication, it will consider how the perspectives of anthropology, feminism, and literary and ethnic studies have affected our understanding of public representations.
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 259 Social Determinants of Health
Over the last century, we have witnessed dramatic historical change in population incidence and mortality, e.g. rising numbers of women diagnosed with breast cancer and dramatic declines in death from stomach cancer. There has also been a highly visible social patterning of health and disease, such as socio-economic disparities in AIDS, substance abuse, and asthma in the U.S. today or the association of breast cancer with affluence globally. This course will explore the way researchers, activists, politicians and others in different eras have made sense of these changes and patterns and have responded to them. The course is historical and sociological. At the same time that we examine evidence and theories about the way poverty, affluence, and other social factors influence individual and population health, we will try to understand how social and historical forces have shaped how health and disease have been understood and categorized. In examining our current obesity "epidemic," for example, we will not only consider evidence and claims made about the causal role of market forces and changes in the built environment, but ask why (besides the fact that we are heavier) obesity has become such a visible and important medical and public health issue in the U.S. today.
Taught by: Aronowitz
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 260 Cyberculture
Computers and the internet have become critical parts of our lives and culture. In this course, we will explore how people use these new technologies to develop new conceptions of identity, build virtual communities and affect political change. Each week we'll see what we can learn by thinking about the internet in a different way, focusing successively on hackers, virtuality, community, sovereignty, interfaces, algorithms and infrastructure. We'll read books, articles, and blogs about historical and contemporary cultures of computing, from Spacewar players and phone phreaks in the 1970s to Google, Facebook, World of Warcraft, WikiLeaks, and Anonymous today. In addition, we'll explore some of these online communities and projects ourselves and develop our own analyses of them.
One-term course offered either term
Activity: Seminar
1 Course Unit
SOCI 264 Poverty, Race and Health
This course is designed to introduce students to current literature on race/ethnic difference in health and mortality in the United States, covering such topics as explanations for why some race/ethnic groups fare better than others, how inner city poverty and residential segregation may contribute to racial/ethnic differences in health outcomes, and health of immigrants versus native-born populations. Current policy debated and recent policy developments related to health are also briefly discussed. The course is organized as a seminar with a combination of lectures and class discussions.
Taught by: Elo
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 266 Latinos in United States
This course presents a broad overview of the Latino population in the United States that focuses on the economic and sociological aspects of Latino immigration and assimilation. Topics to be covered include: construction of Latino identity, the history of U.S. Latino immigration, Latino family patterns and household structure, Latino educational attainment. Latino incorporation into the U.S. labor force, earnings and economic well-being among Latino-origin groups, assimilation and the second generation. The course will stress the importance of understanding Latinos within the overall system of race and ethnic relations in the U.S., as well as in comparison with previous immigration flows, particularly from Europe. We will pay particular attention to the economic impact of Latino immigration on both the U.S. receiving and Latin American sending communities, and the efficacy and future possibilities of U.S. immigration policy. Within all of these diverse topics, we will stress the heterogeneity of the Latino population according to national origin groups (i.e. Mexican, Puerto Rican, Cuban, and other Latinos), as well as generational differences between immigrants and the native born.
Taught by: Parrado, Armenta
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 268 Contemporary Issues in African Society
This course will deal with law and society in Africa. After surveying the various legal systems in Africa, the focus will be on how and to what extent the countries of Africa “re-Africanized” their legal systems by reconciling their indigenous law with western law and other legal traditions to create unified legal systems that are used as instruments of social change and development. Toward this end, the experiences of various African countries covering the various legal traditions will be included. Specific focus will be on laws covering both economic and social relations. This emphasis includes laws of contracts and civil wrongs, land law, law of succession, marriage and divorce and Africa’s laws of International Relations, among other laws. Throughout this course a comparative analysis with non-African countries will be stressed.
Taught by: Omoagene, Zuberi
Activity: Lecture
1 Course Unit

SOCI 270 The Immigrant City
Immigration is among the most important phenomena shaping neighborhoods, cities, and regions. Understanding migration is fundamental to understanding urbanization, community development, and urban society today. This course examines the development of immigrant communities in United States cities and suburbs. Class readings, discussions, and visits to a variety of Philadelphia immigrant neighborhoods explore themes including labor markets, commerce, housing, civil society, racial and ethnic relations, integration, and the public sphere. We study the diverse dynamics and impacts of immigration through foundational readings and close observation of various newcomer and receiving communities. The first part of the course surveys migration and community formation among a broad range of ethnic groups in different sorts of city and suburban neighborhoods, mainly through history, sociology, and geography. The second part focuses on public policy and community and economic development practices related to migration at the local, regional, national, and trans-national scales.
For BA Students: Society Sector
Taught by: Vitiello, Domenic
Course usually offered in spring term
Activity: Seminar
1 Course Unit

SOCI 277 Mental Illness
This course is designed to introduce students to current literature on definitions of mental health and exploring their political, social, and legal implications. We will be concerned with uncovering the assumptions behind different understandings of mental illness and exploring their political, social, and legal implications.
Taught by: Schnittker
One-term course offered either term
Activity: Lecture
1 Course Unit
SOCI 280 Social Issues in Contemporary China
China's transition to a market-oriented society has effected fundamental changes in the lives of citizens. This class will consider pressing social concerns that China must struggle to address as it continues down the path of market reforms. Using topical problems to illustrate broader issues of social inequality along lines of gender, ethnicity, residence status, and poverty status, we will consider questions such as the following: How are women and men faring differently in China's new labor market and workplaces? Are rural peasants and the emerging underclass of urban laid-off workers being left behind by market transition? How are minorities faring in China's transition? How does the emerging digital divide play into the dichotomies of east-west and urban-rural in China? What is the plight of millions of "floaters" migrating into China's cities, with minimal legal rights and protections? Can China's rapidly-changing public health system handle emerging diseases such as SARS and AIDS? How has the one-child policy affected women, children, and society in China? Who are the "missing girls" of China, and what are the social implications of their disappearance? How was the welfare of children and adolescents changed with market reforms? The class will combine lectures, academic readings, case studies, films, and discussions.
Taught by: Hannum
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 299 Independent Study
Directed readings and research in areas of sociology. Permission of instructor needed.
One-term course offered either term
Activity: Independent Study
1 Course Unit

SOCI 300 Thesis Workshop
The purpose of this course is to guide senior sociology majors in writing a research proposal for a senior honors thesis. Students will learn about various research approaches, how to write a focused literature review, and kinds of data necessary to answer a wide variety of research questions, including their own. Throughout the course, students will work on designing a research question, generation researchable hypotheses, and coming up with a design for their proposed study. The final paper for this course will be a research proposal that is the basis for students' independent research project. This course satisfies the research requirement for sociology majors and is designed primarily for seniors who are planning to write an honors thesis.
One-term course offered either term
Prerequisite: SOCI 100
Activity: Seminar
1 Course Unit

SOCI 301 Thesis Workshop II
This is the second part of the Thesis Workshop course. Prerequisite: SOCI 300. Permission must be granted by the department.
Taught by: Flippin
One-term course offered either term
Prerequisite: SOCI 300
Activity: Independent Study
0.5 Course Units

SOCI 307 Race, Science & Justice
Taught by: Roberts
One-term course offered either term
Activity: Seminar
1 Course Unit

SOCI 398 Senior Research
Senior Research is for senior sociology majors only. Students are assigned Sociology advisors with assistance from Undergraduate Chair.
Taught by: Sociology Faculty
One-term course offered either term
Activity: Independent Study
1 Course Unit

SOCI 399 Independent Study
Independent study section for senior Sociology majors working on an honors thesis. Students are assigned an advisor by the undergraduate chair.
Taught by Sociology Faculty
One-term course offered either term
Activity: Independent Study
1 Course Unit

SOCI 410 Research Seminar in Experiments in Crime and Justice
This seminar focuses on examining data from experiments in criminology including: randomized controlled trials of criminal justice policies, "natural" experiments in crime, and other quasi-experimental studies. A series of experiments conducted by Penn scholars and elsewhere will be examined. This seminar also guides criminology majors in writing a research proposal for their thesis. Students will learn about how to formulate a research question, develop a review of the literature, and how to apply necessary empirical methods. The final paper for this course will be a research proposal that can serve as the basis for the student's senior thesis and to satisfy the senior capstone requirement. Readings will come from the disciplines of criminology, sociology, psychology, economics, and urban planning.
Taught by: Loeffler
Course usually offered in fall term
Activity: Seminar
1 Course Unit

SOCI 420 Perspectives on Urban Poverty
This course provides an interdisciplinary introduction to 20th century urban poverty, and 20th century urban poverty knowledge. In addition to providing an historical overview of American poverty, the course is primarily concerned with the ways in which historical, cultural, political, racial, social, spatial/geographical, and economic forces have either shaped or been left out of contemporary debates on urban poverty. Of great importance, the course will evaluate competing analytic trends in the social sciences and their respective implications in terms of the question of what can be known about urban poverty in the contexts of social policy and practice, academic research, and the broader social imaginary. We will critically analyze a wide body of literature that theorizes and explains urban poverty. Course readings span the disciplines of sociology, anthropology, urban studies, history, and social welfare. Primacy will be granted to critical analysis and deconstruction of course texts, particularly with regard to the ways in which poverty knowledge creates, sustains, and constrains meaningful channels of action in urban poverty policy and practice interventions.
Taught by: Fairbanks
Course usually offered in fall term
Activity: Seminar
1 Course Unit

SOCI 431 Modern Mexican Society
Upper level advanced topics vary from semester to semester.
Course not offered every year
Activity: Seminar
1 Course Unit
SOCI 435 Globalization & The City: Global Urbanization
In 2008, the UN estimated that the world's population had become primarily urban, for the first time in history. According to the OECD, by the end of the century, close to 85% of the projected population will live in cities. The transition towards an urban planet is likely to have far-reaching economic, environmental, social, political, and cultural impacts on our species, many of which we cannot yet predict. But what is urbanization? Will it lead to more inequality, exploitation, conflict, resource consumption, and exposure to natural disasters and climate change, or is it an opportunity to move the world in a more sustainable and equitable direction? Taught by Chandan Deuskar and Patricio Zambrano Barragan, this course aims to explore these questions. In the first half of the semester, we will discuss various challenges associated with global urbanization and its impacts. In the second half, we will focus on responses to these challenges. The assignments will allow students to explore some of the most salient debates around global urbanization. By the end of the semester, students will be better able to understand the context for any future academic research, professional work, or business activities in the cities of the 'developing world'. The course will help provide a foundation for any students considering graduate studies or professional work in the fields of urban planning or international development.
Taught by: Chandan Deuskar and Patricio Zambrano Barragan
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 438 Social Science Studio: Immigrants Make the City
How do American cities grow? Studies of urban transformation have focused on anchor institutions, the growth model of big business-generated employment, and "creative class" gentrification. After decades of decline, many major cities like Philadelphia are seeing gains in population again, as well as new commercial activity and street life, spurred by the influx of new immigrant communities. Yet few scholars have asked: What role do immigrants play in the current revival of the American metropolis? In this Social Science Studio course, 16 students will work collaboratively as in a design studio to conduct research that can answer this important social-scientific question. Students will work on independent projects that engage multiple methods and fields to produce new types of knowledge. They will be introduced to multiple methods drawn from architecture, planning, anthropology and political science, including mapping, interviewing, fieldnotes, socio-economic surveys, sketching, photography and web design to develop independent projects. No prior knowledge is required but students with experience in GIS, STATA, photography, drawing or web design are encouraged to apply.
Taught by: Choudhury, Kushanava
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 453 Metropolitan Growth and Poverty
This course analyzes the role of metropolitan regions in the U.S. and global economies, including the sources of metropolitan productivity, the ways that metropolitan structures affect residents, and analyses of public policy in metropolitan areas. The economic, political, and social forces that have shaped World War II urban and regional development are explored, including technology, demography, and government. Special attention is paid to how metropolitan change affects residents by income and race. Topics include: gentrification, schools, suburbanization, sprawl, metropolitan fragmentation, concentration of poverty, race, and various economic revitalization initiatives.
Taught by: Madden
One-term course offered either term
Activity: Seminar
1 Course Unit

SOCI 473 Community Organizing: History and Theory
Power is the ability to create change. This course will integrate the history and theories of community organizing so that each student will be able to develop a transformational praxis. We will examine social inequality and intersectionality, and explore effective strategies in organizing for social change. This course is inter-disciplinary, involving political economy, sociology, history, social work and leadership theory. Inquiry-based and problem-posing methods will serve as the primary means of formative assessment.
Taught by: Becker
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 488 Culture, Sexuality and Global Health
What, if anything, is global in "global health"? Whatever this field might be, it is more often than not actively produced through a range of conflicting ethical commitments of multiple expert cultures, social movements and laypersons. This course explores critical themes in the historical and sociocultural study of global health. Students will engage a number of disciplinary perspectives within the social sciences including the history, sociology, and anthropology of science, and we will pay particular attention to feminist, queer, and postcolonial science studies perspectives. Throughout, we will consider how both global and local cultural transformations have shaped the emergence of this multidisciplinary field of study. To understand the complexity of global health, students will engage with a number of theoretical and ethnographic texts while questioning its stability and coherence as a self-same object given its interdisciplinary character. In doing so, we will explore the ways in which diverse sets of interests converge to constitute as well as contest the ever-shifting boundaries of global health.
Taught by: Fiereck
Course usually offered in fall term
Activity: Seminar
1 Course Unit
SOCI 535 Quantitative Methods in Sociology I
This course is an introduction to the practice of statistics in social and behavioral sciences. It is open to beginning graduate students and--with the permission of the instructor--advanced undergraduates. Topics covered include the description of social science data, in graphical and non-graphical form; correlation and other forms of association, including cross-tabulation; bivariate regression; an introduction to probability theory; the logic of sampling; the logic of statistical inference and significance tests. There is a lecture twice weekly and a mandatory "lab." Taught by: Allison, Smith
Course usually offered in fall term
Prerequisite: Basic algebra
Activity: Lecture
1 Course Unit

SOCI 536 Quantitative Methods in Sociology II
As the second part of a two-semester sequence, this graduate course focuses on regression analysis as used in social science research. In particular, we discuss features and assumptions of linear regression and logistic regression models. We learn how to apply regression models to real social science data using Stata and how to interpret the results. Taught by: Allison, Kohler, Park, Schnittker, Smith
Course usually offered in spring term
Prerequisite: SOCI 535 or permission of instructor
Activity: Lecture
1 Course Unit

SOCI 553 Field Methods in Qualitative Research
This course is designed to introduce graduate students to basic skills and concepts in ethnographic field research, including participant observation, interviewing, field documentation, and the scholarly presentation of qualitative data. Students will learn to apply these skills and concepts through an assigned set of exercises in concert with a semester-long project based on intensive fieldwork at a research site of their choosing. In addition, we will examine exemplars of published fieldwork in both classical and contemporary sociology. Students outside of the Department of Sociology need permission of the instructor to enroll.
Taught by: Bosk, Grazian, Lareau
One-term course offered either term
Activity: Seminar
1 Course Unit

SOCI 555 Pro-Seminar in Sociological Research
In the non-credit seminar students will be introduced to key areas in sociological research, and a set of professional skills necessary to navigate graduate school and a successful academic career. Students will also be introduced to faculty and resources available at Penn. This course is required for all first-year graduate students in Sociology
Taught by: Hannum, Jacob, Kao, Leidner, Smith
Course usually offered in fall term
Activity: Seminar
0 Course Units

SOCI 556 Pro-Seminar in Sociological Research II
This graduate seminar for first-year graduate students will be a two-semester course covering the major subfields of sociology -- their classical and contemporary theories, current methods and substance. Taught by: Collins, Grazian, Hannum, Park, Schnittker, Smith, Wilde
One-term course offered either term
Activity: Seminar
1 Course Unit

SOCI 561 Class Cultures and Historical Change
Studies culture as values, scripts, practice, performance, and style in the contexts of everyday life, social class, and status groups, social movements, and changes of communication technologies. Approaches politics, society, institutions, identities, and social change as dynamic processes and complex interactions at both micro/meso and meso/macro levels. Examines the production, reception, circulation and effects of signs, symbols, and stories. Readings include both classic authors (Elias, Simmel, Bakhtin, Goffman, Foucault, Bourdieu, Raymond Williams, etc.) and contemporary works from sociology and communication studies.
Taught by: Yang
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 562 Social Movements & Political Science
Activity: Lecture
1 Course Unit

SOCI 595 Sociology of Education
This graduate seminar will introduce students to some of the key theoretical and empirical work in the sociology of education. We will examine how schools work to maintain or alleviate inequality, and focus on differences in educational achievement and attainment by race, ethnicity, immigrant status, class, and gender. We will review work on the educational experiences of youth from early childhood to young adulthood.
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 601 Contemporary Social Theory
This is a graduate-level seminar structured around the main theoretical debates of contemporary sociology, including the interplay of rationality and emotion, the relationship between structure and agency, the nature of power, and the role of chance and contingency. In considering alternative positions on these debates, we will encounter the major theorists of the past fifty years, including Parsons, Merton, Goffman, Homans, Schutz, Coleman, Bourdieu, Luhmann, Habermas, Collins, and Giddens.
Requirements include intensive primary source reading, writing, and participation. The course assumes, and does not provide, prior familiarity with the main theoretical perspectives, and thus does not substitute for the undergraduate theory course (SOCI 126)
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 602 Proseminar in Classical Sociology
This course is designed to introduce graduate students to the classical foundations of sociology by drawing on canonical readings by Marx, Engels, Durkheim, Weber, Du Bois, Addams, Simmel, Park, and Goffman, among others. We will read these texts in the context of three major sociological themes: work and social inequality, culture and social structure, and urban interaction and culture in the city. Final papers will require students to draw on classical sociological works in their analyses of contemporary empirical research in sociology.
Taught by: Grazian
One-term course offered either term
Activity: Seminar
1 Course Unit
SOCI 603 Master's Research in Sociology
This graduate course is intended to be helpful to students as they produce an MA thesis. The course is structured to provide social support and feedback as students move through the stages in the development of a project (i.e. data analysis, review of the literature, development of a thesis, and revision). Students should begin the semester with a data set in hand; additional data analysis will occur during the term. (In some cases, students may be finishing their data collection.) In addition, the course is intended to provide professional development opportunities for students by providing “insider” information about the publication process. Students will be given examples of journal review (including reviews that reject a paper), copies of papers as they move through the revision process, and guidelines for producing a publishable piece of work. The goal is for students to produce a manuscript that can be submitted for publication in the near future. This is a required course for second year graduate students in Sociology.
Taught by: Bosk, Grazian, Jacobs, Kao, Lareau, Leidner, Park, Schnittker
One-term course offered either term
Activity: Seminar
1 Course Unit

SOCI 604 Methodology of Social Research
This course will give students familiarity with the common research methods social scientists use to conduct research. Ethnographic, interview, survey, experimental and historical/comparative research methods will be covered. Four themes will be explored: 1) the basics of solid research design, 2) the various advantages and disadvantages of each method, 3) when the use of a method is appropriate or inappropriate for the research question, and 4) how to evaluate researchers’ claims on the basis of the evidence they present. These themes will be explored by reading examples of and conducting exercises designed to give students hands-on experience in each of the methods. Students will conduct the exercises on a topic of their choice, which together will culminate in their final paper. The course is required and restricted to second year students in sociology and demography.
Taught by: Smith, Wilde, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 607 Introduction to Demography
A nontechnical introduction to fertility, mortality and migration and the interrelations of population with other social and economic factors. Course usually offered in fall term
Activity: Lecture
1 Course Unit

SOCI 609 Basic Methods of Demography
The course is designed to introduce students to basic concepts of demographic measurement and modeling used to study changes in population size and composition. The course covers basic measures of mortality, fertility and migration; life table construction; multiple decrement life tables; stable populations; population projections; and age patterns of vital events. Students will learn to apply demographic methods through a series of weekly problem sets.
Taught by: Elo, Guillot, Smith
One-term course offered either term
Activity: Lecture
1 Course Unit

SOCI 610 Basic Methods of Demography
Statistical modeling with multiple equations and latent variables. The first part of the course will focus on linear models that could be estimated with any of the well-known SEM programs (e.g., LISREL, EQS, or Amos). Both Mplus and SAS will be used exclusively in this part of the course. The second part will focus on Mplus models for variables that are categorical, count, or censored. Maximum likelihood methods for missing data will also be covered.
Taught by: Allison
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 611 Structural Equation Models
An applications-oriented course on statistical methods for the analysis of longitudinal data on the occurrence of events, also known as survival analysis, failure-time analysis, hazard analysis or duration analysis. Emphasis on regression-like models in which the risk of event occurrence is a function of a set of explanatory variables. Topics include accelerated failure-time models, hazard models, censoring, Cox regression models, time-dependent covariates, competing risks, repeated events, unobserved heterogeneity, discrete-time methods.
Taught by: Allison
Course not offered every year
Prerequisite: SOCI 536 or equivalent
Activity: Lecture
1 Course Unit

SOCI 612 Categorical Data Analysis
This course deals with techniques for analyzing multivariate data which the dependent variable is a set of categories (a dichotomy or polytomy). Topics will include linear probability models, logit (logistic) regression models, probit models, logit analysis of contingency tables, cumulative logit and probit (for ordinal data), multinomial logit, conditional logit (discrete choice), unobserved heterogeneity, log-linear models, square tables, response-based sampling, and repeated measures. Methods will be illustrated using the Stata System. There will be several assignments using Stata to analyze data provided by the instructor.
Taught by: Allison, Smith
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 613 Event History
This course is intended to aid in the selection, framing, writing and revising of sociological dissertation proposals. It is also intended to provide a forum for the presentation of dissertation research in progress. The goal is to provide a forum for the acquisition of professional socialization in sociology. We will discuss the framing of research questions, the design of research strategies, and the writing of dissertation proposals. We will discuss the process of submitting manuscripts for conferences and journals, preparing a curriculum vitae, job search strategies, and preparing for effective colloquium presentations. We will also review articles currently under review at the American Sociological Review. It is expected that third year graduate students in Sociology will enroll in this class.
Taught by: Grazian, Hannum, Jacobs, Schnittker, Wilde
One-term course offered either term
Prerequisite: Third year graduate students
Activity: Seminar
1 Course Unit
**SOCI 621 Mortality**
The course focuses on the description and explanation of health and mortality in human populations and their variability across several dimensions such as age, time, place, social class, race, etc. The course includes general theories of health, mortality and morbidity, investigations of mortality and related processes in developing and developed countries, and discussions of future mortality trends and their implications for individual lives and the society at large.

Taught by: Elo, Kohler
Course not offered every year
Activity: Lecture
1 Course Unit

**SOCI 622 Fertility**
The biological, social and demographic factors explaining the levels, trends and differentials in human fertility. Data, measures, and methods used in the context of the more and the less developed countries, with an emphasis on the historical and current course of the fertility transition.

Taught by: Kohler, Smith
Course not offered every year
Activity: Seminar
1 Course Unit

**SOCI 634 Population Processes II**
Population Processes II is part of a two-course sequence designed to introduce students to the core areas of demography (fertility, mortality, and migration) and recent developments in the field. PP II is divided into two parts. The first focuses on family demography and the biological, social and demographic factors explaining levels, trends, and differentials in human fertility transition with an emphasis on the historical and current course of fertility transition in developed and developing countries. The second part of the course provides a comprehensive review of theories and research on international migration. Readings examine patterns and processes of global migration during the classic age from 1800-1914 as well as during the postwar period from 1945 to the present. The course also covers a history and evaluation of immigration policies around the world, and devotes significant attention to theoretical and empirical perspectives on immigrant adaptation, including the relationship between gender and migration.

Taught by: Flippens, Kohler, Parrado, Smith
Course usually offered in spring term
Activity: Seminar
1 Course Unit

**SOCI 643 Social Stratification**
This is an advanced level graduate seminar where we will review contemporary research on social stratification and mobility. We will examine empirical and theoretical studies not only in the US but also in other countries to address how the pattern of social stratification varies across societies and over time. The main topics to be discussed are social mobility, occupational attainment, educational inequality, gender and race, and family processes and stratification. We will also examine studies that address how national contexts mediate social stratification. Advanced undergraduate students will be admitted with permission.

Taught by: Jacobs, Park
Course not offered every year
Activity: Lecture
1 Course Unit

**SOCI 649 A Course on Elites**
Most of the studies of inequality look at poverty and the impact of poverty. This course will be a study of those at the top of the social stratification system. We will take a broad vision of elites of to include the upper-middle-class as well as those in the top 1%. The course will examine the concentration of wealth in American society. It will examine elite families. It will also look at elite education. There will be a unit on the financial industry, the 2008 debacle, and the failure of the government to regulate this important industry. We will also study the influence of race by comparing the black upper-middle-class with white upper-middle-class families. Thus, we will also look at the power of elites in a number of spheres. Finally, we will also read theoretical perspectives including the work of C. Wright Mills, Marx, and Bourdieu. Thus, in addition to the focus on social stratification, this course cuts across sociology of the family, economic sociology, cultural sociology, and race and ethnic relations.

Taught by: Lareau
Activity: Seminar
1 Course Unit

**SOCI 662 Panel Data Analysis: Panel Data Analysis-Missing Data**
Activity: Lecture
1 Course Unit

**SOCI 664 Digital Media & Soc Theo**
This seminar explores critical issues in contemporary society through the lens of digital media studies and social theory. Special attention will be given to how social theory may inform the theorizing and empirical analysis of digital culture, digital politics, and digital practices. We will read recent monographs on the meanings and uses of digital media in international development, international migration, state power and popular protest, symbolic violence, and the formation and contestation of identities, communities, and publics. These works will be examined alongside the social theories of Jeffrey Alexander, Ulrich Beck, Bourdieu, Judith Butler, Foucault, Giddens, Goffman, Habermas, Melucci, Victor Turner, and others. A term paper required
One-term course offered either term
Activity: Seminar
1 Course Unit

**SOCI 667 Social Interaction**
The dynamics of interpersonal interaction, especially in face-to-face encounters during limited short periods of time. Topics include: the theory of interaction rituals deriving from Durkheim, Goffman and their contemporary followers; conversation analysis; micro-ethnographic studies of non-verbal behavior and embodied interaction; sociology of emotions; symbolic interactionist theory and the social nature of mind, self, and inner dialogue; electronically mediated interaction and its effects on social ties; and the relationship between micro and macro sociology.
Course not offered every year
Activity: Seminar
1 Course Unit
SOCI 677 International Migration
A comprehensive review of theories and research on international migration. The course introduces the basic precepts of neoclassical economics, the new economics of labor migration, segmented labor market theory, world systems theory, social capital theory and the theory of cumulative causation. Readings examine patterns and processes of global migration during the classic age from 1800?1914 as well as during the postwar period from 1945 to the present. The course also covers a history and evaluation of immigration policies around the world, and devotes signification attention to theoretical and empirical perspectives on immigrant adaptation. Within this larger topic, we will also discuss internal migration and urbanization; the relationship between gender and migration; the spatial distribution of immigrants within the United States, immigrant communities, and ethnic enclaves; and the undocumented population in the United States.
Taught by: Flippin
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 690 Sociology Writing Workshop I
Taught by: Jacobs, Lareau
Activity: Seminar
1 Course Unit

SOCI 691 Sociology Writing Workshop II
Taught by: Jacobs, Lareau
Activity: Seminar
1 Course Unit

SOCI 707 Second-Year Research Seminar I
This course is intended to hone the skills and judgment in order to conduct independent research in sociology and demography. We will discuss the selection of intellectually strategic research questions and practical research designs. Students will gain experience with proposal writing, the process of editing successive drafts of manuscripts, and the oral presentation of work in progress as well as finished research projects. The course is designed to be the context in which master's papers and second year research papers are written. This is a required course for second year graduate students in Demography. Others interested in enrolling in only one of the courses may do so with the permission of the Chair of the Graduate Group in Demography.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

SOCI 708 Seminar: Demographic Research II
Demography 708 is the second part of a two-course sequence designed to introduce and familiarize second year students with current norms for academic research, presentation and publishing in the field of Demography. In Demg708 students are expected to finalize the analyses and to complete their second year research paper. This is a required course for second year demography students. Others interested in enrolling in the course may do so with the permission of the Chair of the Graduate Group in Demography.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

SOCI 731 Advanced Demographic Methods
This course considers a variety of procedures for measuring and modeling demographic processes. We will consider both deterministic (drawn from classic demographic methods, stable population theory, and the like) and stochastic (drawn from statistics) perspectives and methods, including their integration. Pre-requisites: DEMG 609 and SOCI 536 (or its equivalent).
Taught by: Smith
Course not offered every year
Prerequisites: DEMG 609 and SOCI 536 (or its equivalent)
Activity: Seminar
1 Course Unit

SOCI 796 Demographic, Economic, and Social Interrelations
The course investigates economic and social determinants of fertility, mortality, and migration, and it discusses the effects of population variables on economic and social conditions, including economic and social development. Topics discussed in the course include: How do economic changes affect marriage, divorce, and child bearing decisions? How do households make decisions about transfers and requests? How can economic and sociological approaches be combined in explanatory models of demography change? How does immigration to the US affect the ethnic composition of the population, the earnings of native workers, taxes on natives, and the macro-economy? What causes the aging of populations, and how will population aging affect the economies of industrial nations, and in particular, pension programs like Social Security? What accounts for the rise in women's participation in the wage labor force over the past century? How are family composition and poverty interrelated? Does rapid population growth slow economic development with low income countries? In addition to these topics, the course also covers selected methods not included in DEMG/ SOCI 535/536 and 609
Taught by: Madden, Kohler
Course not offered every year
Activity: Lecture
1 Course Unit

SOCI 860 Global Media Activism: the 1960s
Activity: Seminar
1 Course Unit

SOCI 867 Media & Social Movements
Examines the meanings and roles of media and communication in social movements; analyzes media reform activism; studies both historical movements and contemporary protests around the world (Arab Spring, Indignados, Occupy, etc.); covers a broad range of theoretical perspectives, especially network and diffusion theories, political economy, narrative theory, and theories of performance. Students are required to submit a final research paper.
Taught by: Yang
Course not offered every year
Activity: Seminar
1 Course Unit

SOCI 998 Independent readings and research
For advanced students who work with individual instructors upon permission. Intended to go beyond existing graduate courses in the study of specific problems or theories or to provide work opportunities in areas not covered by existing courses.
One-term course offered either term
Activity: Independent Study
1 Course Unit
SOCI 999 Directed Readings and Research
Primarily for advanced students who work with individual instructors upon permission. Intended to go beyond existing graduate courses in the study of specific problems or theories or to provide work opportunities in areas not covered by existing courses.
One-term course offered either term
Activity: Independent Study
1 Course Unit
SOUTH ASIA STUDIES (SAST)

SAST 001 Introduction to Modern India
This introductory social science course examines key topics, themes, and analytic methods in the study of South Asia by focusing on significant South Asian cities. With one-fifth of the world's population, South Asia and its urban centers are playing an increasingly important role in recent global economic transformations, resulting in fundamental changes within both the subcontinent and the larger world. Drawing primarily on ethnographic studies of South Asia in the context of rapid historical change, the course also incorporates research drawn from urban studies, architecture, political science, and history, as well as fiction and film. Topics include globalization and new economic dynamics in South Asia; the formation of a new urban middle class; consumption and consumer culture; urban political formations, democratic institutions, and practices; criminality & the underworld; population growth, changes in the built environment, and demographic shifts; everyday life in South Asia and ethnic, cultural, and linguistic identities, differences, and violence in South Asia's urban environments. This is an introductory level course appropriate for students with no background in South Asia or for those seeking to better understand South Asia's urban environments in the context of recent globalization and rapid historical changes. No prerequisites. Fulfills College sector requirement in Cross-Cultural Analysis.
For BA Students: History and Tradition Sector
Taught by: Ali
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 002 The City in South Asia
This interdisciplinary social science course examines key topics, themes, and analytic methods in the study of South Asia by focusing on significant South Asian cities. With one-fifth of the world's population, South Asia and its urban centers are playing an increasingly important role in recent global economic transformations, resulting in fundamental changes within both the subcontinent and the larger world. Drawing primarily on ethnographic studies of South Asia in the context of rapid historical change, the course also incorporates research drawn from urban studies, architecture, political science, and history, as well as fiction and film. Topics include globalization and new economic dynamics in South Asia; the formation of a new urban middle class; consumption and consumer culture; urban political formations, democratic institutions, and practices; criminality & the underworld; population growth, changes in the built environment, and demographic shifts; everyday life in South Asia and ethnic, cultural, and linguistic identities, differences, and violence in South Asia's urban environments. This is an introductory level course appropriate for students with no background in South Asia or for those seeking to better understand South Asia's urban environments in the context of recent globalization and rapid historical changes. No prerequisites. Fulfills College sector requirement in Cross-Cultural Analysis.
For BA Students: Society Sector
Taught by: Mitchell
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 003 History, Culture, and Religion in Early India
This course surveys the culture, religion, and history of India from 2500 BCE to 1200 CE. The course examines the major cultural, religious and social factors that shaped the course of early Indian history. The following themes will be covered: the rise and fall of Harappan civilization, the "Aryan Invasion" and Vedic India, the rise of cities, states and the religions of Buddhism and Jainism, the historical context of the growth of classical Hinduism, including the Mahabharata, Ramayana and the development of the theistic temple cults of Saivism and Vaisnavism, processes of medieval agrarian expansion and cultic incorporation as well as the spread of early Indian cultural ideas in Southeast Asia. In addition to assigned secondary readings students will read select primary sources on the history of religion and culture of early India, including Vedic and Buddhist texts, Puranas and medieval temple inscriptions. Major objectives of the course will be to draw attention to India's early cultural and religious past and to assess contemporary concerns and ideologies in influencing our understanding and representation of that past.
For BA Students: History and Tradition Sector
Taught by: Ali
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 004 India's Literature: Love, War, Wisdom and Humor
This course introduces students to the extraordinary quality of literary production during the past four millennia of South Asian civilization. We will read texts in translation from all parts of South Asia up to the sixteenth century. We will read selections from hymns, lyric poems, epics, wisdom literature, plays, political works, and religious texts.
For BA Students: Arts and Letters Sector
Taught by: Patel
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 005 Performing Arts in South Asia
This course is a survey of selected traditions of theater, music, and dance in India and surrounding regions. Topics include ritual practices, theater, classical dance, classical music, devotional music, regional genres, and contemporary popular musics. Readings and lectures are supplemented by audio and visual materials and live performances. The aim of the course is to expose students to a variety of performance practices from this part of the world and to situate the performing arts in their social and cultural contexts. The course has no prerequisites.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
SAST 006 Hindu Mythology
Premodern India produced some of the world's greatest myths and stories: tales of gods, goddesses, heroes, princesses, kings and lovers that continue to capture the imaginations of millions of readers and hearers. In this course, we will look closely at some of these stories especially as found in Purana-s, great compendia composed in Sanskrit, including the chief stories of the central gods of Hinduism: Visnu, Siva, and the Goddess. We will also consider the relationship between these texts and the earlier myths of the Vedas and the Indian Epics, the diversity of the narrative and mythic materials within and across different texts, and the re-imagining of these stories in the modern world.
For BA Students: Arts and Letters Sector
Taught by: Patel
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 007 Introduction to Modern South Asian Literatures
This course will provide a wide-ranging introduction to the literatures of South Asia from roughly 1500 to the present, as well as an exploration of their histories and impact on South Asian society today. How are literary movements and individual works - along with the attitudes towards religion, society, and culture associated with them - still influential in literature, film, and popular culture? How have writers across time and language engaged with questions of caste, gender, and identity? We will read from the rich archive of South Asian writing in translation - from languages that include Brahmi, Urdu, Bangla, and Tamil - to consider how these literatures depict their own society while continuing to resonate across time and space. Topics of discussion will include the Bhakti poetries of personal devotion, the literature of Dalits - formerly referred to as the Untouchables - and the ways in which literature addresses contemporary political and social problems. Students will leave this course with a sense of the contours of the literatures of South Asia as well as ways of exploring the role of these literatures in the larger world.
No prior knowledge of South Asia is required; this course fulfills the cross-cultural analysis requirement.
Taught by: Goulding
One-term course offered either term
Activity: Seminar
1 Course Unit

SAST 008 India: Culture and Society
What makes India INDIA? Religion and Philosophy? Architectural splendor? Kingdoms? Caste? The position of women? This course will introduce students to India by studying a range of social and cultural institutions that have historically assumed to be definitive India. Through primary texts, novels and historical sociological analysis, we will ask how these institutions have been reproduced and transformed, and assess their significance for contemporary Indian society.
For BA Students: Humanities and Social Science Sector
Taught by: Sreenivasan
One-term course offered either term
Activity: Lecture
0 Course Units

SAST 009 Introduction to Hinduism
This course introduces students to the history, texts, philosophies and rituals of South Asia's oldest living religious traditions, represented today by the term "Hinduism." At the same time, it problematizes the idea of a monolithic "Hindu Tradition," in favor of an approach that recognizes several distinct, dynamic, yet symbiotic Hindu religious cultures. The course also places emphasis on the vitality of today's Hinduism(s), and the various historical, ritual, cultural, and social contexts that they represent and constitute. The course is organized around six modules: (1) Issues in the Academic Study of Hinduism; (2) Sanskrit (textual) tradition; (3) Philosophy; (4) Theology; (5) Ritual; and (6) Modernity and Contemporary Politics.
Taught by: Soneji
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 012 Spices, Gunpowder, and Pagodas: A History of Southeast Asia
This undergraduate course introduces students to the history of Southeast Asia from the earliest centuries of the Common Era to c.1950. It introduces students to Southeast Asia as religion, constituent historical societies of the region, and to the major academic literature and debates pertaining to the historical development of Southeast Asian societies and the region. Key themes explored include the origins and character of early civilizations, ideas and ideology about power and prowess, material culture, the transformation of ethnic, class, and gender relations, the impact of the arrival of world religions and early European expansion, and the nature of indigenous responses to the diffusion of new beliefs and ideas and intercultural contact.
Taught by: Sevea
Course not offered every year
Activity: Lecture
1 Course Unit

SAST 050 Introduction to Indian Philosophy
This course will take the student through the major topics of Indian philosophy by first introducing the fundamental concepts and terms that are necessary for a deeper understanding of themes that pervade the philosophical literature of India -- arguments for and against the existence of God, for example, the ontological status of external objects, the means of valid knowledge, standards of proof, the discourse on the aims of life. The readings will emphasize classical Hindu, Buddhist, and Jain philosophical articulations (from 700 B.C.E to 16th century CE) but we will also supplement our study of these materials with contemporary or relatively recent philosophical writings in modern India.
Taught by: Patel
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 054 Gods, Rebels, and Devotion in South Asia
This undergraduate course introduces students to the study of Hinduism by first introducing the fundamental concepts and terms that are necessary for a deeper understanding of themes that pervade the philosophical literature of India -- arguments for and against the existence of God, for example, the ontological status of external objects, the means of valid knowledge, standards of proof, the discourse on the aims of life. The readings will emphasize classical Hindu, Buddhist, and Jain philosophical articulations (from 700 B.C.E to 16th century CE) but we will also supplement our study of these materials with contemporary or relatively recent philosophical writings in modern India.
Taught by: Mohammad
Course not offered every year
Activity: Lecture
1 Course Unit
SAST 057 Planning to be Off-shore?
Freshman Seminar. In this course we will trace the economic development of India from 1947 to the present. Independent India started out as a centrally planned economy in 1949 but in 1991 decided to reduce its public sector and allow, indeed encourage, foreign investors to come in. The Planning Commission of India still exists but has lost much of its power. Many in the U.S. complain of American jobs draining off to India, call centers in India taking care of American customer complaints, American patient histories being documented in India, etc. At the same time, the U.S. government encourages highly trained Indians to be in the U.S. Students are expected to write four one-page response papers and one final paper. Twenty percent of the final grade will be based on class participation, 20 percent on the four response papers and 60 percent on the final paper.
Taught by: Gangulee
Course usually offered in fall term
Activity: Seminar
1 Course Unit

Sugar and Spices. Tea and Coffee. Opium and Cocaine. Hop aboard the Indian Ocean dhows, Chinese junks, Dutch schooners, and British and American clipper ships that made possible the rise of global capitalism, new colonial relationships, and the intensified forms of cultural change. How have the desires to possess and consume particular commodities shaped cultures and the course of modern history? This class introduces students to the cultural history of the modern world through an interdisciplinary analysis of connections between East and West, South and North. Following the circulation of commodities and the development of modern capitalism, the course examines the impact of global exchange on interactions and relationships between regions, nations, cultures, and peoples and the influences on cultural practices and meanings. The role of slavery and labor migrations, colonial and imperial relations, and struggles for economic and political independence are also considered. From the role of spices in the formation of European joint stock companies circa 1600 to the contemporary cocaine trade, the course's use of both original primary sources and secondary readings written by historians and anthropologists will enable particular attention to the ways that global trade has impacted social, cultural, and political formations and practices throughout the world.
For BA Students: Humanities and Social Science S
Taught by: Mitchell
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 104 BeginningTabla I
An introduction to the tabla, the premier drum of north Indian and Pakistani classical music traditions.
Taught by: Bhatti
Course usually offered in fall term
Activity: Lecture
1 Course Unit

SAST 105 BeginningTabla II
A continuation ofTabla I, also open to beginning students.
Taught by: Bhatti
Course usually offered in spring term
Activity: Lecture
1 Course Unit

SAST 106 Beginning Sitar I
This course is an introduction to the repertoire and performance practices of the North Indian sitar. Fundamentals of sitar technique, composition, and improvisation are presented and practiced in class. Class lectures and discussions, audio and video material, and reading and listening assignments on selected topics supplement practice, to provide an overview of the social and historical context and the formal structures of North Indian music in general. There are no prerequisites for the course, but some experience with instrumental or vocal music is suggested. Each student is expected to put in two hours of individual practice per week, and complete reading, audio, and written assignments. The class gives a group performance at the end of the semester.
Taught by: Miner
Course usually offered in fall term
Activity: Lecture
1 Course Unit

SAST 107 Beginning Sitar II
This is the second semester of a performance course in the North Indian sitar. Students who have not taken the first semester but play any musical instrument are permitted to join. Principles of composition and improvisation will be explored in practice and supplemented by readings and listening. The class gives a group performance at the end of the semester.
Taught by: Miner
Course usually offered in spring term
Activity: Lecture
1 Course Unit

SAST 108 Intermediate Sitar I
This is a performance course open to students who have completed both semesters of Beginning Sitar, or to others by permission from the instructor. Students will work with right and left-hand techniques, study three ragas in depth, learn the contours of several other ragas, and work with concepts of tala, composition, and improvisation. Assigned readings and listenings will complement the performed material. A group performance will be given at the end of the semester.
Taught by: Miner
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 109 Intermediate Sitar II
This is a continuation of an intermediate performance course in the North Indian sitar. It is open to students by permission of the instructor. Students who play other instruments and have had at least a beginning level of training in Hindustani music may also join, with the permission of the instructor.
Taught by: Miner
Course usually offered in spring term
Activity: Lecture
1 Course Unit
SAST 112 Religion and Cinema in India
This seminar examines key themes in the study of religion and Indian cinema. The aim of the seminar is to foreground discussions of performativity, visual culture, representation, and politics in the study of modern South Asian religions. Themes include mythological cinema, gender and sexuality, censorship and the state, and communalism and secularism. The films we will be deploying as case studies will be limited to those produced in Hindi, Telugu and Tamil (the three largest cinema cultures of India). No knowledge of any South Asian language is needed for this course however.
Taught by: Soneji
Course not offered every year
Activity: Lecture
1 Course Unit

SAST 116 Music Cultures of North India and Pakistan
A great variety of song and instrumental genres have thrived in the Hindu and Muslim milieus of North India and Pakistan. In this course we examine a selection of urban and rural musics, such as instrumental music in Baluchistan, qawwali in Delhi, the garba of Gujarat, ballad singing of Rajasthan and the urban music of Calcutta. We will explore the sounds, poetry, historical, and social contexts of chosen genres and trace aspects of continuity and adaptation in the changing environment of contemporary South Asia. Readings are supplemented by audio-visual material and live performances.
Taught by: Miner
Course not offered every year
Activity: Lecture
1 Course Unit

SAST 120 Literature of the South Asian City: Space, Culture, Politics
The South Asian city as a way of organizing space and social relations, as a symbol, as a memories the subject of this course. Through primarily, though by no means exclusively, readings of literature in translation, we will gain a sense for the history of the city and the ways in which it is a setting for protest and nostalgia, social transformation and solitary flâneurie. We will see reflections of the city in poetry recited in its homes, detective novels sold in its train stations, stories scribbled in its cafes, plays staged in its theaters, and films produced in its backlots. Readings will attempt to address urban spaces across South Asia, and will include works by writers such as Mirza Ghalib, Rabindranath Tagore, Saadat Hasan Manto, and Vijay Tendulkar. We will examine these works in the context of secondary readings, including histories and ethnological works that take up life in the modern city. Students will finish this course prepared to pursue projects dealing with the urban from multiple disciplinary perspectives. This course is suitable for anyone interested in the culture, society, or literature of South Asia, and assumes no background in South Asian languages.
Taught by: Goulding
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 124 Narrative Across Cultures
The purpose of this course is to present a variety of narrative genres and to discuss and illustrate the modes whereby they can be analyzed. We will be looking at shorter types of narrative: short stories, novellas, and fables, and also some extracts from longer works such as autobiographies. While some works will come from the Anglo-American tradition, a larger number will be selected from European and non-Western cultural traditions and from earlier time-periods. The course will thus offer ample opportunity for the exploration of the translation of cultural values in a comparative perspective.
For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 139 Introduction to Islam
This course is an introduction to Islam as a religion as it exists in societies of the past as well as the present. It explores the many ways in which Muslims have interpreted and put into practice the prophetic message of Muhammad through historical and social analyses of varying theological, philosophical, legal, political, mystical and literary writings, as well as through visual art and music. The aim of the course is to develop a framework for explaining the sources and symbols through which specific experiences and understandings have been signified as Islamic, both by Muslims and by other peoples with whom they have come into contact, with particular emphasis given to issues of gender, religious violence and changes in beliefs and behaviors which have special relevance for contemporary society.
Taught by: Elias
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 142 Introduction to Buddhism
This course seeks to introduce students to the diversity of doctrines held and practices performed by Buddhists in Asia. By focusing on how specific beliefs and practices are tied to particular locations and particular times, we will be able to explore in detail the religious institutions, artistic, architectural, and musical traditions, textual production and legal and doctrinal developments of Buddhism over time and within its socio-historical context. Religion is never divorced from its place and its time. Furthermore, by geographically and historically grounding the study of these religions we will be able to examine how their individual ethic, cosmological and soteriological systems effect local history, economics, politics, and material culture. We will concentrate first on the person of the Buddha, his many biographies and how he has been followed and worshipped in a variety of ways from Lhasa, Tibet to Phrae, Thailand. From there we touch on the foundational teachings of the Buddha with an eye to how they have evolved and transformed over time. Finally, we focus on the practice of Buddhist ritual, magic and ethics in monasteries and among lay communities in Asia and even in the West. This section will confront the way Buddhists have thought of issues such as “Just-War” Women’s Rights and Abortion. While no one quarter course could provide a detailed presentation of the beliefs and practices of Buddhism, my hope is that we will be able to look closely at certain aspects of these religions by focusing on how they are practiced in places like Nara, Japan or Vietnam, Laos.
Taught by: McDaniel
One-term course offered either term
Activity: Lecture
1 Course Unit
SAST 144 Modern Islam and Poetry
This course focuses on a basic question: How and why a modern poem turns into a narrative device to debate contemporary Islamic discourses? We begin exploring this question by taking note of how a 12th-century Persian poet Rumi became - as described by Time magazine - "the best-selling poet in the US today," and then introduces students to poems and various social, cultural and religious moments that were key in the making of modern Islam. Although the course primarily emphasizes the study of poetry produced and circulated among various Muslim communities world-wide, it also covers a diverse set of secondary readings from the field of religious studies, anthropology and literature to outline more clearly the contours of contemporary Islam. Readings begin with internationally famous Rumi and then include poets emerging from Arabic, Persian, Urdu, and several vernacular literary cultures in both Muslim and non-Muslim countries.
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 146 Islam in the Modern World
This course key issues facing Muslims in the modern world with an emphasis on gaining an understanding of how Muslims view themselves and the world in which they live. Beginning with a discussion of the impact of colonialism, we will examine Islamic ideas and trends from the late colonial period until the present. Readings include religious, political and literary writings by important Muslim figures and focus on pressing issues in the Islamic world an beyond: the place of religion in modern national politics; the changing status of women; constructions of sexuality (including masculinity); pressing issues in bioethics; Islam, race and immigration in America; the role of violence; and the manifestations of religion in popular culture.
For BA Students: Humanities and Social Science S
Taught by: Elias
Course usually offered in spring term
Activity: Lecture
1 Course Unit

SAST 147 Love, Sex & Power
This course explores the ways in which some of the biggest issues in human life are dealt with across religious traditions. Beginning with important questions of sexual identity, politics, religion and the individual in contemporary life, we will examine questions of eroticism, sex and love as they are reflected in religious literature, art and history. The concept of divine love and religious devotion will be explored in relation to acts of violence, including human sacrifice and self-sacrifice in the form of martyrdom seen in pre-modern concepts of saintly martyrdom and religious chivalry as well as the religious legitimacy of modern self-sacrifice of soldiers in war and terrorist suicides. The course focuses in particular on examples drawn from Christianity, Hinduism, Islam and Mesoamerican Religion, although discussions of contemporary issues will be conducted with a broader sweep. Important questions considered in this course include: how does the body function as the locus in which religion is enacted? What is the conflict between our agency over our bodies and socio-religious claims over the individual? Is violence an integral part of religion? What are religious understandings of the relationship between love and sex? How can a human being love gods erotically?
Taught by: Elias, J
Activity: Lecture
1 Course Unit

SAST 169 Merchants, Saints, Slaves and Sojourners: the Worlds of the Indian Ocean
Do oceans serve to divide and demarcate distinct cultures and regions? Or do they facilitate exchange, connection and cosmopolitanism? This course will explore the manner in which the Indian Ocean has played both roles throughout history, and how the nature of those divisions and connections has changed over time from the ancient to the modern world. We will reconstruct the intertwined mercantile, religious and kinship networks that spanned the Indian Ocean world, across the Middle East, East Africa, South Asia, Southeast Asia and China, illuminating the histories of Hinduism, Buddhism and Islam, while also considering the role of successive imperial political formations, from Rome to Britain. Throughout the semester we will seek to understand the Indian Ocean through the people who lived and worked in its milieu - from consuls and military commanders, to traders, brokers, sailors, prisoners and slaves. Course materials will draw on a variety of disciplines (anthropology, archaeology, material culture, religious studies) to construct the cultural, economic, and environmental history of the Indian Ocean.
Taught by: Petrie
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 170 Asian American Psychology
Using a cultural perspective, this course is intended to provide knowledge of Asian American personality, identity, and its relationship to mental well being; analyze psycho-social research pertinent to Asian Americans; and develop critical thinking skills on Asian American issues through experiential learning/discussions.
Taught by: Kumar, M
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 189 Islam and the West
How did Muslims and modern South Asia interact with the West? What Islamic idioms, orientations and movements emerged in the nineteenth and twentieth centuries? Was South Asia a prominent global center of Islam? What kinds of Islamic educational institutions developed in modern South Asia? How did Muslims appropriate technologies? What materials were printed by Muslims? Were Muslims part of the British army? What was jihad in modernity? How did Muslim ‘modernists’ and ‘traditionalists’ respond to the challenges of colonialism and modernity? What was the nature of Sufism in modern South Asia? What was the nature of politicalIslam in South Asia? How did some Muslims demand a Muslim State? What was the Partition? How has Muslim history been remembered in Bangladesh, India and Pakistan? This is an introductory course, and aims to introduce students to a facet of the long history of Islam, Muslims, and the West.
Taught by: Sevea
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 199 Independent Study
Directed Study for Undergraduates
One-term course offered either term
Activity: Independent Study
0.5 Course Units
SAST 200 Introduction to Art in South Asia
This course is a survey of sculpture, painting and architecture in the Indian sub-continent from 2300 B.C., touching on the present. It attempts to explore the role of tradition in the broader history of art in India, but not to see India as 'traditional' or unchanging. The Indian sub-continent is the source for multi-cultural civilizations that have lasted and evolved for several thousand years. Its art is as rich and complex as that of Europe, and as diverse. This course attempts to introduce the full range of artistic production in India in relation to the multiple strands that have made the cultural fabric of the sub-continent so rich and long lasting.
For BA Students: Arts and Letters Sector
Course not offered every year
Activity: Lecture
1 Course Unit

SAST 208 Doing Research: Qualitative Methods and Research Design
This interdisciplinary course introduces students to qualitative research methods and frameworks in the social sciences and humanities. Students will learn how to frame an effective research question, situate it in relation to existing research, select the most appropriate methods for addressing the question, and develop an effective research plan. Each week students will be introduced to a new set of frameworks for analysis, see specific examples of their application drawn from anthropological, historical, and related scholarship and have opportunities to practice applying and evaluating the strengths and weaknesses of specific methodological tools. The goals of the semester will be for each student to develop their own research proposal for a specific project. Students will be introduced to a range of textual, archival and media collections and databases available at Penn, with particular attention to South Asia and other specific regions of interest to course participants. Students will also have the opportunity to identify sources of funding for summer and/or thesis research projects, and submit applications for these opportunities as part of the course. The course is ideal for students considering summer research, an undergraduate thesis, or an application to the Fulbright or other research program. It may be taken by itself as a freestanding course, or may be sequenced with SAST 209, Writing Research, the following fall semester.
Taught by: Mitchell
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 217 CU In India - Topics Course
C.U. in India is a hybrid, domestic/overseas course series which provides students with the opportunity to have an applied learning and cultural experience in India or South East Asia where students participate in 1) 28 classroom hours in the Fall term 2) a 12-day trip to India or South East Asia with the instructor during the winter break visiting key sites and conducting original research (sites vary) 3) 28 classroom hours at Penn in the Spring term and 4) a research paper, due at the end of the Spring term. Course enrollment is limited to students admitted to the program. For more information and the program application go to http://sites.sas.upenn.edu/cuinindia This is a 2-CU yearlong course
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

SAST 241 Religion and Poetry of South Asia
This course is designed to introduce students to the wide array of devotional and mystical literatures of pre-modern South Asia. We will focus on the texts, practices, and discourses of the religious and literary communities which create these forms of literature, placing them within social and historical contexts. Topics covered include the formation of Sufi silsilahs in India, Krishna bhakti and the Vais?ava sects, Kabir, Guru Nanak and the Sikhs, Tulsidas’s Ramcaritmanas, and other texts in translation.
Course not offered every year
Activity: Lecture
1 Course Unit

SAST 247 Gender and Sexuality in Hinduism
Issues related to gender and sexuality occupy a complex, often contradictory place in Hinduism. Sexual desire, sexual activity, and the body are simultaneously celebrated, manipulated, controlled, and restricted. This fundamental ambiguity is at the core of this course, which concerns itself with religious perspectives on the body, gender and sexual activity in Hinduism. Topics include: dharma, morality, and sexual practice; menstruation; pregnancy and childbirth; Bhakti and Tantra; same-sex relations; masculinities; hijras and the notion of the "third sex"; eroticism in the literary, visual, and performing arts; colonialism; and somatic nationalism.
Taught by: Soneji
Course not offered every year
Activity: Seminar
1 Course Unit
**SAST 249 Re-enchanting Modernity: A Guide to Sufism in South Asia**

This undergraduate level course introduces students to Sufism in modern South Asia, with a particular focus on how Muslim 'mystics' and their 'mystical' methods interacted with modernity, colonialism, technological developments and globalization. This course is divided into three parts. In the first part of this course, students are provided with an overview of the theological and historical background of the dominant expression of Islam that came to be identified as 'Sufism' or 'Islamic mysticism', the historical development of Sufi institutions and spaces in South Asia, and the historical emergence of South Asia as a prominent global center of Sufism. The second and main part of this course introduces students to a range of anthropological and historical works that are revelatory about how Sufi in modern South Asia were and remain intimately connected to modern political and technological developments. Providing students with an overview of Sufi re-enchantments of modernity from the 19th to 21st century, this section of the course focuses upon Sufi movements and masters who perpetuated or defended customary Islam through sophisticated appropriations of technologies and print networks, and negotiations with non-Muslim rulers and societies. Moreover, students will be introduced to anthropological and historical scholarship on religious worlds in modern South Asia that were and remain steeped in 'customary Islam' and Sufi performances and interpretations of Islam. These sources reveal how 'mystical' methods of performing Islam through ecstasy and spiritual restoration, and interpretations of dreams and visions, have regularly interacted with contemporaneous technologies. The third part of this course introduces students to the globalization of South Asian Sufism in North America, Europe and Southeast Asia. Herein, students will be encouraged to engage with anthropological and literary works pertaining to itinerant South Asian Sufi masters and their devotional cults, and introduced to active South Asian Sufi centers in Philadelphia.

Taught by: Sevea
Course not offered every year
Activity: Seminar
1 Course Unit

**SAST 250 History of Hinduism**

This course will explore the history of the religion(s) designated by the term 'Hinduism' from their earliest articulations down to the rise of modern reforms in the nineteenth century. The study of Hinduism is perhaps unique among the scholarly traditions on world religions in that it has to date had no serious connected account of its historical development, as scholars have preferred to take structural, sociological, phenomenological, and doctrinal approaches to the religion. The course, after a brief review of scholarly approaches to Hinduism and their interpretive legacies, will seek to develop a historical sense of the religion through attention to shifts in liturgy, ritual, theology, doctrine, sacral kingship, and soteriology. The course will include the reading of primary sources relevant to understanding these changes as well as highlight both modern and premodern traditions of their interpretation. It will also consider and assess some of the key interpretive ideas in the study of Hinduism, including, Sanskritization, Great and Little Traditions, cult formation, regional and popular religious movements, and canon formation. There will also be sustained consideration of the question of religion and socio-political power as well as relations between Hinduism and other religions like Buddhism and Islam.

Taught by: Soneji
Course not offered every year
Activity: Lecture
1 Course Unit

**SAST 251 Muslim Sainthood Practices**

This course aims at introducing various classical, popular and modern Muslim saints in South Asia. We will read the life stories of these saints and focus on their contribution to various religions in South Asia. We will read the life stories of these saints and focus on their contribution to various religions in South Asia. We will learn about the major concepts initiated and circulated by these saints and their distinctive ways of dealing with spiritual aspects. While focusing on thir sainthood practices, we also study the nature of the dialogue which addresses the questions such as pluralism, localism, and a new paradigm of spirituality that continually interacts with diverse modes of everyday life in South Asia. In order to understand their impact on visual and media cultures, we also watch two documentaries and compare these visual sources with sainthood literature and practices.

Taught by: Mohammad, M.A.
Course not offered every year
Activity: Seminar
1 Course Unit

**SAST 252 Music, Religion, Ritual in South and Southeast Asia**

What role does music play in articulating religious identities and spaces? What is the importance of ritual musics as they persist and change in the modern world? How does music reflect and articulate religious ways of thinking and acting? In this course, we explore these and other questions about the interrelations between music, religion, and ritual in South and Southeast Asia. Focusing on India, Sri Lanka, Malaysia, and Indonesia, the course emphasizes musics from Hindu, Buddhist, Muslim and Christian traditions; nevertheless, it draws widely to touch upon sacred musics in Pakistan, Nepal, Burma, Thailand, Vietnam, and among some indigenous peoples in the region. Throughout, we explore ontologies of sound; sonic occurrences in religious structures, public processions, and pilgrimage sites; the construction of religion and ritual as ideas forged through colonial encounter and modern scholarship on religion; the politics of sacred sounds in today’s public spaces and contemporary media, such as television and online; and the surprising fluidity between popular and sacred musical genres.

Taught by: Sykes
Activity: Lecture
1 Course Unit
SAST 262 The Making of Medieval India
This course will provide an in-depth understanding of South Asia in what is often called its "medieval" period— from the rise of the great temple kingdoms until the end of the Delhi Sultanate in the sixteenth century (c. 500 CE - c. 1500 CE). This millennium is arguably one of the most transformative in South Asia's history, a period when many of its most distinctive social and cultural features evolved. The course will provide both an overview of the period as well as an introduction to major interpretations and types of sources (textual, visual, and archaeological). The focus throughout the course will be on the heterogeneous development of states, societies and cultures with special attention to long-term processes of transformation. One set of themes explored will be largely social and economic, focusing on the development of agrarian and peasant societies, aristocracies and intellectuals, as well as the role of mercantile, pastoralist, nomadic and forest-living groups. Another set of themes will explore cultural transformation, including the development, transformation and interaction of religious practices, the emergence of cosmopolitan and regional literary cultures, and the rise of distinctive urban, courtly, and rural world views. Special themes of discussion may include violence and manners, material cultures, religious conflict, devotional religion and gender relations.

Taught by: Ali
Course not offered every year
Activity: Lecture
1 Course Unit

SAST 269 Migration and the Middle East
This reading and discussion-intensive seminar examines the phenomenon of migration into, out of, within, and across the Middle East and North Africa. We will focus on the period from the late nineteenth century to the present, and will emphasize the cultural (rather than economic) consequences of migration. Along the way we will trace connections between the Middle East and other regions— notably the Americas, sub-Saharan Africa, South Asia, the Caucasus, and Western Europe. Readings are interdisciplinary and include works of history, anthropology, sociology, medical research, literature, political science, geography, and human rights advocacy. As students develop final projects on topics of their choice, we will spend time throughout the semester discussing tactics for research and writing.

Taught by: Sharkey
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This is a topics course and will vary from year to year.

SAST 290 South Asians in the United States
This course investigates the everyday practices and customs of South Asians in America. Every immigrant group has its own history, customs, beliefs and values, making each unique while simultaneously a part of the "melting pot" or salad bowl of American society. Yet how do people define themselves and their ethnicities living in a diasporic context? By taking into account the burgeoning South Asian American population as our model, this course will explore the basic themes surrounding the lives that immigrants are living in America, and more specifically the identity which the second generation, born and/or raised in American, is developing. South Asians in the U.S. will be divided thematically covering the topics of ethnicity, marriage, gender, religion, and pop culture. Reading and assignments will discuss a variety of issues and viewpoints that are a part of the fabric of South Asia, but will focus on the interpretation of such expressive culture in the United States.

Taught by: Khan
Course usually offered in fall term
Activity: Lecture
1 Course Unit

SAST 293 Caste & Class in South Asia
This course will explore the reality of caste and class in South Asian society. We will survey a wide sweep of sources, from the earliest evidence for a division into caste-classes in the Rig-Veda to reports in modern media of caste-related social problems; from orthodox Hindu normative texts justifying and upholding a rigid hierarchical division of society to voices, in Sanskrit and in vernaculars, criticizing the caste system. Our goal is to gain a nuanced and many-sided insight into a deeply pervasive phenomenon that has shaped South Asian society, culture, and religion in general (Muslim, Sikh, and Christian castes) from ancient time up to the twentieth century.

Taught by: Sreenivasan
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 297 Nature Culture Environmentalism: Urban Water
In Spring 2018, this course is specially designed to appeal to students with interests in urban studies and environmental studies across different disciplines. We will explore the nature, cultures and environmentalisms of cities by exploring the matter of urban water. Cities have long been made through historic projects to tame the unruly relations between land and water. As the catastrophic human disasters in Houston, Florida and Puerto Rico have recently shown, these relations are today everywhere being unsettled and exacerbated by climate change. In cities as diverse as Philadelphia and Mumbai, climate change promises to exacerbate social inequalities and further squeeze non-human natures. How is the urban environment produced, magnified, divided and shrunk with water? In these times, how might we make space for social justice and non-human natures in and along rising urban waters?

Taught by: Anand, N
Activity: Seminar
1 Course Unit

SAST 300 Directed Study
This course is required for all senior honors majors, and open to senior majors. Honors majors must, in addition, prepare a research paper.
One-term course offered either term
Activity: Independent Study
1 Course Unit
SAST 312 20th Century South Asian Art
Topic varies. Spring 2015: Using resources of the Philadelphia Museum of Art’s exceptional collection, this workshop will explore India’s remarkable traditions of sculpture produced for singular narrative and iconic ends.
Taught by: Meister
Activity: Seminar
1 Course Unit

SAST 324 Sanskrit Literature in Translation
This course will focus solely on the specific genres, themes, and aesthetics of Sanskrit literature (the hymn, the epic, the lyric, prose, drama, story literature, the sutra, etc.) and a study of the history and specific topics of Sanskrit poetics and dramaturgy. All readings will be in translation.
Taught by: Patel
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 334 A Survey of Sanskrit, Pakrit, and Classical Tamil Literature in Translation
This course will cover most of the genres of literature in South Asia’s classical languages through close readings of selections of primary texts in English translation. Special focus will be given to epics, drama, lyric poetry, satirical works, and religious literature.
Taught by: Patel
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 340 Religious Bodies and Sex in South Asia
This graduate-level course introduces students to the writings of key religious scholars in modern South Asia who associated the regeneration of Hinduism, Islam, and Sikhism with the cultivation of bodies and sexual practices. Particular attention will be paid towards religious texts produced in modern India, Pakistan and Bangladesh pertaining to sexual bodies, exercises and health; celibacy; body-building; the transmission of sexual knowledge; and the political roles of the ‘Hindu’, ‘Muslim’ and ‘Sikh’ body. In this course, students will be encouraged to engage a range of sources including religio-sexual manuals, autobiographies, novels, speeches, pamphlets, official records, recipes and films. Moreover, students will be introduced to the academic literature on South Asian religious scholars and ‘sex gurus’ in South and Southeast Asia; religious sexuality in South Asia, Southeast Asia, the Middle East and Europe; and, the transcultural literary networks that led to the production of religio-sexual texts in modern South Asia.
Taught by: Sevea, T
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 400 Beginning Hindi-Urdu Online (Startalk)
This introductory, proficiency-based course covers the core content of first-year Hindi-Urdu. It is designed for students with little or no prior exposure to Hindi or Urdu. The course covers all four language skills (speaking, listening, reading, and writing), but there is a special focus on developing speaking and listening skills. Students will also develop literacy skills in one script of their choice (Hindi or Urdu script). All written materials will be provided in both scripts. All classes are interactive and students acquire the language by using it in realistic contexts. Culture is introduced through various authentic materials including Bollywood songs. This program has a special application process. Please visit our website (https:/www.southasiacenter.upenn.edu/startalk) for more information on the program and how to apply.
Taught by: Pien, J.
Course usually offered summer term only
Activity: Lecture
1 Course Unit
Notes: This is a summer online course known also as Startalk.

SAST 405 Beginning Pashtu I
The first semester is focused on mastering the writing system, basic structures, and simple conversation using texts, writing samples, and numerous structure and dialogue drills. We remain within the present and future tenses only, developing vocabulary with lessons and discussions centered around greetings, family, weather, foods, and directions. Students use authentic online and textbook materials.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

SAST 406 Beginning Pashtu Part II
The second semester covers more advanced structures with reinforcing drills, and begin reading longer texts of an assorted variety, mostly short stories and some news articles. The past tense is introduced, as well as longer more complex texts. Topics within simple simulated contexts (taxi, hotel, restaurant, food shopping, time, family). Short writing exercises and dictations are expected at this time, as well as simultaneous translations to and from Pashto.
For BA Students: Language Course
Course usually offered in spring term
Prerequisites: Beginning Pashtu Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit
Notes: Offered through Penn Language Center.
SAST 407 Beginning Kannada Part I
This is a systematic introduction to the Kannada language and culture for beginners. The course aims at developing listening and comprehension and a real life interactive speaking ability in a variety of everyday topics. The Kannada script is introduced from the beginning and the language is presented in its socio-cultural context for achieving a meaningful and operational control of the language. Students acquire basic rules for structural and socio-cultural appropriateness. Students learn vocabulary related to a variety of topics during the semester. Class activities include watching videos, role-playing, language games and group work. Evaluation is based on class participation, performance in quizzes and tests and completed assignments.
For BA Students: Language Course
Taught by: Swaminathan
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

SAST 408 Beginning Kannada Part II
This is a systematic introduction to the Kannada language and culture for beginners. The course aims at developing listening and comprehension and a real life interactive speaking ability in a variety of everyday topics. The Kannada script is introduced from the beginning and the language is presented in its socio-cultural context for achieving a meaningful and operational control of the language. Students acquire basic rules for structural and socio-cultural appropriateness. Students learn vocabulary related to a variety of topics during the semester. Class activities include watching videos, role-playing, language games and group work. Evaluation is based on class participation, performance in quizzes and tests and completed assignments.
For BA Students: Language Course
Taught by: Swaminathan
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

SAST 410 Beginning Marathi Part I
The first year course in Marathi begins with learning the Devnagari script which is common for other important languages like Hindi and Nepali. With proper emphasis on grammar, vocabulary, and phonetics, the syllabus will see the student becoming able to speak conversational Marathi, read Marathi data from the Internet, and compose simple short essays on selected topics.
For BA Students: Language Course
Taught by: Ranade
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

SAST 411 Beginning Marathi Part II
Simple sentences in the present tense, narration (spoken as well written) of day to day activities, expressing likes & dislikes, culturally appropriate greetings and addressing, ability to describe events happening in present and present incomplete tense, consolidation of reading and writing skill acquired in the previous semester as well as proper pronunciations of common usage words and phrases. Speaking practices based upon the My Marathi Text book created by University of Mumbai.
For BA Students: Language Course
Taught by: Ranade
Course usually offered in spring term
Prerequisite: Beginning Marathi Part I or equivalent ascertained through placement test or permission of instructor
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center

SAST 412 Intermediate Marathi Part I
Intermediate Marathi builds up upon the Beginning Level of Marathi. Gaining ability to speak about past and future is the most important skill in the intermediate course. Students learn the grammar, vocabulary, sentence structures to narrate and write in simple language about their experiences, short anecdotes, their observations and opinions and future plans.
For BA Students: Language Course
Taught by: Ranade
Course usually offered in fall term
Prerequisite: Beginning Marathi Part I or equivalent ascertained through placement test or permission of instructor
Activity: Seminar
1 Course Unit
Notes: Offered through Penn Language Center

SAST 413 Intermediate Marathi Part II
In the syllabus for the fourth semester Marathi course gaining language inputs regarding Marathi culture and day to day daily life in Maharashtra becomes one important topic. Day to day communication skills necessary to survive in Maharashtra on the street like interaction with a grocery store clerk or a vegetable sales woman in the market, a rikshaw driver, a policeman, a commoner, asking and providing directions on the street and various day to day real life situations are improvised and practiced. Vocabulary, sentence structures and associated grammar is acquired during practice and real life situations based exercises.
For BA Students: Last Language Course
Taught by: Renade
Course usually offered in spring term
Prerequisite: Intermediate Marathi Part II or equivalent ascertained through placement test or permission of instructor
Activity: Seminar
1 Course Unit
SAST 421 Intermediate Urdu
In Intermediate Urdu, the curriculum focuses on the development of reading, listening and speaking skills. Although there are short assignments for writing in Urdu, the emphasis on developing writing as a skill is not part of the course objectives. Authentic texts in the three skills include conversations, short stories, current events, articles, films and plays. There is a continuous emphasis on vocabulary development and students are expected to add about five hundred new words to their active vocabulary per semester. The rules of grammar for structural accuracy and social-cultural propriety are parts of the regular curriculum. Class activities include students’ short presentations, role-plays, singing and conversations. There are weekly assignments and quizzes, a mid-term and a final examination. The final evaluation will rest on class participation, performance in quizzes and tests, and completed assignments. This is a two-semester course.
Taught by: Menai
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

SAST 425 Intermediate Pashtu Part I
A more in-depth study of the Pashto language. Reading, writing, speaking, and listening comprehension are all stressed in this more advanced course which also builds on the grammar of beginning level.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

SAST 426 Intermediate Pashtu Part II
The second semester of intermediate study and a more in-depth study of the Pashto language. Reading, writing, speaking, and listening comprehension are all stressed in this more advanced course which also continues to build on grammer skills.
Two terms. student must enter first term.
Prerequisites: Intermediate Pashtu Part II or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit
Notes: Offered through Penn Language Center.

SAST 427 Intermediate Kannada Part I
This course continues the study of the Kannada language and culture from where the beiginers II course ended. The course continues developing listening and comprehension and a real life interactive speaking ability in a variety of everyday topics. The Kannada script is learned in its socio-cultural context for achieving a meaningful and operational control of the language. Students acquire rules for structural and socio-cultural appropriateness. Students learn vocabulary related to a variety of topics during the semester. Class activities include watching videos, role-playing, language games and group work. Evaluation is based on class participation, performance in quizzes and tests and completed assignments.
For BA Students: Language Course
Taught by: Sundaram
Course usually offered in fall term
Activity: Lecture
1 Course Unit
Notes: Offered through Penn Language Center.

SAST 428 Intermediate Kannada Part II
Students continue their study of Intermediate Kannada I, both in language and culture. The course aims at honeing listening and comprehension and a real life interactive speaking ability in a variety of everyday topics. The Kannada script is learned in its socio-cultural context for achieving a meaningful and operational control of the language. Students acquire basic rules for structural and socio-cultural appropriateness. Students learn vocabulary related to a variety of topics during the semester. Class activities include watching videos, role-playing, language games and group work. Evaluation is based on class participation, performance in quizzes and tests and completed assignments.
For BA Students: Last Language Course
Taught by: Sundaram
Course usually offered in spring term
Prerequisites: Intermediate Kannada Part II or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit
Notes: Offered through Penn Language Center.

SAST 447 Advanced Kannada: Selected Topics
Directed topics vary by semester in advanced level Kannada.
Taught by: Rajagopalan
One-term course offered either term
Activity: Lecture
1 Course Unit

SAST 449 Advanced Marathi
Theater and Films, Literature and poetry, Folk Songs, Dance and Music; this one semester course will explore the rich Marathi culture as well as will work on increasing the spoken, listening, reading and written proficiency of the students. News stories from the Marathi print media as well as glimpses from Marathi Television, News as well as Serials and popular comedy shows become the authentic materials in this course. Students learn the linguistic as well as cultural aspect of the variety of material through discussions, presentations in which students acquire and use the language to describe, narrate, express their opinions, evaluate, critique and appreciate these aspects of Marathi urban and rural culture.
Taught by: Ranade
Course not offered every year
Activity: Lecture
1 Course Unit

SAST 500 Introduction to Art in South Asia
This course is a survey of sculpture, painting and architecture in the Indian sub-continent from 2300 B.C., touching on the present. It attempts to explore the role of tradition in the broader history of art in India, but not to see India as ‘traditional’ or unchanging. The Indian sub-continent is the source for multi-cultural civilizations that have lasted and evolved for several thousand years. Its art is as rich and complex as that of Europe, as diverse. This course attempts to introduce the full range of artistic production in India in relation to the multiple strands that have made the cultural fabric of the sub-continent so rich and long lasting.
Course not offered every year
Activity: Lecture
1 Course Unit
SAST 503 Historical Transitions In Early India
This course will focus on major historical transitions in the South Asian subcontinent until approximately AD 1200. It will focus on particularly on political, social and liturgical philosophical change. It will also introduce students to the major narratives and interpretations of the ancient and early medieval periods as they bear on these questions and will also familiarize students with the sources upon which this history has been based. It will review debates, critical perspectives and recent trends in this historiography with a view toward developing a sensitivity to the theoretical problems that attend the study of pre-modern India. Its persistent themes will be historical continuity and disjuncture in the history of religious practices and ideas, the emergence of political forms and the nature of the 'state' in precolonial India, transformations of society and economy, and the relationship between discursive production and relations of power. It will be of interest to students of history, literature, religion and archaeology.
Taught by: Ali
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 505 Topics in Indian Art
Aspects of sculpture, painting, iconography, or architecture in the Indian sub-continent. Topic varies. Fall 2016: Important as texts have been to South Asia's history, perceptions of the physical world dominate experience within South Asian cultures. Seeing and being seen, vocalizing and hearing, contribute to the construction of meaning. This pro-seminar will approach South Asia's perceptual world as expressed and tested by art, and methods to frame art as a source of knowledge.
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 508 Doing Research: Qualitative Methods and Research Design
This interdisciplinary course introduces students to qualitative research methods and frameworks in the social sciences and humanities. Students will learn how to frame an effective research question, situate it in relation to existing research, select the most appropriate methods for addressing the question, and develop an effective research plan. Each week students will be introduced to a new set of frameworks for analysis, see specific examples of their application drawn from anthropological, historical, and related scholarship and have opportunities to practice applying and evaluating the strengths and weaknesses of specific methodological tools. The goals of the semester will be for each student to develop their own research proposal for a specific project. Students will be introduced to a range of textual, archival and media collections and databases available at Penn, with particular attention to South Asia and other specific regions of interest to course participants. Students will also have the opportunity to identify sources of funding for summer and/or thesis research projects, and submit applications for these opportunities as part of the course. The course is ideal for students considering summer research, an undergraduate thesis, or an application to the Fulbright or other research program.
Taught by: Mitchell
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 517 CU In India - Topics Course
C.U. in India is a hybrid, domestic/overseas course series which provides students with the opportunity to have an applied learning and cultural experience in India or South East Asia where students participate in 1) 28 classroom hours in the Fall term 2) a 12-day trip to India or South East Asia with the instructor during the winter break visiting key sites and conducting original research (sites vary) 3) 28 classroom hours at Penn in the Spring term and 4) a research paper, due at the end of the Spring term. Course enrollment is limited to students admitted to the program. For more information and the program application go to http://sites.sas.upenn.edu/cuinindia This is a 2-CU yearlong course Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

SAST 534 A Survey of Sanskrit, Pakrit, and Classical Tamil Literature in Translation
Taught by: Patel
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 541 Religion and the Visual Image: Seeing is Believing
Seeing is Believing engages in a historical, theoretical, and cross-cultural analysis of the place of visuality in religion and of religion in visual culture. We will examine images, buildings, places, objects, performances and events. The geographical, cultural and historical scope of the material is broad, including subjects from Europe, the Islamic World, non-Muslim South Asia, the US and Latin America from the medieval period until the present. Theoretical works will be read in conjunction with representative examples to invite intellectual engagement in a socially and historically grounded way. Important issues to be covered include the relationship of visual to material culture; visual theories versus theories of vision; locating religion in human sensory experience; perception at individual and collective levels; authentics, fakes and simulacra; iconoclasm and image veneration; aesthetics, use and utility; and things.
Taught by: Elias
Course not offered every year
Activity: Seminar
1 Course Unit
SAST 550 History of Hinduism
This course will explore the history of the religion(s) designated by the term 'Hinduism' from their earliest articulations down to the rise of modern reforms in the nineteenth century. The study of Hinduism is perhaps unique among the scholarly traditions on world religions in that it has to date had no serious connected account of its historical development, as scholars have preferred to take structural, sociological, phenomenological, and doctrinal approaches to the religion. The course, after a brief review of scholarly approaches to Hinduism and their interpretive legacies, will seek to develop a historical sense of the religion through attention to shifts in liturgy, ritual, theology, doctrine, sacral kingship, and soteriology. The course will include the reading of primary sources relevant to understanding these changes as well as highlight both modern and premodern traditions of their interpretation. It will also consider and assess some of the key interpretive ideas in the study of Hinduism, including, Sanskritization, Great and Little Traditions, cult formation, regional and popular religious movements, and canon formation. There will also be sustained consideration of the question of religion and socio-political power as well as relations between Hinduism and other religions like Buddhism and Islam.
Taught by: Ali
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 551 Muslim Sainthood Practices
This course aims at introducing various classical, popular and modern Muslim saints in South Asia. We will read the life stories of these saints and focus on their contribution to various religions in South Asia. We will read the life stories of these saints and focus on their contribution to various religions in South Asia. We will learn about the major concepts initiated and circulated by these saints and their distinctive ways of dealing with spiritual aspects. While focusing on this sainthood practices, we also study the nature of the dialogue which addresses the questions such as pluralism, localism, and a new paradigm of spirituality that continually interacts with diverse modes of everyday life in South Asia. In order to understand their impact on visual and media cultures, we also watch two documentaries and compare these visual sources with sainthood literature and practices.
Taught by: Mohammad, M.A.
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 552 The Making of Medieval India
This course will provide an in-depth understanding of South Asia in what is often called its 'medieval' period—from the rise of the great temple kingdoms until the end of the Delhi Sultanate in the sixteenth century (c. 500 CE - c. 1500 CE). This millennium is arguably one of the most transformative in South Asia’s history, a period when many of its most distinctive social and cultural features evolved. The course will provide both an overview of the period as well as an introduction to major interpretations and types of sources (textual, visual, and archaeological). The focus throughout the course will be on the heterogeneous development of states, societies and cultures with special attention to long-term processes of transformation. One set of themes explored will be largely social and economic, focusing on the development of agrarian and peasant societies, aristocracies and intellectuals, as well as the role of mercantile, pastoralist, nomadic and forest-living groups. Another set of themes will explore cultural transformation, including the development, transformation and interaction of religious practices, the emergence of cosmopolitan and regional literary cultures, and the rise of distinctive urban, courtly, and rural worldviews. Special themes of discussion may include violence and manners, material cultures, religious conflict, devotional religion and gender relations.
Taught by: Ali
Course not offered every year
Activity: Lecture
1 Course Unit

SAST 560 Modern History of Pakistan
This course is designed as an introduction to the contemporary history of Afghanistan and Pakistan, with an emphasis on the intertwined history of both countries; their other regional neighbors; and global politics. The course focuses on global trends such as empire, nationalism, the Cold War, superpower competition, and transnational Islamism. At the same time, participants will explore how local people viewed their lives amidst these trends, and how local dynamics on this northwestern fringe of the Subcontinent changed the face of global politics. The readings supplement political and economic history with primary sources drawn from popular poetry, oral narrative, and memoir. Finally, we'll be following current events in the region, and placing them in their sociohistorical context. Therefore, there are two main goals for this course: (1) to introduce the specific history of Afghanistan and Pakistan up to present, and (2) to introduce typologies of social institutions and events, assisting class participants to develop their own frameworks for interpreting current events in the region after the end of the course.
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 562 The Making of Medieval India
SAST 589 Islam and the West
This course introduces students to Islam in modern South Asia, with a particular focus on the development of 'new' Muslim religious idioms, orientations, pedagogies and movements in 19th and 20th century South Asia. This course is divided into three parts. In the first part of this course, students are provided with an overview of: Muslim institutions and spaces in pre-colonial South Asia, the historical emergence of South Asia as a prominent global center of Islam, and the development of Urdu as an Islamic idiom. The second and main part of this course introduces students to academic literature concerning sophisticated encounters between the Muslim elite in north India and modern political and technological developments. The intimate interactions of the 'Mullah' and the 'Englishman' from the 19th to 20th century will thus be revealed to students. This part focuses upon, on the one hand, the role of Islam and pious Muslims in the colonial army, and on the other hand, Muslim initiatives to educate an Islamic 'modernism', 'traditionalism', 'fundamentalism' and 'Sufism', and appropriate print technologies for the creation of public spheres. Students will be introduced to historical scholarship revelatory of how these Muslim pedagogies and print initiatives were based upon sophisticated transcultural networks and exchange. In the third part of this course, students will be encouraged to engage with contemporary literature on South Asian Muslim political philosophy and nationalism, and the transcultural intellectual exchanges that produced key Muslim political ideologies.

Taught by: Sevea
Activity: Seminar
1 Course Unit

SAST 593 Caste & Class in South Asia
This course will explore the historiography and theory of caste and class in South Asia. While we will survey the evidence from the pre-modern period briefly, the primary focus of the course will be on the period between the eighteenth and twentieth centuries. We will examine the degree to which colonial rule triggered particular kinds of class-oriented and caste-oriented 'reform', and the extent to which South Asian actors themselves shaped the nature of such change. The course will also provide an introduction to the work of the Subaltern school historians who have engaged with such questions, and situate them within the wider field of South Asian historiography.

Taught by: Sreenivasan
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 603 Intro To Indian Philos
Course usually offered in fall term
Activity: Lecture
1 Course Unit

SAST 604 Neoliberalism and the City
Over fifty percent of the worlds population now lives in cities. Neoliberalism—the ideology and accompanying policies and practices that champion the shifting of political decision making from the public sector to the private sector—has been widely recognized as having shown dramatic growth worldwide since the 1970s. It has also been widely regarded as a product of globalization. This course traces the history of neoliberalism in global context with particular attention to neoliberalism's relationship to cities, and examine the role that urban growth has played in spurring neoliberal policies and practices. It asks how policy makers, voters, and private interest worldwide have responded to the growth of urban poverty and slums, challenges withing urban public education, unequal resource distribution, environmental pressures experienced within urban sanitation and waste disposal systems, and increased demands for municipal services like water, electricity, and transport infrastructers, and examined the rise of public-private partnerships, gated communities, initiatives to privatized education and municipal services, and efforts to relocate slum-dwellers and beautify cities as explicit strategies for attracting "global capital". The course also asks how the recent rise of neoliberal policies and practices differs from earlier market-driven and private sector led forms of political governance. The British and Dutch East India Companies are two famous examples of joint stock companies that assumed administrative and political roles over their colonies. How did the rise of these colonial relationships differ from current neoliberal shifts. Readings will draw heavily from ethnographic and urban studies, scholarship on South Asia, as well as Latin America, South Africa, the Middle East, Europe, and North America, exploring what each of these specific contexts has to teach us more generally about the relationship between urbanization, global capitalism, public and private sectors, and political processes and decision making.

Taught by: Mitchell
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 617 Readings in Modern Indian History
This course will introduce students to the major themes and debates of modern Indian historiography. Though the course will not provide a survey outline of events, it will be organized around themes that have a broad chronological sequence. It will touch on key topical themes like the transition to colonialism, the development of the colonial economy, the evolution and significance of colonial knowledge systems, the impact and shape of religious and social reform, the rise of nationalism and communalism, and peasant, labour and subaltern history. The goal of the course will be to provide students with an understanding of the significance of debates around key themes in modern Indian history and a familiarity with the different 'schools' or 'traditions' of historical interpretation, including Nationalist, Marxist, the so-called 'Chicago', and 'Cambridge' schools, as well as the Subaltern collective and post-Subaltern historiography.

Taught by: Ali
Course not offered every year
Activity: Seminar
1 Course Unit
SAST 620 Godliness, Miracles, and ‘Madness’ in Indian Ocean Port Cities
This graduate-level course introduces students to religious worlds within port cities of the modern Indian Ocean that were centered upon peripatetic Muslim, Saiva, Christian and Sikh miracle-workers, missionaries and ‘gods’. This course will particularly consider how extant, published sources reveal how religion in 19th and 20th century cosmopolitan port cities and islands: was centered upon holy men and women or spiritual beings, and intricately connected to modern economic, political and technological developments in the India Ocean. This course is divided into three parts. In the first part of this course, students will be introduced, on the one hand, to the scholarship on the port cities or islands of, and religions or religious networks in, the modern Indian Ocean. On the other hand, to anthropological, historical and literary works on Muslim saints, Christian missionaries and Saiva gods in the Indian Ocean. In the second and main section of this course, students will be introduced to contemporary academic literature pertaining to the inter-linkages between itinerant miracle-workers, missionaries, ‘gods’ and devotional cults, and economic, political and technological developments in the Indian Ocean. As well as works that explore European institutions, barracks, plantations, cells and asylums, and and steam travel being steeped in customary religion, carnivals, ecstasy, madness and miracle stories. Here, students will be encouraged to consider ways in which a study of religion and religious economies of modern Indian Ocean port cities can be recovered through extracts from a range of anthropological, literary and historical sources. In the third part of this course, students will be encouraged to engage with the question of whether the religion of devotional cults preoccupied with the powers of Muslim, Saiva, Christian, and Sikh miracle-workers, missionaries and ‘gods’ in cosmopolitan port cities, was a distinct product of circulations within the Indian Ocean.
Taught by: Sevea
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 623 Literary History and Aesthetics in South Asia
This seminar surveys the multiple components of literary culture in South Asia. Students will engage critically with selected studies of literary history and aesthetics from the past two millennia. In order to introduce students to specific literary cultures (classical, regional, contemporary) and to the scholarly practices that situate literature in broader contexts of culture and society, the course will focus both on the literary theories - especially from the nineteenth and twentieth centuries - that position South Asia's literary cultures within broader disciplinary frameworks that use literary documents to inform social, historical and cultural research projects. The aim is to open up contexts whereby students can develop their own research projects using literary sources.
Taught by: Patel
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 624 Sanskrit Literature in Translation
This course will focus solely on the specific genres, themes, and aesthetics of Sanskrit literature (the hymn, the epic, the lyric, prose, drama, story literature, the sutra, etc.) and a study of the history and specific topics of Sanskrit poetics and dramaturgy. All readings will be in translation.
Taught by: Patel
Course not offered every year
Activity: Seminar
1 Course Unit

SAST 625 PHILOLOGY AND HISTORY: READING SOUTH ASIAN TEXTS
Taught by: Patel, D
Activity: Seminar
1 Course Unit

SAST 627 South Asia Literature as Comparative Literature
This course takes up the question of reading South Asian Literature both as a collection of diverse literary cultures, as well as the basis for a methodology of reading that takes language, region, and history into account. It takes as a starting point recent work that foregrounds the importance of South Asian language literatures, and their complex interactions, to an understanding of South Asian literary history, as well as critiques of the concept of world literature that question its underlying assumptions and frequent reliance on cosmopolitan languages such as English. In what ways can we describe the many complex interactions between literary cultures in South Asia, rooted in specific historical contexts, reading practices, and cultural expectations, while maintaining attention to language and literary form? How, in turn, can we begin to think of these literatures in interaction with larger conversations in the world? With these considerations in mind, we will examine works of criticism dealing with both modern and pre-modern literatures, primarily but not exclusively focused on South Asia. Topics will include the concept of the cosmopolis in literary and cultural history, the role of translation, the transformations of literature under colonialism, and twentieth century literary movements such as realism and Dalit literature. Readings may include works by Erich Auerbach, Frederic Jameson, Aijaz Ahmad, Gayatri Spivak, Aamir Mufti, Sheldon Pollack, David Shulman, Yigal Bronner, Shamshur Rahman Faruqi, Francesca Orsini, Subramanian Shankar, Sharankumar Kimbale, and Torlao Jatin Gajarawala. We will also examine selected works, in English and in translation, as case studies for discussion. This course is intended both for students who intend to specialize in the study of South Asia, as well as for those who focus on questions of comparative literature more broadly.
Taught by: Goulding
One-term course offered either term
Activity: Seminar
1 Course Unit

SAST 632 Hinduism and Colonial Modernity
This seminar deals with the question of modernity in South Asia, with a specific focus on the construction, dissemination, and politicization of Hinduism in nineteenth and twentieth century India. It focuses on three central heuristic lenses—namely those of European imperialism, Orientalism, and nationalism—to study modernity and its discontents. What was at stake in the encounter between colonial modernity and India’s religions in nineteenth and early twentieth centuries? How did colonial and native discourses on “reform” and “revival” shape Indian religions as we understand them today? How is modern “Hinduism” inextricably hinged to early forms of cultural transnationalism, Orientalism, and incipient forms of nationalism? This seminar approaches questions such as these and others, with an eye to understanding how nineteenth and early twentieth century discourses continue to shape contemporary understandings of Hinduism in deep and highly politicized ways.
Taught by: Soneji
Course not offered every year
Activity: Seminar
1 Course Unit
**SAST 633 THE PERSIAN INTELLECTUAL TRADITION**
What makes Persian culture distinctive within broader Islamic intellectual history, and what constitutes the historical and geographical boundary of the Persianate intellectual and cultural zone? These questions lie at the center of inquiry in this seminar in which participants will read and discuss a broad range of works from the 11th to the 20th centuries. Readings will include works on philosophy and language, Sufi epic poems, religious and cultural geographies, accounts of natural and manufactured wonders, urban and political histories, as well as other kinds of texts. All readings will be in English for the regular meeting of the seminar; students with a reading knowledge of Persian and an interest in participating in an additional meeting to read the assignments in their original language should register for the higher of the two numbers listed for this course.
Taught by: Elias
One-term course offered either term
Activity: Seminar
1 Course Unit

**SAST 640 Religious Bodies and Sex in South Asia**
This graduate-level course introduces students to the writings of key religious scholars in modern South Asia who associated the regeneration of Hinduism, Islam, and Sikhism with the cultivation of bodies and sexual practices. Particular attention will be paid towards religious texts produced in modern India, Pakistan and Bangladesh pertaining to sexual bodies, exercises and health; celibacy; body-building; the transmission of sexual knowledge; and the political roles of the ‘Hindu,’ ‘Muslim’ and ‘Sikh’ body. In this course, students will be encouraged to engage a range of sources including religio-sexual manuals, autobiographies, novels, speeches, pamphlets, official records, recipes and films. Moreover, students will be introduced to the academic literature on South Asian religious scholars and ‘sex gurus’ in South and Southeast Asia; religious sexuality in South Asia, Southeast Asia, the Middle East and Europe; and, the transcultural literary networks that led to the production of religio-sexual texts in modern South Asia.
Taught by: Sevea
Course not offered every year
Activity: Seminar
1 Course Unit

**SAST 701 Methodology Seminar: Topics**
Topics vary
Taught by: Mitchell,L
One-term course offered either term
Activity: Seminar
1 Course Unit

**SAST 711 Seminar in Indian Art**
Research seminar. Topics change. Spring 2016: We will examine the practice and symbolism of South Asian Architecture with case studies of how to build and how to make buildings meaningful.
One-term course offered either term
Activity: Seminar
1 Course Unit

**SAST 713 Literature in Translation: South Asia and the World**
This course primarily introduces how to critically read literature in light of major global developments in contemporary literary theory and aesthetics from the past centure (including structuralism, semiotics, reception theory, deconstruction, Marxist approaches to literature, feminist readings of texts, translation theory, etc.). It also draws attention to scholatic practices of textual criticism, paleography, and the preparation of critical editions. In doing so, the course emphasizes specific texts and essays related to South Asian literature, literary theory, and aesthetics from the past two millenia as case studies in order to:
- supplement students’ knowledge of South Asian cultural production,
- frame social and historical questions related to art and aesthetics in contexts that have been otherwise under-explored, and
- inspire debate about the extent to which analytical models and approaches developed within a given cultural setting are translatable to literary materials produced elsewhere. Students will develop their own projects, workshop what they have already begun, or explore new directions for studying literature and literary culture. Comparative approaches with other literary traditions are welcome and no background in South Asian languages or history is required.
Taught by: Elias
Course not offered every year
Activity: Seminar
1 Course Unit

**SAST 769 Feminist Theory**
Specific topic varies. Dissent is a key word in our world today--from the Arab Spring to the American Fall, we have seen expressions of political disobedience and protest around the world. It is more urgent than ever to consider what dissent might mean, what shapes it has taken historically, what connection might exist between it and literature, and what futures are possible. We will read critical and theoretical work alongside some powerful, tender and controversial writings and films (largely but not exclusively produced in the postcolonial world), to inquire into the politics and poetics of governance and dissent. Students are invited to make connections with other historical and geographical contexts, and explore the different forms of dissent individual, collective, urban, rural, nationalistic, pan-nationalist, religious, marxist, or feminist, to name but a few. We will pay special attention to different performances of dissent at a popular, mass or individual level. We will think about the social and cultural channels attention to different performances of dissent at a popular, mass or See the English Department’s website at www.english.upenn.edu for a complete description of the current offerings.
Activity: Seminar
1 Course Unit
SAST 999 Independent Study
Directed Study for Graduate students only
One-term course offered either term
Activity: Independent Study
1 Course Unit
SPANISH (SPAN)

SPAN 110 Elementary Spanish I
Spanish 110 is a first-semester language course that emphasizes the development of foundational listening, speaking, reading and writing skills while exploring the rich cultural mosaic of the Spanish-speaking world. Through listening activities and videotaped interviews with native speakers, your aural and oral abilities will improve at the same time that you will become familiarized with different varieties of standard spoken Spanish. You will be given ample opportunities to practice orally and in writing so that you can reinforce newly acquired vocabulary and grammatical structures. Reading strategies will facilitate your comprehension of the texts included in the course syllabus. Readings focused on a specific country or region, visual items (such as maps, photos, films) and a class project will advance your knowledge of Hispanic cultural practices and products while increasing your intercultural competence. Conducted entirely in Spanish, this class will provide you with guided practice before moving to more independent and spontaneous language production. Working in small groups and in pairs, you will participate in class activities that simulate real-life situations that will help you gain confidence communicating in Spanish. Goals: By the end of this course you can expect to handle a variety of day-to-day situations in a Spanish-speaking setting: 1) Greet and introduce people, invite people to events, accept or reject invitations, ask for directions, tell time, shop and order meals in a restaurant. 2) Talk about yourself, family, and friends regarding physical and emotional states, daily routines, leisure, preferences and plans. 3) Use the cultural information learned in class as an icebreaker to find common ground with a wide variety of Spanish speakers.

For BA Students: Language Course
Course usually offered in fall term
Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form: https://www.sas.upenn.edu/hispanic-portuguese-studies/sites/www.sas.upenn.edu.hispanic-portuguese-studies/files/SPANISH%20110%20CRF.pdf Students will have to complete and submit this form during the first week of classes so their instructors can verify that they are enrolled in the appropriate course.
Activity: Seminar
1 Course Unit

SPAN 112 Elementary Spanish I and II: Accelerated
Spanish 112 is an intensive course designed for students who have already satisfied the language requirement in another language and have not previously studied Spanish. By combining the curriculum of Spanish 110 and 120, Spanish 112 seeks to develop students’ foundational listening, speaking, reading, and writing skills while exploring the rich cultural mosaic of the Spanish-speaking world. Through listening activities and mini documentaries shown in class, students will develop their aural and oral skills at the same time that they will become familiarized with different varieties of standard spoken Spanish. Students will be given ample opportunities to practice orally and in writing so that they can reinforce newly acquired vocabulary and linguistic structures. Readings focused on a specific country or region, visual items (such as maps, photos, and films) and a class project will advance students’ knowledge of Hispanic cultural practices and products while increasing their intercultural competence. Goals: By the end of this course students can expect to handle a variety of day-to-day situations in a Spanish-speaking setting such as: 1) Introduce themselves, use greetings, describe people, places and things, give instructions, tell time, go shopping, order meals in a restaurant, and make travel plans. 2) Talk about themselves, families, and friends regarding academic life, daily routines, health, work, leisure, and preferences (using the present and past tenses). 3) Use the cultural information learned in class as an icebreaker to find common ground with a wide variety of Spanish speakers.

For BA Students: Language Course
Course usually offered in fall term
Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form: https://www.sas.upenn.edu/hispanic-portuguese-studies/sites/www.sas.upenn.edu.hispanic-portuguese-studies/files/SPANISH%20110%20CRF.pdf Students will have to complete and submit this form during the first week of classes so their instructors can verify that they are enrolled in the appropriate course.
Activity: Seminar
2 Course Units
SPAN 115 Spanish for the Medical Professions, Elementary I
Spanish 115 is a first-semester elementary Medical Spanish Language course and the first in the Spanish for Medical Professions sequence. It is designed for students with no prior coursework in Spanish. This course teaches beginning students the fundamentals of practical Spanish with an emphasis on medical situations and basic medical terminology. In this course, particular attention will be given to developing speaking and listening skills, as well as cultural awareness. It incorporates activities, vocabulary, and readings of particular interest to healthcare practitioners, while adhering to the goals and scope of Spanish 110, the first-semester Spanish language course. Students who have already taken Spanish 110 will not receive credit for Spanish 115. Although these courses have different numbers, they are at the same level. Students who have already fulfilled the language requirement (AP, SAT II, etc.) or have taken courses at the 200- and 300-level may not take basic level language courses (100-level courses) in the same language. They will not receive credit for this course (Spanish 115).

Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form, which students will have to complete and submit during the first week of classes so their instructors can verify that they are enrolled in the appropriate course. See the description of Spanish 110. The continuation of Spanish 115, Spanish 125 is a second-semester Medical Spanish Language course. Students who have already taken Spanish 115 will not receive credit for Spanish 125.

For BA Students: Language Course
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Offered through the Penn Language Center.

SPAN 121 Elementary Spanish I and II: Advanced Beginners
Spanish 121 is designed for students who have some prior experience in Spanish. It is an intensive elementary-level language course that in one semester covers the material studied over two semesters in our Spanish 110 and Spanish 120. The course provides a quick-paced review of material normally covered in a first-semester Spanish course and then proceeds to introduce new material so students will be prepared to take Spanish 130 during the subsequent semester. As in other Spanish courses, Spanish 121 emphasizes the development of foundational listening, speaking, reading, and writing skills while exploring the rich cultural mosaic of the Spanish-speaking world. Through listening activities and mini documentaries shown in class, students will develop their aural and oral skills at the same time that they will become familiarized with different varieties of standard spoken Spanish. Students will be given ample opportunities to practice orally and in writing so that they can reinforce newly acquired vocabulary and linguistic structures.

Readings focused on a specific country or region, visual items (such as maps, photos adn films) and a class project will advance students' knowledge of Hispanic cultural practices and products while increasing their intercultural competence. Conducted entirely in Spanish, this class will provide you with guided practice before moving to more independent and spontaneous language production. You will participate in paired, small-group and whole-class activities that simulate real-life situations that will help you gain confidence communicating in Spanish. Goals: By the end of this course students can expect to handle a variety of day-to-day situations in a Spanish-speaking setting such as: 1) Introduce themselves, use greetings, describe people, places and things, give instructions, tell time, go shopping, order meals in a restaurant, and make travel plans. 2) Talk about themselves, families, and friends regarding academic life, daily routines, health, work, leisure, and preferences (using the present and past tenses). 3) Use the cultural information learned in class as an icebreaker to find common ground with a wide variety of Spanish speakers.

Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form, which students will have to complete and submit during the first week of classes so their instructors can verify that they are enrolled in the appropriate course. See the description of Spanish 110. The course provides a quick-paced review of material normally covered in a first-semester Spanish course and then proceeds to introduce new material so students will be prepared to take Spanish 130 during the subsequent semester. As in other Spanish courses, Spanish 121 emphasizes the development of foundational listening, speaking, reading, and writing skills while exploring the rich cultural mosaic of the Spanish-speaking world. Through listening activities and mini documentaries shown in class, students will develop their aural and oral skills at the same time that they will become familiarized with different varieties of standard spoken Spanish. Students will be given ample opportunities to practice orally and in writing so that they can reinforce newly acquired vocabulary and linguistic structures.

Readings focused on a specific country or region, visual items (such as maps, photos adn films) and a class project will advance students' knowledge of Hispanic cultural practices and products while increasing their intercultural competence. Conducted entirely in Spanish, this class will provide you with guided practice before moving to more independent and spontaneous language production. You will participate in paired, small-group and whole-class activities that simulate real-life situations that will help you gain confidence communicating in Spanish. Goals: By the end of this course students can expect to handle a variety of day-to-day situations in a Spanish-speaking setting such as: 1) Introduce themselves, use greetings, describe people, places and things, give instructions, tell time, go shopping, order meals in a restaurant, and make travel plans. 2) Talk about themselves, families, and friends regarding academic life, daily routines, health, work, leisure, and preferences (using the present and past tenses). 3) Use the cultural information learned in class as an icebreaker to find common ground with a wide variety of Spanish speakers.

For BA Students: Language Course
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Offered through the Penn Language Center.
SPAN 130 Intermediate Spanish I
Spanish 130, a first-semester intermediate-level course, emphasizes students' acquisition of new vocabulary and linguistic structures in a cultural and communicative context while building on their previous speaking, reading, listening and writing skills. A substantial amount of the course is devoted to learning and using the past tenses. As in other Spanish courses, students will take part in a wide range of activities, including video blogging, role-plays, film viewings, listening to music and class discussions of current social and cultural topics. Unique to this course is the creation of a "cultural journal" throughout the semester in which students pursue their own interests in the Spanish-speaking world while taking advantage of some of the rich resources within Philadelphia's own Hispanic community. Goals: By the end of this course students can expect to handle a variety of common situations in a Spanish-speaking setting such as: 1) Narrate past actions, ranging from personal anecdotes to historical events 2) Give advice, recommendations, and commands to people 3) Express their feelings and doubts when reacting to what others have said 4) Talk about their future expectations and wishes 5) Demonstrate their knowledge and understanding of Hispanic cultural practices and products
For BA Students: Language Course
One-term course offered either term
Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form, which students will have to complete and submit during the first week of classes so their instructors can verify that they are enrolled in the appropriate course. https://www.sas.upenn.edu/hispanic-portuguese-studies/sites/www.sas.upenn.edu.hispanic-portuguese-studies/files/SPANISH%20115%20CRF%200.pdf
Activity: Seminar
1 Course Unit

SPAN 134 Intermediate Spanish I and II: Accelerated
During the spring semester, Spanish 134 is limited to those students who have satisfied the language requirement in another language. During the summer, (at the Penn campus and the Penn-in-Buenos Aires Summer Abroad Program), Spanish 134 is open to all students. Spanish 134 is an intensive intermediate-level language course that covers the material presented in Spanish 130 and Spanish 140. The course emphasizes the development of the four canonical skills (reading, writing, listening and speaking) within a culturally based context. Class time will focus on communicative activities that combine grammatical concepts, relevant vocabulary, and cultural themes. Students will participate in pair, small-group and whole-class activities to practice linguistics skills in a meaningful context. Major course goals include: the acquisition of intermediate-level vocabulary, the controlled use of the past tense and the development of writing skills. Students who have previously studied Spanish must take the online placement examination. Students who have already fulfilled the language requirement in Spanish may not take basic level language courses (110-145) in the same language. Any questions about placement should be addressed to the Director of the Spanish Language Program.
For BA Students: Last Language Course
Course usually offered in spring term
Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form: http://ccat.sas.upenn.edu/roml/spanish/undergraduate/SPANISH%20134%20SPRING%20CRF.pdf (Spring CRF) or http://ccat.sas.upenn.edu/roml/spanish/undergraduate/SPANISH%20134%20SUMMER%20CAMPUS%20crf.pdf (Summer CRF)
Activity: Seminar
2 Course Units

SPAN 135 Spanish for the Medical Professions, Intermediate I
Spanish 135 is a first-semester intermediate-level language course that emphasizes the development of the four basic skills (reading, writing, listening, and speaking), and the acquisition of medical terminology. Students will be expected to participate in classroom activities such as role-plays based on everyday situations that they may encounter at work settings such as doctors' offices, clinics, hospitals, and emergency rooms in order to develop meaningful and accurate communication skills in the target language. Students will also review and acquire other essential tools of communication in the target language applicable both within and outside the medical field. Major course goals include: the acquisition of intermediate-level vocabulary, the controlled use of the past tense, and the development of writing skills at a paragraph level with transitions. Students who have already taken Spanish 130 will not receive credit for Spanish 135. Although these courses have different numbers, they are at the same level. Students who have already fulfilled the language requirement (AP, SAT II, etc.) or have taken courses at the 200- and 300-level may not take basic-level language courses (100-level courses) in the same language. They will not receive credit for this course (Spanish 135).
For BA Students: Language Course
Course usually offered in fall term
Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form, which students will have to complete and submit during the first week of classes so their instructors can verify that they are enrolled in the appropriate course. https://www.sas.upenn.edu/hispanic-portuguese-studies/sites/www.sas.upenn.edu.hispanic-portuguese-studies/files/SPANISH%20115%20CRF%200.pdf
Activity: Seminar
1 Course Unit
Notes: Offered through the Penn Language Center.
SPAN 140 Intermediate Spanish II
Spanish 140 is a fourth-semester language course that both reinforces and enhances the communicative skills (listening, speaking, reading and writing) previously acquired while exploring the rich cultural mosaic of the Spanish-speaking world. Class activities are designed so that students can build up these four skills in order to function at an intermediate language level. Readings focused on contemporary social and political issues of the Hispanic world will advance your knowledge of Hispanic and cultural practices while increasing your intercultural competence. Unique to this course is the preparation of an oral presentation on a topic related to the Hispanic world throughout the semester and presented during the last days of classes. The purpose of this task is to help students develop their presentational competence in Spanish. Conducted entirely in Spanish, this class will provide students with ample opportunities to work in small groups and in pairs while gaining confidence communicating in Spanish. This course satisfies the language requirement at Penn. Goals: By the end of this course, students can expect to handle a variety of situations in a Spanish-speaking setting, such as: 1) Express their opinions on a variety of contemporary events and issues 2) Defend their position when presented with a hypothetical situation 3) Deliver short presentations on a chosen subject after thorough preparation 4) Demonstrate their knowledge and understanding of Hispanic cultural practices and products
For BA Students: Last Language Course
One-term course offered either term
Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form, which students will have to complete and submit during the first week of classes so their instructors can verify that they are enrolled in the appropriate course.

SPAN 145 Spanish for the Medical Professions, Intermediate II
Spanish 145, the continuation of Spanish 135, is an intermediate-level integrated skills language course. It emphasizes the development of reading, writing, listening, and speaking abilities. Students will be expected to participate actively in classroom activities such as communicative activities, role-playing based on typical doctor/patient interactions as well as other medical situations. Students will also review and learn other essential tools of communication applicable both inside and outside the medical field. Students who have already taken Spanish 140 will not receive credit for Spanish 145. Although these courses have different numbers, they are at the same level. Students who have already fulfilled the language requirement (AP, SAT II, etc.) or have taken courses at the 200- and 300-level may not take basic level language courses (100-level courses) in the same language. They will not receive credit for this course (Spanish 145). This course satisfies the language requirement in Spanish.
For BA Students: Last Language Course
One-term course offered either term
Prerequisites: The prerequisites for registering for this course are clearly detailed in this Credit Regulation Form: https://www.sas.upenn.edu/hispanic-portuguese-studies/sites/www.sas.upenn.edu_hispanic-portuguese-studies/files/SPANISH%20145%20CRF.pdf Students will have to complete and submit this form during the first week of classes so their instructors can verify that they are enrolled in the appropriate course.
Activity: Seminar
1 Course Unit

SPAN 180 Spanish Conversation
Must be a resident of the Modern Language College House.
Two terms. student must enter first term.
Prerequisite: Residence in Modern Language House Activity: Seminar
0.5 Course Units

SPAN 202 Advanced Spanish
The purpose of this course is twofold: (a) to develop students’ communicative abilities in Spanish, that is, speaking, listening, reading and writing, and (b) to increase their awareness and understanding of Hispanic cultures and societies. Homework and classroom activities are designed to help students build their oral proficiency, expand and perfect their knowledge of vocabulary and grammatical structures, improve their reading and writing skills, and develop their critical thinking abilities. The material for this class includes short stories, newspaper articles, poems, songs, cartoons, video clips and a novel, such as Cesar Aira’s La villa. At the completion of this course, students will feel confident discussing and debating a variety of contemporary issues (cultural and religious practices, family relationships, gender stereotypes, political events, immigration to the USA, etc.). Any questions about placement should be addressed to the Director of the Spanish Language Program.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisite: Successful completion of Spanish 140 or equivalent Activity: Seminar
1 Course Unit

SPAN 205 Advanced Spanish for the Medical Professions
The goal of this course is to provide advanced practice in Spanish to those students who are interested in pursuing careers in the medical and health care fields. Through readings and authentic materials on contemporary health issues, for example, i.e., H1N1 influenza, comparative healthcare systems, obesity, “chagas” disease, etc., students will acquire the vocabulary and grammatical structures needed to discuss a wide array of topics pertaining to the health-related professions. Students will also gain awareness of those health care issues affecting the Hispanic/Latino patient. Oral and written presentations will complement topics covered in class.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisites: Successful completion of Spanish 140 or 145 or equivalent Activity: Seminar
1 Course Unit

SPAN 208 Business Spanish I
Spanish for Business I provides advanced-level language students with technical vocabulary and communicative skills covering business concepts as they apply to the corporate dynamics of the Spanish-speaking world, with a special emphasis on Latin America. Through readings, presentations, discussions, and video materials, we shall analyze those cultural aspects that characterize the business environment in the region as well as focus on economics and markets in light of their history, politics, resources and pressing international concerns.
For BA Students: Advanced Language Course
One-term course offered either term
Prerequisite: Successful completion of Spanish 140 or equivalent Activity: Seminar
1 Course Unit
SPAN 209 Business Spanish II
This course is specifically designed for advanced speakers of Spanish (e.g., native speakers, high-level heritage speakers, and students who have studied in a Spanish-speaking country for at least one semester). Students will take an in-depth look at the corporate dynamics of a number of countries in Latin America, focusing on their economies and markets, as well as on the cultural and business protocols of each region. Through the creation of an entrepreneurial project and the writing of a business plan, students will enhance their business and language skills. Any questions about placement should be addressed to the Director of the Spanish Language Program.
For BA Students: Advanced Language Course
Course usually offered in fall term
Prerequisite: Permission from the instructor
Activity: Seminar
1 Course Unit

SPAN 212 Advanced Spanish II: Grammar and Composition
Spanish 212 is an advanced-level language course that emphasizes the acquisition of the tools necessary for successful written expression in Spanish. These tools include a solid knowledge of the major points of Spanish grammar, an ample vocabulary, control of the mechanics of the language (spelling, punctuation, etc.), and a thorough understanding of the writing process. Throughout the semester, students will use these tools to analyze authentic texts and to produce a variety of written assignments. By the end of the course, students will have developed their awareness of the norms of standard Spanish and learned to incorporate these features into their own writing. The class will be conducted in Spanish and students are expected to speak in Spanish at all times. Any questions about placement should be addressed to the directors of the Spanish language program.
One-term course offered either term
Prerequisite: Spanish 202 or equivalent
Activity: Seminar
1 Course Unit

SPAN 215 Spanish for the Professions
Spanish for the Professions is designed to provide advanced-level language students with a wide-ranging technical vocabulary and the enhancement of solid communicative skills within the cultural context of several developing Latin American countries. Focusing on topics such as politics, economy, society, health, environment, education, science and technology, the class will explore the realities and underlying challenges facing Latin America. Through essays, papers, articles, research, discussions, case studies, and videotapes, we shall take an in-depth look at the dynamics of Latin American societies. The course will focus on--but not be restricted to--Mexico, Cuba and Argentina. Any questions about placement should be addressed to the Director of the Spanish Language Program.
For BA Students: Advanced Language Course
Course usually offered in spring term
Prerequisite: Spanish 202 or equivalent
Activity: Seminar
1 Course Unit

SPAN 219 Hispanic Texts and Contexts
The primary aim of this course is to develop students’ knowledge of the geographical, historical and cultural contexts in those regions where Spanish is used. At the same time that they are introduced to research techniques and materials available in Spanish, students strengthen their language skills through readings, class discussions, and frequent writing assignments. This course is designed to give students a broad understanding of Hispanic culture that will prepare them for upper-level course work and study abroad.
For BA Students: Humanities and Social Science Sector
One-term course offered either term
Prerequisites: Spanish 202 or Spanish 212.
Activity: Seminar
1 Course Unit

SPAN 223 Introduction to Literary Analysis
By helping students develop skills to carefully read and analyze Spanish literary works, Spanish 223 prepares them for upper-level courses and study abroad. After reviewing the main elements and conventions of the most popular genres (narrative, poetry, theater and essay), students become familiarized with current theoretical approaches to the study of literature with the purpose of applying them to their own analytical writing. The last weeks of the semester are devoted to the reading of a well-crafted detective novel and the examination of both its formal features and its ideological underpinnings. Throughout the course, students will have ample opportunities to hone their skills through the close reading and class discussion of varied and stimulating literary works produced by canonical and non-canonical Hispanic authors.
For BA Students: Arts and Letters Sector
One-term course offered either term
Prerequisites: Spanish 202 or Spanish 212.
Activity: Seminar
1 Course Unit

SPAN 317 Spanish Phonetics and Morphology
This course is an introduction to Hispanic linguistics, with special emphasis on the Spanish sound system (phonetics and phonology) and Spanish word-formation (morphology). Topics to be covered include articularatory phonetics, use of the phonetic alphabet, English and Spanish contrastive phonology, regional and social variations of Spanish pronunciation, word formation (derivation and composition), and the structure of the Spanish verb (inflection). Evaluation will be based on participation and homework, periodic quizzes, mid-term exam, and a final examination during finals week. Students will be required to write a linguistic autobiography.
Course not offered every year
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit

SPAN 319 History of the Spanish Language
A survey treatment of the development of Latin to modern Spanish, with emphasis on relations between external history and the development of grammatical structure and vocabulary, and major sound shifts. Lectures and discussions of reading.
Course not offered every year
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit
SPAN 330 Medieval Literature
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit

SPAN 348 Don Quijote
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit

SPAN 350 Spanish Literature of the Golden Age
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit

SPAN 380 Contemporary Spanish Literature
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit

SPAN 384 Spanish Novel Since 1939
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit

SPAN 386 Studies in Spanish Culture
This course covers topics in contemporary Spanish Culture, its specific emphasis varying with the instructor. Please see the Spanish Department's website for the course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
One-term course offered either term
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit

SPAN 388 Topics in Spanish and Latin American Cinema
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
One-term course offered either term
Prerequisites: Spanish 219 or Spanish 223.
Activity: Seminar
1 Course Unit

SPAN 390 Introduction to Spanish American Literature
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

SPAN 394 Spanish American Fiction
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

SPAN 395 Hispanic Theater
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

SPAN 396 Studies in Spanish American Culture
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

SPAN 397 History of Spanish American Culture
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

SPAN 398 Honors Thesis
Honors thesis in Hispanic Studies. This course is open to undergraduate majors by permit only.
Course not offered every year
Prerequisite: Spanish 219
Activity: Independent Study
1 Course Unit

SPAN 523 Modern Novel
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

SPAN 524 Modern Fiction
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

SPAN 526 Spanish Drama
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit

SPAN 528 Spanish and Latin American Cinema
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Prerequisite: Spanish 219 or Spanish 223
Activity: Seminar
1 Course Unit
SPAN 528 Modern Spain and Hispanic America
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 606 Pedagogy Across the Spanish Curriculum
The aim of this seminar is to prepare graduate students in Hispanic Studies to teach a wide range of courses typically offered at North American universities and colleges—from the elementary Spanish language level to upper-division seminars—while familiarizing themselves with current approaches and methodological trends in foreign language instruction. By designing a content-based syllabus, including selecting and sequencing of reading materials and choosing the appropriate learning outcomes and assessment methods, graduate students will gain a greater awareness of curricular planning and development and acquire skills that will significantly ease their future teaching endeavors such as using a backward design model, incorporating their own research interests into their lessons and courses, or taking advantage of the resources available to language learners on campus. By the end of the course, graduate students will be able to talk about and reflect on their teaching in an effective and professional manner.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

SPAN 630 Studies in the Spanish Middle Ages
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 648 Don Quijote
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 650 Golden Age Literature
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 680 Contemporary Spanish Literature
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 682 Seminar on Literary Theory
Topics vary. See the Spanish Department's website for the current offerings. https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course usually offered in fall term
Activity: Seminar
1 Course Unit

SPAN 684 La Novela Realista
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 686 Studies in Spanish Culture
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 690 Studies in 19th- and 20th-Century Spanish American Literature
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 692 Colonial Literature of Spanish America
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 693 Vanguardias culturales hispanoamericanas
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 694 Spanish and Latin American Cinema
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit

SPAN 697 Studies in Latin American Culture
Topics vary. Please see the Spanish Department's website for the current course description: https://www.sas.upenn.edu/hispanic-portuguese-studies/pc
Course not offered every year
Activity: Seminar
1 Course Unit
SPAN 800 Field Exam
PhD Exam Preparation
Course not offered every year
Activity: Independent Study
1 Course Unit

SPAN 999 Independent Study
One-term course offered either term
Activity: Independent Study
1 Course Unit
STATISTICS (STAT)

STAT 101 Introductory Business Statistics
Data summaries and descriptive statistics; introduction to a statistical computer package; Probability. distributions, expectation, variance, covariance, portfolios, central limit theorem; statistical inference of univariate data; Statistical inference for bivariate data: inference for intrinsically linear simple regression models. This course will have a business focus, but is not inappropriate for students in the college.
One-term course offered either term
Prerequisite: MATH 104 or MATH 110 or equivalent; successful completion of STAT 101 is prerequisite to STAT 102
Activity: Lecture
1 Course Unit

STAT 102 Introductory Business Statistics
One-term course offered either term
Prerequisite: STAT 101
Activity: Lecture
1 Course Unit

STAT 111 Introductory Statistics
Introduction to concepts in probability. Basic statistical inference procedures of estimation, confidence intervals and hypothesis testing directed towards applications in science and medicine. The use of the JMP statistical package.
One-term course offered either term
Prerequisites: High school algebra.
Activity: Recitation
1 Course Unit

STAT 112 Introductory Statistics
Further development of the material in STAT 111, in particular the analysis of variance, multiple regression, non-parametric procedures and the analysis of categorical data. Data analysis via statistical packages.
One-term course offered either term
Prerequisite: STAT 111
Activity: Lecture
1 Course Unit

STAT 399 Independent Study
One-term course offered either term
Prerequisites: Written permission of instructor and the department course coordinator.
Activity: Independent Study
1 Course Unit

STAT 405 Statistical Computing with R
The goal of this course is to introduce students to the R programming language and related eco-system. This course will provide a skill-set that is in demand in both the research and business environments. In addition, R is a platform that is used and required in other advanced classes taught at Wharton, so that this class will prepare students for these higher level classes and electives.
Taught by: Stine, Waterman, Zhang
One-term course offered either term
Prerequisite: STAT 102 or STAT 112 or STAT 430
Activity: Lecture
0.5 Course Units

STAT 422 Predictive Analytics for Business
This course follows from the introductory regression classes, STAT 102, STAT 112, and STAT 431 for undergraduates and STAT 613 for MBAs.
It extends the ideas from regression modeling, focusing on the core business task of predictive analytics as applied to realistic business related data sets. In particular it introduces automated model selection tools, such as stepwise regression and various current model selection criteria such as AIC and BIC. It delves into classification methodologies such as logistic regression. It also introduces classification and regression trees (CART) and the popular predictive methodology known as the random forest.
One-term course offered either term
Prerequisite: STAT 102 or STAT 112 or STAT 431
Activity: Lecture
0.5 Course Units

STAT 424 Text Analytics
This course introduces methods for the analysis of unstructured data, focusing on statistical models for text. Techniques include those for sentiment analysis, topic models, and predictive analytics.
Course includes topics from natural language processing (NLP), such as identifying parts of speech, parsing sentences (e.g., subject and predicate), and named entity recognition (people and places).
Unsupervised techniques suited to feature creation provide variables suited to traditional statistical models (regression) and more recent approaches (regression trees). Examples that span the course illustrate the success of text analytics. Hierarchical generating models often associated with nonparametric Bayesian analysis supply theoretical foundations.
Taught by: Stine
One-term course offered either term
Prerequisites: Students should be familiar with regression models at the level of STAT 102 and the R statistics language at the level of STAT 405.
Familiarity with the R-Studio development environment is presumed, as well as common R packages such as stringr, dplyr and ggplot. Those with more knowledge of Statistics, such as from STAT 422, or computing skills will benefit. The predominant software used in the course is R, with bits of JMP when helpful for interactive illustration. Familiarity with basic probability models is helpful but not presumed.
Activity: Lecture
0.5 Course Units

STAT 430 Probability
Discrete and continuous sample spaces and probability; random variables, distributions, independence; expectation and generating functions; Markov chains and recurrence theory.
One-term course offered either term
Prerequisite: MATH 114 or MATH 115 or equivalent
Activity: Lecture
1 Course Unit

STAT 431 Statistical Inference
Graphical displays; one- and two-sample confidence intervals; one- and two-sample hypothesis tests; one- and two-way ANOVA; simple and multiple linear least-squares regression; nonlinear regression; variable selection; logistic regression; categorical data analysis; goodness-of-fit tests. A methodology course. This course does not have business applications but has significant overlap with STAT 101 and 102.
One-term course offered either term
Prerequisite: STAT 430
Activity: Lecture
1 Course Unit
STAT 432 Mathematical Statistics
An introduction to the mathematical theory of statistics. Estimation, with a focus on properties of sufficient statistics and maximum likelihood estimators. Hypothesis testing, with a focus on likelihood ratio tests and the consequent development of "t" tests and hypothesis tests in regression and ANOVA. Nonparametric procedures.
Course usually offered in spring term
Prerequisite: STAT 430 or 510 or equivalent
Activity: Lecture
1 Course Unit

STAT 433 Stochastic Processes
An introduction to Stochastic Processes. The primary focus is on Markov Chains, Martingales and Gaussian Processes. We will discuss many interesting applications from physics to economics. Topics may include: simulations of path functions, game theory and linear programming, stochastic optimization, Brownian Motion and Black-Scholes.
One-term course offered either term
Prerequisites: STAT 430, or permission of instructor
Activity: Lecture
1 Course Unit

STAT 435 Forecasting Methods for Management
This course provides an introduction to the wide range of techniques available for statistical forecasting. Qualitative techniques, smoothing and decomposition of time series, regression, adaptive methods, autoregressive-moving average modeling, and ARCH and GARCH formulations will be surveyed. The emphasis will be on applications, rather than technical foundations and derivations. The techniques will be studied critically, with examination of their usefulness and limitations.
Taught by: Shaman
One-term course offered either term
Prerequisite: STAT 102 or 112 or 431
Activity: Lecture
1 Course Unit

STAT 436 Introduction to Large-Scale Data Science
The course will focus on computational approaches to large-scale data analysis. The lectures will introduce the relevant concepts, and students will be asked to work on projects, implementing the methods and experimenting with large-scale datasets. The course will cover various techniques for updating models in an online fashion, as well as subsampling and dimensionality-reduction techniques. The students will experiment with neural network architectures and learn to build predictive models for modern machine learning tasks.
One-term course offered either term
Prerequisites: Linear Algebra and basic R programming
Activity: Lecture
1 Course Unit

STAT 442 Introduction to Bayesian Data Analysis
The course will introduce data analysis from the Bayesian perspective to undergraduate students. We will cover important concepts in Bayesian probability modeling as well as estimation using both optimization and simulation-based strategies. Key topics covered in the course include hierarchical models, mixture models, hidden Markov models and Markov Chain Monte Carlo.
Taught by: Jensen
Course usually offered in spring term
Prerequisites: A course in probability (STAT 430 or equivalent); a course in statistical inference (STAT 102, STAT 112, STAT 431 or equivalent); and experience with the statistical software R (at the level of STAT 405 or STAT 470)
Activity: Lecture
1 Course Unit

STAT 451 Fundamentals of Actuarial Science I
This course is the usual entry point in the actuarial science program. It is required for students who plan to concentrate or minor in actuarial science. It can also be taken by others interested in the mathematics of personal finance and the use of mortality tables. For future actuaries, it provides the necessary knowledge of compound interest and its applications, and basic life contingencies definition to be used throughout their studies. Non-actuaries will be introduced to practical applications of finance mathematics, such as loan amortization and bond pricing, and premium calculation of typical life insurance contracts.
Main topics include annuities, loans and bonds; basic principles of life contingencies and determination of annuity and insurance benefits and premiums.
Taught by: Lemaire
Course usually offered in fall term
Prerequisites: MATH 104, STAT 430. STAT 430 can be taken concurrently with BEPP 451 or STAT 451
Activity: Lecture
1 Course Unit

STAT 452 Fundamentals of Actuarial Science II
This specialized course is usually only taken by Wharton students who plan to concentrate in actuarial science and Penn students who plan to minor in actuarial mathematics. It provides a comprehensive analysis of advanced life contingencies problems such as reserving, multiple life functions, multiple decrement theory with application to the valuation of pension plans.
Taught by: Lemaire
Course usually offered in spring term
Prerequisite: BEPP 451 or STAT 451
Activity: Lecture
1 Course Unit
STAT 453 Actuarial Statistics
This course covers models for insurer's losses, and applications of Markov chains. Poisson processes, including extensions such as non-homogeneous, compound, and mixed Poisson processes are studied in detail. The compound model is then used to establish the distribution of losses. An extensive section on Markov chains provides the theory to forecast future states of the process, as well as numerous applications of Markov chains to insurance, finance, and genetics. The course is abundantly illustrated by examples from the insurance and finance literature. While most of the students taking the course are future actuaries, other students interested in applications of statistics may discover in class many fascinating applications of stochastic processes and Markov chains.
Taught by: Lemaire
Course usually offered in fall term
Prerequisite: STAT 430
Activity: Lecture
1 Course Unit

STAT 454 Applied Statistical Methods for Actuaries
One half of the course is devoted to the study of time series, including ARIMA modeling and forecasting. The other half studies modifications in random variables due to deductibles, co-payments, policy limits, and elements of simulation. This course is a possible entry point into the actuarial science program. The Society of Actuaries has approved STAT 854 for VEE credit on the topic of time series.
Taught by: Lemaire
Course usually offered in spring term
Prerequisites: STAT 430, STAT 431
Activity: Lecture
1 Course Unit

STAT 470 Data Analytics and Statistical Computing
This course will introduce a high-level programming language, called R, that is widely used for statistical data analysis. Using R, we will study and practice the following methodologies: data cleaning, feature extraction; web scrubbing, text analysis; data visualization; fitting statistical models; simulation of probability distributions and statistical models; statistical inference methods that use simulations (bootstrap, permutation tests).
Taught by: Buja
One-term course offered either term
Prerequisites: STAT 101 and 102 or STAT 111 and 112 or STAT 431 or ECON 103 and ECON 104
Activity: Lecture
1 Course Unit

STAT 471 Modern Data Mining
Modern Data Mining: Statistics or Data Science has been evolving rapidly to keep up with the modern world. While classical multiple regression and logistic regression technique continue to be the major tools we go beyond to include methods built on top of linear models such as LASSO and Ridge regression. Contemporary methods such as KNN (K nearest neighbor), Random Forest, Support Vector Machines, Principal Component Analyses (PCA), the bootstrap and others are also covered. Text mining especially through PCA is another topic of the course. While learning all the techniques, we keep in mind that our goal is to tackle real problems. Not only do we go through a large collection of interesting, challenging real-life data sets but we also learn how to use the free, powerful software "R" in connection with each of the methods exposed in the class.
Taught by: Zhao
One-term course offered either term
Prerequisite: STAT 102 or 112 or 431
Activity: Lecture
1 Course Unit

STAT 474 Modern Regression for the Social, Behavioral and Biological Sciences
Function estimation and data exploration using extensions of regression analysis: smoothers, semiparametric and nonparametric regression, and supervised machine learning. Conceptual foundations are addressed as well as hands-on use for data analysis.
Taught by: Berk
Course usually offered in spring term
Prerequisite: STAT 102 or 112 or equivalent
Activity: Lecture
1 Course Unit

STAT 475 Sample Survey Design
This course will cover the design and analysis of sample surveys. Topics include simple sampling, stratified sampling, cluster sampling, graphics, regression analysis using complex surveys and methods for handling nonresponse bias.
Course not offered every year
Prerequisite: STAT 102 or 112 or 431
Activity: Lecture
1 Course Unit

STAT 476 Applied Probability Models in Marketing
This course will expose students to the theoretical and empirical "building blocks" that will allow them to construct, estimate, and interpret powerful models of customer behavior. Over the years, researchers and practitioners have used these models for a wide variety of applications, such as new product sales, forecasting, analyses of media usage, and targeted marketing programs. Other disciplines have seen equally broad utilization of these techniques. The course will be entirely lecture-based with a strong emphasis on real-time problem solving. Most sessions will feature sophisticated numerical investigations using Microsoft Excel. Much of the material is highly technical.
Taught by: Fader
Course usually offered in spring term
Prerequisites: A high comfort level with basic integral calculus and recent exposure to a formal course in probability and statistics such as STAT 430 is strongly recommended.
Activity: Lecture
1 Course Unit
STAT 480 Advanced Statistical Computing
This course will build on the fundamental concepts introduced in the prerequisite courses to allow students to acquire knowledge and programming skills in large-scale data analysis, data visualization, and stochastic simulation.
Taught by: Buja
Course usually offered in spring term
Prerequisites: STAT 470 or STAT 405 or equivalent background acquired through a combination of online courses that teach the R language and practical experience.
Activity: Lecture
1 Course Unit

STAT 490 Causal Inference
Questions about cause are at the heart of many everyday decisions and public policies. Does eating an egg every day cause people to live longer or shorter or have no effect? Do gun control laws cause more or less murders or have no effect? Causal inference is the subfield of statistics that considers how we should make inferences about such questions. This course will cover the key concepts and methods of causal inference rigorously. The course is intended for statistics concentrators and minors.
Taught by: Small
Course usually offered in spring term
Prerequisites: STAT 430 is a required course for this class. One of STAT 102, STAT 112 or STAT 431 is also required for this class. Knowledge of R such as that covered in STAT 405 or STAT 470.
Activity: Lecture
1 Course Unit

STAT 500 Applied Regression and Analysis of Variance
An applied graduate level course in multiple regression and analysis of variance for students who have completed an undergraduate course in basic statistical methods. Emphasis is on practical methods of data analysis and their interpretation. Covers model building, general linear hypothesis, residual analysis, leverage and influence, one-way anova, two-way anova, factorial anova. Primarily for doctoral students in the managerial, behavioral, social and health sciences.
Taught by: Rosenbaum
Course usually offered in fall term
Prerequisite: STAT 102 or 112 or equivalent
Activity: Lecture
1 Course Unit

STAT 501 Introduction to Nonparametric Methods and Log-linear Models
An applied graduate level course for students who have completed an undergraduate course in basic statistical methods. Covers two unrelated topics: loglinear and logit models for discrete data and nonparametric methods for nonnormal data. Emphasis is on practical methods of data analysis and their interpretation. Primarily for doctoral students in the managerial, behavioral, social and health sciences. May be taken before STAT 500 with permission of instructor.
Taught by: Rosenbaum
Course usually offered in spring term
Prerequisite: STAT 102 or 112 or equivalent
Activity: Lecture
1 Course Unit

STAT 503 Data Analytics and Statistical Computing
This course will introduce a high-level programming language, called R, that is widely used for statistical data analysis. Using R, we will study and practice the following methodologies: data cleaning, feature extraction; web scrupling, text analysis; data visualization; fitting statistical models; simulation of probability distributions and statistical models; statistical inference methods that use simulations (bootstrap, permutation tests).
Taught by: Buja
One-term course offered either term
Prerequisites: Two courses at the statistics 400 or 500 level.
Activity: Lecture
1 Course Unit

STAT 510 Probability
One-term course offered either term
Prerequisite: A one year course in calculus
Activity: Lecture
1 Course Unit

STAT 511 Statistical Inference
Graphical displays; one- and two-sample confidence intervals; one- and two-sample hypothesis tests; one- and two-way ANOVA; simple and multiple linear least-squares regression; nonlinear regression; variable selection; logistic regression; categorical data analysis; goodness-of-fit tests. A methodology course.
One-term course offered either term
Prerequisite: STAT 510 or equivalent
Activity: Lecture
1 Course Unit

STAT 512 Mathematical Statistics
An introduction to the mathematical theory of statistics. Estimation, with a focus on properties of sufficient statistics and maximum likelihood estimators. Hypothesis testing, with a focus on likelihood ratio tests and the consequent development of "t" tests and hypothesis tests in regression and ANOVA. Nonparametric procedures.
Course usually offered in spring term
Prerequisite: STAT 430 or 510 or equivalent
Activity: Lecture
1 Course Unit

STAT 515 Advanced Statistical Inference I
STAT 515 is aimed at first-year Ph.D. students and builds a good foundation in statistical inference from the first principles of probability.
Taught by: Low
Course usually offered in fall term
Prerequisites: STAT 430 and STAT 431 and MATH 114 and MATH 240 or equivalent
Activity: Lecture
1 Course Unit

STAT 516 Advanced Statistical Inference II
STAT 516 is a natural continuation of STAT 515, and the main focus is on asymptotic evaluations and regression models. Time permitting, it also discusses some basic nonparametric statistical methods.
Taught by: Ma
Course usually offered in spring term
Prerequisite: STAT 515
Activity: Lecture
1 Course Unit
STAT 520 Applied Econometrics I
This is a course in econometrics for graduate students. The goal is to prepare students for empirical research by studying econometric methodology and its theoretical foundations. Students taking the course should be familiar with elementary statistical methodology and basic linear algebra, and should have some programming experience. Topics include conditional expectation and linear projection, asymptotic statistical theory, ordinary least squares estimation, the bootstrap and jackknife, instrumental variables and two-stage least squares, specification tests, systems of equations, generalized least squares, and introduction to use of linear panel data models.
Taught by: Shaman
Course usually offered in fall term
Prerequisites: MATH 114 and MATH 312 or equivalents, and an undergraduate introduction to probability and statistics
Activity: Lecture
1 Course Unit

STAT 521 Applied Econometrics II
Topics include system estimation with instrumental variables, fixed effects and random effects estimation, M-estimation, nonlinear regression, quantile regression, maximum likelihood estimation, generalized method of moments estimation, minimum distance estimation, and binary and multinomial response models. Both theory and applications will be stressed.
Taught by: Shaman
Course usually offered in spring term
Prerequisites: STAT 520. This is a continuation of STAT 520
Activity: Lecture
1 Course Unit

STAT 533 Stochastic Processes
An introduction to Stochastic Processes. The primary focus is on Markov Chains, Martingales and Gaussian Processes. We will discuss many interesting applications from physics to economics. Topics may include: simulations of path functions, game theory and linear programming, stochastic optimization, Brownian Motion and Black-Scholes.
One-term course offered either term
Prerequisite: STAT 510 or equivalent
Activity: Lecture
1 Course Unit

STAT 542 Bayesian Methods and Computation
Sophisticated tools for probability modeling and data analysis from the Bayesian perspective. Hierarchical models, mixture models and Monte Carlo simulation techniques.
Taught by: Jensen
Course usually offered in spring term
Prerequisite: STAT 430 or 510 or equivalent or permission of instructor
Activity: Lecture
1 Course Unit

STAT 571 Modern Data Mining
Modern Data Mining: Statistics or Data Science has been evolving rapidly to keep up with the modern world. While classical multiple regression and logistic regression technique continue to be the major tools we go beyond to include methods built on top of linear models such as LASSO and Ridge regression. Contemporary methods such as KNN (K nearest neighbor), Random Forest, Support Vector Machines, Principal Component Analyses (PCA), the bootstrap and others are also covered. Text mining especially through PCA is another topic of the course. While learning all the techniques, we keep in mind that our goal is to tackle real problems. Not only do we go through a large collection of interesting, challenging real-life data sets but we also learn how to use the free, powerful software "R" in connection with each of the methods exposed in the class.
Taught by: Zhao
One-term course offered either term
Prerequisite: Zhao
Activity: Lecture
1 Course Unit

STAT 580 Advanced Statistical Computing
This course will build on the fundamental concepts introduced in the prerequisite courses to allow students to acquire knowledge and programming skills in large-scale data analysis, data visualization, and stochastic simulation.
Taught by: Buja
Course usually offered in spring term
Prerequisites: STAT 503 or equivalent background acquired through a combination of online courses that teach the R language and practical experience.
Activity: Lecture
1 Course Unit

STAT 590 Causal Inference
Questions about cause are at the heart of many everyday decisions and public policies. Does eating an egg every day cause people to live longer or shorter or have no effect? Do gun control laws cause more or less murders or have no effect? Causal inference is the subfield of statistics that considers how we should make inferences about such questions. This course will cover the key concepts and methods of causal inference rigorously.
Taught by: Small
Course usually offered in spring term
Prerequisites: Background in probability and statistics; some knowledge of R
Activity: Lecture
1 Course Unit
STAT 613 Regression Analysis for Business
This course provides the fundamental methods of statistical analysis, the art and science if extracting information from data. The course will begin with a focus on the basic elements of exploratory data analysis, probability theory and statistical inference. With this as a foundation, it will proceed to explore the use of the key statistical methodology known as regression analysis for solving business problems, such as the prediction of future sales and the response of the market to price changes. The use of regression diagnostics and various graphical displays supplement the basic numerical summaries and provides insight into the validity of the models. Specific important topics covered include least squares estimation, residuals and outliers, tests and confidence intervals, correlation and autocorrelation, collinearity, and randomization. The presentation relies upon computer software for most of the needed calculations, and the resulting style focuses on construction of models, interpretation of results, and critical evaluation of assumptions.
Course usually offered in fall term
Prerequisites: The basic mathematical skills covered in STAT 611, Mathematics for Business Analysis
Activity: Lecture
1 Course Unit
Notes: Lecture and discussion, assigned exercises, data analysis project, quizzes and a final exam.

STAT 621 Accelerated Regression Analysis for Business
STAT 621 is intended for students with recent, practical knowledge of the use of regression analysis in the context of business applications. This course covers the material of STAT 613, but omits the foundations to focus on regression modeling. The course reviews statistical hypothesis testing and confidence intervals for the sake of standardizing terminology and introducing software, and then moves into regression modeling. The pace presumes recent exposure to both the theory and practice of regression and will not be accommodating to students who have not seen or used these methods previously. The interpretation of regression models within the context of applications will be stressed, presuming knowledge of the underlying assumptions and derivations. The scope of regression modeling that is covered includes multiple regression analysis with categorical effects, regression diagnostic procedures, interactions, and time series structure. The presentation of the course relies on computer software that will be introduced in the initial lectures.
Taught by: George
Course usually offered in fall term
Prerequisites: Recent exposure to the theory and practice of regression modeling.
Activity: Lecture
0.5 Course Units
Notes: Lecture and discussion, assigned exercises, data analysis, quizzes, and a final exam.

STAT 701 Modern Data Mining
Modern Data Mining: Statistics or Data Science has been evolving rapidly to keep up with the modern world. While classical multiple regression and logistic regression technique continue to be the major tools we go beyond to include methods built on top of linear models such as LASSO and Ridge regression. Contemporary methods such as KNN (K nearest neighbor), Random Forest, Support Vector Machines, Principal Component Analyses (PCA), the bootstrap and others are also covered. Text mining especially through PCA is another topic of the course. While learning all the techniques, we keep in mind that our goal is to tackle real problems. Not only do we go through a large collection of interesting, challenging real-life data sets but we also learn how to use the free, powerful software "R" in connection with each of the methods exposed in the class.
Taught by: Zhao
One-term course offered either term
Prerequisite: STAT 613 or equivalent
Activity: Lecture
1 Course Unit

STAT 705 Statistical Computing with R
The goal of this course is to introduce students to the R programming language and related eco-system. This course will provide a skill-set that is in demand in both the research and business environments. In addition, R is a platform that is used and required in other advanced classes taught at Wharton, so that this class will prepare students for these higher level classes and electives.
Taught by: Stine, Waterman, Zhang
One-term course offered either term
Prerequisites: STAT 613 or STAT 621 or waiving the Statistics Core completely.
Activity: Lecture
0.5 Course Units

STAT 711 Forecasting Methods for Management
This course provides an introduction to the wide range of techniques available for statistical forecasting. Qualitative techniques, smoothing and decomposition of time series, regression, adaptive methods, autoregressive-moving average modeling, and ARCH and GARCH formulations will be surveyed. The emphasis will be on applications, rather than technical foundations and derivations. The techniques will be studied critically, with examination of their usefulness and limitations.
Taught by: Shaman
One-term course offered either term
Prerequisite: STAT 613 or equivalent
Activity: Lecture
1 Course Unit
STAT 722 Predictive Analytics for Business (formerly STAT 622)
This course follows from the introductory regression classes, STAT 102, STAT 112, and STAT 431 for undergraduates and STAT 613 for MBAs. It extends the ideas from regression modeling, focusing on the core business task of predictive analytics as applied to realistic business related data sets. In particular it introduces automated model selection tools, such as stepwise regression and various current model selection criteria such as AIC and BIC. It delves into classification methodologies such as logistic regression. It also introduces classification and regression trees (CART) and the popular predictive methodology known as the random forest.
One-term course offered either term
Prerequisite: STAT 613 or STAT 621 or having waived the statistics core completely
Activity: Lecture
0.5 Course Units

STAT 724 Text Analytics
This course introduces methods for the analysis of unstructured data, focusing on statistical models for text. Techniques include those for sentiment analysis, topic models, and predictive analytics. Course includes topics from natural language processing (NLP), such as identifying parts of speech, parsing sentences (e.g., subject and predicate), and named entity recognition (people and places). Unsupervised techniques suited to feature creation provide variables suited to traditional statistical models (regression) and more recent approaches (regression trees). Examples that span the course illustrate the success of text analytics. Hierarchical generating models often associated with nonparametric Bayesian analysis supply theoretical foundations.
Taught by: Stine
One-term course offered either term
Prerequisites: Students should be familiar with regression models at the level of STAT 613 and the R statistics language at the level of STAT 705. Familiarity with the R-Studio development environment is presumed, as well as common R packages such as stringr, dplyr and ggplot. Those with more knowledge of Statistics, such as from STAT 722, or computing skills will benefit. The predominant software used in the course is R, with bits of JMP when helpful for interactive illustration. Familiarity with basic probability models is helpful but not presumed.
Activity: Lecture
0.5 Course Units

STAT 770 Data Analytics and Statistical Computing
This course will introduce a high-level programming language, called R, that is widely used for statistical data analysis. Using R, we will study and practice the following methodologies: data cleaning, feature extraction; web scrubbing, text analysis; data visualization; fitting statistical models; simulation of probability distributions and statistical models; statistical inference methods that use simulations (bootstrap, permutation tests).
Taught by: Buja
One-term course offered either term
Prerequisites: STAT 613 or STAT 621 or waiving the Statistics Core completely.
Activity: Lecture
1 Course Unit

STAT 776 Applied Probability Models in Marketing
This course will expose students to the theoretical and empirical "building blocks" that will allow them to develop and implement powerful models of customer behavior. Over the years, researchers and practitioners have used these methods for a wide variety of applications, such as new product sales forecasting, analyses of media usage, customer valuation, and targeted marketing programs. These same techniques are also very useful for other types of business (and non-business) problems. The course will be entirely lecture-based with a strong emphasis on real-time problem solving. Most sessions will feature sophisticated numerical investigations using Microsoft Excel. Much of the material is highly technical.
Taught by: Fader
Course usually offered in spring term
Prerequisites: Students must have a high comfort level with basic integral calculus, and recent exposure to a formal course in probability and statistics is strongly recommended.
Activity: Lecture
1 Course Unit
Notes: Format: Lecture, real-time problem solving

STAT 780 Advanced Statistical Computing
This course will build on the fundamental concepts introduced in the prerequisite courses to allow students to acquire knowledge and programming skills in large-scale data analysis, data visualization, and stochastic simulation.
Taught by: Buja
Course usually offered in spring term
Prerequisites: STAT 770 or STAT 705 or equivalent background acquired through a combination of online courses that teach the R language and practical experience.
Activity: Lecture
1 Course Unit

STAT 851 Fundamentals of Actuarial Science I
This course is the usual entry point in the actuarial science program. It is required for students who plan to concentrate or minor in actuarial science. It can also be taken by others interested in the mathematics of personal finance and the use of mortality tables. For future actuaries, it provides the necessary knowledge of compound interest and its applications, and basic life contingencies definition to be used throughout their studies. Non-actuaries will be introduced to practical applications of finance mathematics, such as loan amortization and bond pricing, and premium calculation of typical life insurance contracts. Main topics include annuities, loans and bonds; basic principles of life contingencies and determination of annuity and insurance benefits and premiums.
Taught by: Lemaire
Course usually offered in fall term
Prerequisite: One semester of calculus
Activity: Lecture
1 Course Unit
**STAT 852 Fundamentals of Actuarial Science II**

This specialized course is usually only taken by Wharton students who plan to concentrate in actuarial science and Penn students who plan to minor in actuarial mathematics. It provides a comprehensive analysis of advanced life contingencies problems such as reserving, multiple life functions, multiple decrement theory with application to the valuation of pension plans.

Taught by: Lemaire  
Course usually offered in spring term  
Prerequisite: STAT 851 or BEPP 851  
Activity: Lecture  
1 Course Unit

**STAT 853 Actuarial Statistics**

This course covers models for insurer’s losses, and applications of Markov chains. Poisson processes, including extensions such as non-homogeneous, compound, and mixed Poisson processes are studied in detail. The compound model is then used to establish the distribution of losses. An extensive section on Markov chains provides the theory to forecast future states of the process, as well as numerous applications of Markov chains to insurance, finance, and genetics. The course is abundantly illustrated by examples from the insurance and finance literature. While most of the students taking the course are future actuaries, other students interested in applications of statistics may discover in class many fascinating applications of stochastic processes and Markov chains.

Taught by: Lemaire  
Course usually offered in fall term  
Prerequisite: Two semesters of Statistics  
Activity: Lecture  
1 Course Unit

**STAT 854 Applied Statistical Methods for Actuaries**

One half of the course is devoted to the study of time series, including ARIMA modeling and forecasting. The other half studies modifications in random variables due to deductibles, co-payments, policy limits, and elements of simulation. This course is a possible entry point into the actuarial science program. The Society of Actuaries has approved STAT 854 for VEE credit on the topic of time series.

Taught by: Lemaire  
Course usually offered in spring term  
Prerequisite: One semester of probability  
Activity: Lecture  
1 Course Unit

**STAT 899 Independent Study**

One-term course offered either term  
Prerequisites: Written permission of instructor, the department MBA advisor and course coordinator.  
Activity: Independent Study  
1 Course Unit

**STAT 910 Forecasting and Time Series Analysis**

Fourier analysis of data, stationary time series, properties of autoregressive moving average models and estimation of their parameters, spectral analysis, forecasting. Discussion of applications to problems in economics, engineering, physical science, and life science.

Taught by: Stine  
Course offered spring; odd-numbered years  
Prerequisite: STAT 520 or 961 or equivalent  
Activity: Lecture  
1 Course Unit

**STAT 915 Nonparametric Inference**

Statistical inference when the functional form of the distribution is not specified. Nonparametric function estimation, density estimation, survival analysis, contingency tables, association, and efficiency.

Course not offered every year  
Prerequisite: STAT 520 or equivalent  
Activity: Lecture  
1 Course Unit

**STAT 920 Sample Survey Methods**

This course will cover the design and analysis of sample surveys. Topics include simple random sampling, stratified sampling, cluster sampling, graphics, regression analysis using complex surveys and methods for handling nonresponse bias.

Taught by: Small  
Course not offered every year  
Prerequisites: STAT 520, 961 or 970 or permission of instructor  
Activity: Lecture  
1 Course Unit

**STAT 921 Observational Studies**

This course will cover statistical methods for the design and analysis of observational studies. Topics will include the potential outcomes framework for causal inference; randomized experiments; matching and propensity score methods for controlling confounding in observational studies; tests of hidden bias; sensitivity analysis; and instrumental variables.

Taught by: Small  
Course usually offered in fall term  
Prerequisites: STAT 520, 961 or 970 or permission of instructor  
Activity: Lecture  
1 Course Unit

**STAT 925 Multivariate Analysis: Theory**

This is a course that prepares PhD students in statistics for research in multivariate statistics and high dimensional statistical inference. Topics from classical multivariate statistics include the multivariate normal distribution and the Wishart distribution; estimation and hypothesis testing of mean vectors and covariance matrices; principal component analysis, canonical correlation analysis and discriminant analysis; etc. Topics from modern multivariate statistics include the Marcenko-Pastur law, the Tracy-Widom law, nonparametric estimation and hypothesis testing of high-dimensional covariance matrices, high-dimensional principal component analysis, etc.

Taught by: Ma  
Course not offered every year  
Prerequisites: STAT 930, 970 and 972 or permission of instructor  
Activity: Lecture  
1 Course Unit
STAT 926 Multivariate Analysis: Methodology
This is a course that prepares PhD students in statistics for research in multivariate statistics and data visualization. The emphasis will be on a deep conceptual understanding of multivariate methods to the point where students will propose variations and extensions to existing methods or whole new approaches to problems previously solved by classical methods. Topics include: principal component analysis, canonical correlation analysis, generalized canonical analysis; nonlinear extensions of multivariate methods based on optimal transformations of quantitative variables and optimal scaling of categorical variables; shrinkage- and sparsity-based extensions to classical methods; clustering methods of the k-means and hierarchical varieties; multidimensional scaling, graph drawing, and manifold estimation.
Taught by: Buja
Course not offered every year
Prerequisite: STAT 961 or permission of instructor
Activity: Lecture
1 Course Unit

STAT 927 Bayesian Statistical Theory and Methods
This graduate course will cover the modeling and computation required to perform advanced data analysis from the Bayesian perspective. We will cover fundamental topics in Bayesian probability modeling and implementation, including recent advances in both optimization and simulation-based estimation strategies. Key topics covered in the course include hierarchical and mixture models, Markov Chain Monte Carlo, hidden Markov and dynamic linear models, tree models, Gaussian processes and nonparametric Bayesian strategies.
Taught by: Jensen
Course not offered every year
Prerequisite: STAT 430 or STAT 510
Activity: Lecture
1 Course Unit

STAT 928 Statistical Learning Theory
Statistical learning theory studies the statistical aspects of machine learning and automated reasoning, through the use of (sampled) data. In particular, the focus is on characterizing the generalization ability of learning algorithms in terms of how well they perform on "new" data when trained on some given data set. The focus of the course is on: providing the fundamental tools used in this analysis; understanding the performance of widely used learning algorithms; understanding the "art" of designing good algorithms, both in terms of statistical and computational properties. Potential topics include: empirical process theory; online learning; stochastic optimization; margin based algorithms; feature selection; concentration of measure.
Course usually offered in spring term
Prerequisites: Probability and linear algebra.
Activity: Lecture
1 Course Unit

STAT 930 Probability
Taught by: Pemantle
Course usually offered in fall term
Prerequisite: STAT 430 or 510 or equivalent
Activity: Lecture
1 Course Unit

STAT 931 Stochastic Processes
Taught by: Pemantle
Course usually offered in spring term
Prerequisite: STAT 930
Activity: Lecture
1 Course Unit

STAT 935 Stochastic Calculus and Financial Applications
Selected topics in the theory of probability and stochastic processes.
Course usually offered in fall term
Prerequisite: STAT 930 or equivalent
Activity: Lecture
1 Course Unit

STAT 955 Seminar in Data Analysis
Survey of methods for the analysis of large unstructured data sets: detection of outliers, Winsorizing, graphical techniques, robust estimators, multivariate problems.
Course not offered every year
Prerequisites: STAT 961, 971, 972, 925, or equivalents; permission of instructor
Activity: Seminar
1 Course Unit

STAT 961 Statistical Methodology
This is a course that prepares 1st year PhD students in statistics for a research career. This is not an applied statistics course. Topics covered include: linear models and their high-dimensional geometry, statistical inference illustrated with linear models, diagnostics for linear models, bootstrap and permutation inference, principal component analysis, smoothing and cross-validation.
Taught by: Buja
Course usually offered in fall term
Prerequisites: STAT 431 or 520 or equivalent; a solid course in linear algebra and a programming language
Activity: Lecture
1 Course Unit

STAT 965 Statistical Methodology
This is a course that prepares 1st year PhD students in statistics for a research career. This is not an applied statistics course. Topics covered include: linear models and their high-dimensional geometry, statistical inference illustrated with linear models, diagnostics for linear models, bootstrap and permutation inference, principal component analysis, smoothing and cross-validation.
Taught by: Buja
Course usually offered in spring term
Prerequisites: STAT 431 or 520 or equivalent; a solid course in linear algebra and a programming language
Activity: Lecture
1 Course Unit

STAT 970 Mathematical Statistics
Decision theory and statistical optimality criteria, sufficiency, point estimation and hypothesis testing methods and theory.
Taught by: Small
Course usually offered in fall term
Prerequisites: STAT 431 or 520 or equivalent; comfort with mathematical proofs (e.g., MATH 360)
Activity: Lecture
1 Course Unit
STAT 971 Introduction to Linear Statistical Models
Taught by: Ma
Course usually offered in spring term
Prerequisite: STAT 970
Activity: Lecture
1 Course Unit

STAT 972 Advanced Topics in Mathematical Statistics
A continuation of STAT 970.
Taught by: Cai
One-term course offered either term
Prerequisites: STAT 970 and 971
Activity: Lecture
1 Course Unit

STAT 974 Modern Regression for the Social, Behavioral and Biological Sciences
Function estimation and data exploration using extensions of regression analysis: smoothers, semiparametric and nonparametric regression, and supervised machine learning. Conceptual foundations are addressed as well as hands-on use for data analysis.
Taught by: Berk
Course usually offered in spring term
Prerequisites: Two statistics courses at the graduate school level including a solid foundation in the generalized linear model.
Activity: Lecture
1 Course Unit

STAT 991 Seminar in Advanced Application of Statistics
This seminar will be taken by doctoral candidates after the completion of most of their coursework. Topics vary from year to year and are chosen from advance probability, statistical inference, robust methods, and decision theory with principal emphasis on applications.
One-term course offered either term
Activity: Seminar
1 Course Unit

STAT 995 Dissertation
One-term course offered either term
Activity: Dissertation
1 Course Unit

STAT 999 Independent Study
One-term course offered either term
Prerequisites: Written permission of instructor and the department course coordinator.
Activity: Independent Study
1 Course Unit
TAML (TAML)

TAML 406 Beginning Tamil Part I
This course introduces students to colloquial Tamil and formal written Tamil. A balance between production skills, namely writing and speaking, and comprehension skills, namely reading and listening, will be maintained throughout the course. Reading materials will introduce students to customs and habits of the Tamil speakers in Tamil Nadu, Sri Lanka, Malaysia, and Singapore. Lessons in the class will be based on a set of Tamil learning lessons and videos made available at http://www.southasia.upenn.edu/tamil and the book by the Instructor titled "Tamil Language in Context", information available at http://www.thetamillanguage.com. By the end of the semester, students will have a working knowledge in reading Tamil text with a basic skill to write and speak the language at ACTFL’s Beginner mid level.
For BA Students: Language Course
Taught by: Renganathan
Course usually offered in fall term
Activity: Lecture
1 Course Unit

TAML 407 Beginning Tamil Part II
This course is a continuation of the Beginner Tamil TAML406. It continues to teach grammar and spoken siff from semester I. Lessons in the class will be based on a set of Tamil learning lessons and videos made available at http://www.southasia.upenn.edu/tamil and the book by the Instructor titled "Tamil Language in Context", information available at http://www.thetamillanguage.com. By the end of the semester, students will have a working knowledge in reading Tamil text with a basic skill to write and speak the language at ACTFL's Beginner High level.
For BA Students: Language Course
Taught by: Renganathan
Course usually offered in spring term
Prerequisites: Beginning Tamil Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

TAML 426 Intermediate Tamil Part I
This course develops the skills obtained either from the Beginning Tamil course or from students’ prior exposure to Tamil by some other means. Basic knowledge of Tamil script, reading and writing in Tamil is required to take this course. Heavy emphasis will be made on using the language in actual environments both in spoken medium and in written medium. Multimedia materials such as audio and video facilities from the book and the website Tamil Language in Context (http://www.southasia.upenn.edu/tamil) will be used extensively to provide students an exposure to the Tamil culture and customs as authentic as possible. Besides improving their speech and writing, students will also be introduced gradually to Tamil literature, which has two thousand years of literary history. By the end of this course, students will have ACTFL's intermediate high proficiency level.
For BA Students: Language Course
Taught by: Renganathan
Course usually offered in fall term
Activity: Lecture
1 Course Unit

TAML 427 Intermediate Tamil Part II
This course is a continuation of Intermediate Tamil I (TAML426) and it continues to develop the skills obtained either from the Beginning Tamil course or from students’ prior exposure to Tamil by other means. The emphasis will be on using the language in actual environments both in spoken medium and in written medium. Multimedia materials such as audio and videos as provided in the website http://www.southasia.upenn.edu/tamil or http://www.thetamillanguage.com will be extensively used to provide students an exposure to the Tamil culture and customs as authentic as possible. Besides improving their speech and writing, students will also be introduced gradually to Tamil literature, which has two thousand years of literary history. By the end of this course, students will have ACTFL's intermediate high proficiency level.
For BA Students: Language Course
Taught by: Renganathan
Course usually offered in spring term
Prerequisites: Intermediate Tamil Part II or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

TAML 446 Advanced Tamil
This course is a continuation of the Advance Tamil Course I and its primary focus is to concentrate particularly on any one of the genres of the Tamil language namely Sangam, medieval or modern Tamil, which span a vast variety of texts from Aham, Puram, religious poems along with a whole array of Tamil inscriptions. The familiarity from Advanced Tamil I course will be adequately used to master in any aspect of these three genres of the Tamil language. Based on the general interests of the students who are enrolled in this course specific variety of the text to concentrate upon will be selected. In the past, we have read poems from the Sangam genre Purananuru, Ahananuru, Silappatikaram, Manimekalai etc., along with the parallel religious poems from Tirumurai, Nalayira Divyaprabandam and so on. We have also read as part of this course texts from Islam literature, Tamil inscriptions and other related kinds. Text from the instructors book (to be published), "Ilakkiyap payaNangkaL" will be used to give a birds eye view to students about Tamil literature and the transitions that took place from Sangam, medieval and modern period. This course will train students to have a near-native proficiency in Tamil along with a professional skill in any particular variety of the Tamil language.
For BA Students: Language Course
Course usually offered in spring term
Activity: Lecture
1 Course Unit
TELUGU (TELU)

TELU 409 Beginning Telugu Part I
This course introduces students to the basic Telugu language skills, with an emphasis on practice for listening comprehension, and speaking Telugu. Combined with exposure to Andhra culture, the classroom and online work in this course will enable interested students to pursue further language study in Telugu at the intermediate level, to carry out field research in Andhra Pradesh, or to prepare them to advanced work in Telugu Studies. An introduction to Telugu like this will also be useful for students who just want to acquire basic Telugu language skills for learning a new language or being able to communicate with Telugu speaking family and friends or to enjoy Telugu music and films.
For BA Students: Language Course
Taught by: Magier
Course usually offered in fall term
Activity: Lecture
1 Course Unit

TELU 410 Beginning Telugu Part II
This course continues students to the basic Telugu language skills, with an emphasis on practice for listening comprehension, and speaking Telugu. Combined with exposure to Andhra culture, the classroom and online work in this course will enable interested students to pursue further language study in Telugu at the intermediate level, to carry out field research in Andhra Pradesh, or to prepare them to advanced work in Telugu Studies. An introduction to Telugu like this will also be useful for students who just want to acquire basic Telugu language skills for learning a new language or being able to communicate with Telugu speaking family and friends or to enjoy Telugu music and films.
For BA Students: Language Course
Taught by: Magier
Course usually offered in spring term
Prerequisites: Beginning Telugu Part I or equivalent ascertained through placement test or permission of instructor.
Activity: Lecture
1 Course Unit

TELU 429 Intermediate Telugu Part I
This course is designed to expand the students' basic language skills in Telugu in order to allow them to function adequately in a Telugu-speaking environment, to immerse themselves in the rich Andhra culture, and to accomplish a more advanced competency in an interesting foreign language. This course is also aimed at students planning to conduct scholarly research in Telugu history, literature or society, or humanities or social science fieldwork in Telugu speaking areas.
For BA Students: Language Course
Taught by: Magier
Two terms. student must enter first term.
Prerequisites: Beginning Telugu Part II or equivalent ascertained through placement test or permission of instructor.
Activity: Lecture
1 Course Unit

TELU 430 Intermediate Telugu Part II
This course is designed to expand the students' basic language skills in Telugu in order to allow them to function adequately in a Telugu-speaking environment, to immerse themselves in the rich Andhra culture, and to accomplish a more advanced competency in an interesting foreign language. This course is also aimed at students planning to conduct scholarly research in Telugu history, literature or society, or humanities or social science fieldwork in Telugu speaking areas.
For BA Students: Last Language Course
Taught by: Sundaram
Prerequisites: Intermediate Telugu Part II or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit
THAR 073 Radical Arts: Literature, Visual Arts, Theater and Cinema in the Americas
Activity: Lecture
1 Course Unit

THAR 076 Theatre in Philadelphia
This course will investigate the state of the contemporary, non-profit theatre culture of Philadelphia by examining the history, artistic mission, and current production work of selected city theatre companies. This course will also explore the creative process of theatre-making as undertaken by these theatres through the reading of plays being produced by them this fall, through an analysis of the collaborative contribution of the playwright, director, actors, and designers to the creation of a production, and, finally, through attendance at those productions mounted by the theatre companies under investigation. The members of the class will write individual essays responding to these productions, do research and give group presentations on other Philadelphia theatre companies, and participate daily in a spirited dialogue about the vitality, level of artistic accomplishment, and cultural/social value of contemporary theatre in Philadelphia.
Taught by: Malague and Schlatter
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Frequently offered as a Freshmen Seminar

THAR 100 Introduction to Theatre Arts
An introduction to different approaches to understanding and analyzing performance, representational theatre, and non-representational theatre, using as test cases both dramatic scripts and live performance. Different aspects of theatre art and theatrical process (acting, design, audience, musical theatre) will be taught by guest lecturers drawn from the Theatre Arts faculty and local professionals.
For BA Students: Arts and Letters Sector
Taught by: Malague and Schlatter
One-term course offered either term
Activity: Lecture
1 Course Unit

THAR 101 Theatre, History, Culture I: From Classical to the Middle Classes
This course investigates the history of theatre practice in Europe and Asia from Fifth-Century Athens to roughly the end of the Eighteenth Century. In addition to analyzing major dramatic works, this course examines the evolution of production methods - scenography, acting, costuming, theatre architecture - across cultures and key socio-historical moments. Readings will be drawn from historical research, theoretical writings, plays and contemporary social documents. A particular focus will be on the integral role that the theatre plays as a cultural institution in the ongoing civic life of major cities. The course approaches theatre as broadly interdisciplinary and examines its intersection with religious practice, political developments, national identity, geography, the visual arts and the urban landscape.
For BA Students: Arts and Letters Sector
Activity: Lecture
1 Course Unit

THAR 102 Theatre, History, Culture II: Romantics, Realists and Revolutionaries
This course investigates the history of theatre practice from the end of the Eighteenth-Century to the present, with an emphasis on interplay of mainstream practices with the newly emerging aesthetics of acting, scenography, and theatrical theory, and the interplay of popular entertainment and audiences with the self-defined aesthetic elitism of the Avant Garde. Among the aesthetics and phenomena we will examine are romanticism and melodrama, bourgeois realism and revolutionary naturalism; emotional-realistic acting, the reaction against realism; political theatre, physical theatre, theatre and media; non-dramatic theatre; and theatre that challenges long-standing categories of national identity, empire, gender, and sexuality.
For BA Students: Arts and Letters Sector
Activity: Lecture
1 Course Unit

THAR 114 Playwriting Workshop
This course is designed as a hands-on workshop in the art and craft of dramatic writing. It involves the study of new plays, the systematic exploration of such elements as storytelling, plot, structure, theme, character, dialogue, setting, etc., and most importantly, the development of students’ own short plays through a series of written assignments and in-class exercises. Since a great deal of this work takes place in class - through lectures, discussions, spontaneous writing exercises, and the reading of student work - weekly attendance and active participation is crucial. At the end of the semester, students’ plays are read in a staged reading environment by professional actors.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

THAR 120 Introduction to Acting
Rooted in the system devised by Constantine Stanislavsky, but incorporating a wide variety of approaches, including improvisation, this course takes students step by step through the practical work an actor must do to live and behave truthfully on-stage. Beginning with relaxation and physical exercise, interactive games, and ensemble building, students then learn and put into practice basic acting techniques, including sensory work, the principles of action, objectives, given circumstances, etc. The semester culminates in the performance of a scene or scenes, most often from a play from the Realist tradition. This course strongly stresses a commitment to actor work and responsibility to one’s fellow actors. Practical work is supplemented by readings from Stanislavsky and a variety of other acting theorists that may include Uta Hagen, Robert Cohen, Stella Adler, among others. Students are required to submit short essays over the course of the semester in response to the readings and in preparation for their final scene project.
Taught by: Ferguson, Malague, Schlatter, and Staff
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Required of all Theatre Arts Majors
THAR 121 Introduction to Directing
This class will introduce the basic principals of stage directing, beginning with the fundamentals of three-dimensional storytelling in script and character analysis. The aim of this course is to provide students with a basic knowledge of directing through an introduction to the functional tools of the craft. Classes provide lectures and practical work in dealing with topics such as the function of the director, analyzing a script, visual composition, blocking, stage business, and working with actors. This course is a prerequisite for Advanced Directing.
Taught by: Ferguson, Malague, Mazer, Schlatter and O’Harra
One-term course offered either term
Prerequisite: Thar 120
Activity: Seminar
1 Course Unit
Notes: Required of all Theatre Arts Majors

THAR 125 The Play: Structure, Style, Meaning
How does one read a play? Theatre, as a discipline, focuses on the traditions of live performance. In those traditions, a play text must be read not only as a piece of literature, but as a kind of "blueprint" from which productions are built. This course will introduce students to a variety of approaches to reading plays and performance pieces. Drawing on a wide range of dramatic texts from different periods and places, we will examine how plays are made, considering issues such as structure, genre, style, character, and language, as well as the use of time, space, and theatrical effects. Although the course is devoted to the reading and analysis of plays, we will also view selected live and/or filmed versions of several of the scripts we study, assessing their translation from page to stage.
Taught by: Malague and Schlatter
One-term course offered either term
Activity: Lecture
1 Course Unit

THAR 130 Introduction to Light, Set, and Costume Design
Design for theatre (and all of the performing arts) is a dynamic, collaborative process that engages both intellect and emotion in staging the dramatic moment. The personal vision of the designer must navigate the often-uncharted waters of the production process, from the earliest, personal moments of design inspiration to the opening night performance. Design flows from creativity, is structured by research and theory, and is realized in living form by collaboration in the dynamic process of theatre-making. This class will integrate history, theory and practice of stage design in the interactive setting of the Collaborative Classroom in Van Pelt Library in this special interdisciplinary, active-learning course offering open to all Penn students. Group and individual projects, field visits, practical projects and guest speakers will be featured in this newly-revised course.
Taught by: Baratta
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Required of all Theatre Arts Majors

THAR 131 Concepts of Lighting
In this course we will cover the basic concepts of the art and craft of Stage Lighting Design. As a craft we will examine mechanics and technology of lighting design including light sources, power distribution, optics, and control. As an art we will explore how lighting ties together all the visual elements of a production and helps create an appropriate atmosphere that heightens the audience's understanding and enjoyment of the play. Topics include: what light is, what it does, and how light influences our perception and understanding of what we see. Exercises will help the student learn how to see and to understand how light shapes and affects the appearance people and objects on stage and in everyday life. Projects work will emphasize design theory and practice (design methods, script analysis, and drafting skills). Lighting design has it roots in the theatre. The theatre continues to be a prime training ground for lighting designers, no matter what their field.
Taught by: Whinnery
Course usually offered in fall term
Activity: Seminar
1 Course Unit

THAR 132 Costume
Costume history and design provides a framework for organized study and practice in this particular facet of theatre production. It is a one-semester course, scheduled to meet once a week for a three hour session.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

THAR 133 Concepts of Stage Design
In this course we will cover the basic concepts of Scenic Design for the stage. Scene Design is about the look or physical appearance of the stage for a play. It reflects the way that the stage is composed artistically in regard to props, actors, shapes and color. We will explore Scene Design and the Theatre (story telling, place and local, time and period, society and culture), Scene Design as a Visual Art (principals of design and composition, style, use of space, expression of concept) and examine how it ties together all the visual elements of a production to create an appropriate atmosphere that heightens the audience's understanding and enjoyment of the play. Topics will include: Script Analysis, Technical Production, Period Decor and Ornament; Drawing, Drafting, Model Making, and Scene Painting.
Taught by: Whinnery
Course usually offered in fall term
Activity: Seminar
1 Course Unit
THAR 170 Voice for the Actor
This introductory course is designed to help the actor find new freedom and range of expression with their voice and to connect their voice to their impulse. Our focus on relaxation, sensitivity and awareness, using Fitzmaurice Voicework techniques inspired by yoga and meditation, help the student access and develop their own authentic sound. They will learn how to support their voice in a healthy way, with a view to longevity, spontaneity and flexibility of use. In this course, these kinds of vocal exercises will be applied to short, character monologues, in order to foster sensitivity to our voices and breath and to the habits and tensions we have formed around speaking in public. For an actor, reconnecting with their authentic voice is essential for an honest, connected and compelling performance. This training is also useful for anyone who wants to speak in public with confidence, sincerity and ease.
Taught by: Doherty
Course usually offered in fall term
Prerequisites: THAR 120 or equivalent.
Activity: Seminar
1 Course Unit

THAR 171 Movement for the Actor
The study of the art of bodily expression throughout history in theory and practice, from Classical and Oriental, African and Latin forms of dance and movement theater to the contemporary dance and theater, including mime, modern dance, post modern dance, physical theater, film, and performance art.
Taught by: Fischbeck
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: Primarily for majors. Non-majors need permission of the instructor

THAR 214 Advanced Playwriting
This course is intended to reinforce and build upon the areas covered in Level 1 Playwriting (THAR-114) so that students can refine the skills they've acquired and take them to the next level. Topics covered will include techniques for approaching the first draft, in-depth characterization, dramatic structure, conflict, shaping the action, language/dialogue (incl. subtext, rhythm, imagery, exposition etc.), how to analyse your own work as a playwright, dealing with feedback, the drafting process, techniques for rewriting, collaboration (with directors, actors etc) and the 'business of the art' - working with theatres, agents, dramaturgs etc. Students will undertake to write their own one-act plays over the course. The classes will be a mixture of lecture, discussion, study of dramatic texts, writing exercises and in-class analysis of students' work.
Course not offered every year
Prerequisite: Thar 114 - Playwriting Workshop or Permit of the instructor
Activity: Lecture
1 Course Unit

THAR 236 Topics in Renaissance Drama: Acting Shakespeare
This is a hands-on studio course designed to empower actors (and directors, designers and dramaturgs) to use the structure of Shakespeare s language and the conventions of Shakespeare s stage to build performance, using the skills and method of the contemporary actor. After the class works collectively on sonnets and speeches, all of the speech- and scene-work will be drawn from a single Shakespeare play (to be determined), with two reciprocal goals: to use the script to build the performance, and to use what we discover through performance to build an interpretation of the script. NOTE: the normal prerequisite for this course is THAR 120 or THAR 121 or their equivalents; but exceptions will be made by permission of he instructor.
Taught by: Mazer
Course not offered every year
Prerequisite: THAR 120 or 121 or their equivalent or Permission of Instructor
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen. Instructor permission is required.

THAR 240 Advanced Topics in Theatre History
The purpose of this course is to introduce students to the basic materials and methods of theatre history and historiography, as applied to a particular topic, organized around a specific period, national group, or aesthetic issue. This course is concerned with methodological questions: how the history of theatre can be documented; how primary documents, secondary accounts, and historical and critical analyses can be synthesized; how the various components of the theatrical event--acting, scenography, playhouse architecture, audience composition, the financial and structural organization of the theatre industry, etc.--relate to one another; and how the theatre is socially and culturally constructed as an art form in relation to the politics and culture of a society in a particular time and place.
Taught by: Mazer
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This class is the next level up from Thar 140 - Topics in Theatre History.

THAR 250 Theatre Workshop
This course will examine a specific aspect of theatrical practice, taught by a visiting professional theatre artist. The course, with different topics, may be repeated for credit. Recent topics have included performance art, Jacques LeCoq technique, Suzuki, and Viewpoints.
Taught by: Various Theatre Professionals
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Cross-listings are contingent upon topics offered. For the current topics contact the Theatre Arts office.
THAR 271 American Musical Theatre
The American musical is an unapologetically popular art form, but many
of the works that come from this tradition have advanced and contributed
to the canon of theatre as a whole. In this course we will focus on both
music and texts to explore ways in which the musical builds on existing
theatrical traditions, as well as alters and reshapes them. Finally, it is
precisely because the musical is a popular theatrical form that we can
discuss changing public tastes, and the financial pressures inherent in
mounting a production. Beginning with early roots in operetta, we will
survey the works of prominent writers in the American musical theatre,
including Kern, Berlin, Gershwin, Porter, Rodgers, Hart, Hammerstein,
Bernstein, Sondheim and others. Class lecture/discussions will be
illustrated with recorded examples.
Taught by: Fox
Course not offered every year
Activity: Seminar
1 Course Unit

THAR 272 American Theatre and Performance
This course examines the development of the modern American theatre
from the turn of the century to the present day. Progressing decade
by decade the course investigates the work of playwrights such as
Eugene O'Neil, Arthur Miller, Tennessee Williams, Edward Albee, David
Mamet, August Wilson and Tony Kushner, theatre companies such as
the Provincetown Players and the Group Theatre, directors, actors, and
designers. Some focus will also be given to major theatrical movements
such as the Federal Theatre Project, Off-Broadway, regional theatre,
experimental theatre of the Sixties, and feminist theatre.
Taught by: Schlatter and Malague
Course not offered every year
Activity: Lecture
1 Course Unit

THAR 274 Dramaturgy
This course will examine the functions and methods of the dramaturg—
the person in the theatrical process who advises the artistic collaborators
on (among other things) new play development, the structure of the
script, the playwright’s biography and other writings, the play’s first
production and its subsequent production history, and the historical
and regional details of the period depicted in the plays action. We will
study the history of the dramaturg in the American theatre and discuss
contemporary issues relating to the dramaturg’s contribution to the
theatrical production (including the legal debates about the dramaturg’s
contribution to the creation of RENT). And, in creative teams, the class
will create dramaturgical portfolios for a season of imaginary (and, poten-
tially, a few actual) theatrical productions.
Taught by: Mazer
Course not offered every year
Activity: Seminar
1 Course Unit

THAR 275 Advanced Topics in Theatre
This course will combine an intensive practical and intellectual
investigation of some area of the making of theatre: performance
techniques, theatrical styles, a particular period of theatre history.
Please visit the Theatre Arts Program website for current topics for
Thar 275 and other Theatre Arts Courses and special topics: https://
theatre.sas.upenn.edu Please visit the Theatre Arts Program website
each semester for information on the available THAR 275 special topics
courses: https://theatre.sas.upenn.edu
Taught by: Fox, Ferguson, Malague, Mazer, O’Harra & Schlatter
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course, which may with different topics, be repeated for
credit, will examine a specific aspect of theatrical practice. Recent topics
have included performance art, Jacques Lecoq technique, improvisation,
and puppetry.

THAR 279 Women in Theatre and Performance
Theatre began as a form that excluded women entirely. The plays of
ancient Greece and Elizabethan England were written and performed only
by men, beginning a long tradition of theatre that represented women
only from male perspectives. Has that tradition been so dominant for
so long that women’s voices on stage are still a novelty? This course
focuses on a wide range of plays and performances by and about women;
the work we read (and view) will evidence artistic attempts to represent
women’s lives, experiences and perspectives on the stage. Among the
issues encountered and examined in these works are the roles of love,
sexuality, friendship, career, community, marriage, motherhood, family,
and feminism in women’s lives - as well as the economic and political
position(s) of women in society. The course will also offer contextual
background on feminist theatre history, theory, and literature, as well as
the diverse (and divergent) creative efforts of female artists to use use
live performance as a means of creating social and political change.
Taught by: Malague
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This is a topics class which include: Dangerous Women and
Provocative Performance.

THAR 320 Scene Study
Scene Study is an advanced acting class that combines intensive script
analysis with performance of scenes; material to be explored will be
chosen specifically for the members enrolled in class. Open to students
who have successfully completed Introduction to Acting, this course
continues with greater emphasis on the actor’s work with the text. We
will study several plays together as a group, conducting Stanislavskian
table work. We will then workshop and perform scenes from these
plays in subsequent class sessions. In consultation with the instructor,
students will identify individual goals, building on discoveries made in
other Theatre Arts courses and/or prior stage work, exploring roles and
plays that present actors with new challenges and expand their range.
Depending on the number of students enrolled in the class, we are likely
to perform at least three scenes and a monologue. Plays will be read
alongside key theoretical texts, and class work will be complemented by
attendance at selected live productions on campus and in Philadelphia.
Taught by: Malague
Course usually offered in fall term
Prerequisites: Thar 120, Thar 220
Activity: Seminar
1 Course Unit
THAR 321 Acting & Directing Lab
Taught by: O’Harra
Activity: Lecture
1 Course Unit

THAR 350 Rehearsal and Performance
Theatre Rehearsal and Performance provides students with deep intellectual and artistic immersion in the theatrical process through intensive research, rehearsal, and performance of a full-length stage piece. Students may enroll in this course as actors (by audition only) or as assistant directors, stage managers, dramaturgs, or designers (by permission of the instructor). Each semester, the play will be featured in the Theatre Arts Program production season; the class meeting times will vary but will typically consist of 16-20 hours per week in the evening hours.
Taught by: Ferguson, Fox, Malague, Mazer and Schlatter
One-term course offered either term
Activity: Studio
1 Course Unit

THAR 579 Provocative Performance
Taught by: Malague
Course not offered every year
Activity: Seminar
1 Course Unit

THAR 999 Graduate Level Independent Study
Course offered summer, fall and spring terms
Activity: Lecture
1 Course Unit
TURKISH (TURK)

TURK 021 Elementary Turkish I
This is a course for beginners who have no previous knowledge of Turkish. Using a communicative approach, Elementary Turkish introduces basic vocabulary and grammar rules and focuses on building language competencies in listening, reading, speaking and writing. By the end of the course, students will be able to participate in simple conversations, to know daily expressions, and will understand simple dialogues in day-to-day context and will be able to count and tell time. Will be able to speak about events that happened in the past and express plans for the future. Students will also develop writing strategies that will allow them to write simple letters and fill in commonly-used forms.
For BA Students: Language Course
Taught by: Hatiboglu
Course usually offered in fall term
Activity: Lecture
1 Course Unit

TURK 022 Elementary Turkish II
This course is a continuation of TURK 021 and is designed to strengthen and extend students' listening, speaking, reading and writing competence and to deepen an understanding of Turkish people in Turkey. By the end of this course, students will be able to handle a variety of day to day needs in Turkish-speaking settings and engage in simple conversations. Students can expect to be able to order food and drinks, purchase things, and to be able to be familiar with current social topics. Students will be able to talk about all tenses, present, future, past, past continuous, make comparisons, describe people and things in detail, make travel plans, make reservations in hotels and holiday resorts, write complaint letters. By the end of the course, students will be able to talk about their studies and their plans for the future. Also, students will develop reading strategies that should allow them to understand the general meaning of articles, and short literary texts. Students will learn practical life in Turkey and will explore Turkish culture on the internet.
For BA Students: Language Course
Taught by: Hatiboglu
Course usually offered in spring term
Activity: Lecture
1 Course Unit

TURK 023 Intermediate Turkish I
A continuation of elementary Turkish, with emphasis on grammar and reading. This course is for students who have previous knowledge of Turkish or students who have completed Elementary Turkish I and II. This course is designed to improve students' writing and speaking competence, to increase vocabulary, to deepen grammar usage and to help develop effective reading and listening strategies in Turkish. Students' Turkish language proficiency and cultural awareness and knowledge will increase by exposing to authentic materials and coursework. and in order give them cultural knowledge, students are exposed to authentic materials.
For BA Students: Language Course
Taught by: Hatiboglu
Course usually offered in fall term
Prerequisites: TURK 022 or equivalent.
Activity: Lecture
1 Course Unit

TURK 024 Intermediate Turkish II
Expands students writing and speaking competence in Turkish, increases vocabulary, and helps students' practice effective reading and listening strategies. Our in-class discussions are based on role-plays and weekly readings and news reports from TV and newspapers. We create Discussion will take place in this course and let them and students will communicate through, threaded discussions, chat rooms and skype. The review of grammar will not be the primary focus of the course. Students' will, expand and deepen their knowledge of grammar will be extended through specific grammar exercises. They Students will have the opportunity to practice and read about the cultural and historical issues and get prepared for an advanced level Turkish.
For BA Students: Last Language Course
Taught by: Hatiboglu
Course usually offered in spring term
Activity: Lecture
1 Course Unit

TURK 025 Advanced Modern Turkish I
The study of modern Turkish at the advanced level; emphasis on grammar and reading, focusing on Business Turkish. Interviews with professionals from different business groups will take place, such as, education, medicine, business law and political science. The study of modern Turkish at the advanced level; emphasis onconversation fluency and on increased ability reading and comprehending texts, including newspaper prose and Turkish cultural materials. grammar and reading, focusing on Business Turkish. Interviews with professionals from different business groups will take place, such as, education, medicine, business law and political science.
For BA Students: Advanced Language Course
Taught by: Hatiboglu
Course usually offered in fall term
Prerequisites: TURK 024, Intermediate Turkish II
Activity: Lecture
1 Course Unit

TURK 027 Advanced Spoken Turkish and Cinema I
In this course, we will look at differing degrees of interaction between literature and the films it inspires. Discussions of each novel will be followed by screening the related film, allowing us to explore themes such as the different forms of bandruptcy (old school vs. organized), honor killings, the use of books in films, the problems of artistic representation. This course will give students the opportunity to improve significantly written and spoken discourse strategies and raise language competence to an academic register. Students work across Turkish Language, literary genres and media as they interpret and analyze cultural, political and historical moments in Turkish movies. Students will attempt to understand how political shifts over the past 20 years have impacted the current situation and cultural conception, religious and cultural norms and traditions. Contemporary Turkish authors’ books will be analyzed and discussed in this course. We’ll have sessions in Penn Museum related to exhibitions from Turkey and the region.
For BA Students: Advanced Language Course
Taught by: Hatiboglu
Course usually offered in fall term
Activity: Lecture
1 Course Unit
TURK 028 Advanced Spoken Turkish and Cinema II
This course offers students the opportunity to improve significantly written and spoken discourse strategies and raise language competence in advanced level. Students work across media and movies as they interpret and analyze cultural, political and historical moments in Turkish movies. Special attention will be given to the development of an academic discourse style during in-class discussions, threaded discussions and, written compositions. Interviews and discussions will take place in this course. There will be class movie screenings and course concludes with an in-class presentation of the collaborative creative project and the final For BA Students: Advanced Language Course Course usually offered in spring term Activity: Lecture 1 Course Unit

TURK 031 Elementary Uzbek I
Designed to cover beginning college levels of language instruction, Uzbek: An Elementary Textbook provides learners and instructors with a wide selection of materials and task-oriented activities to facilitate the development of language learning. It offers a thematically organized and integrative approach to the Uzbek language and its culture, including a functional approach to grammar, an emphasis on integrated skills development, and the use of authentic materials such as videos filmed in various regions of Uzbekistan. Uzbek: An Elementary Textbook contains one CD-ROM that includes authentic audio and video materials to accompany the text and integrated, interactive exercises and games, all in Flash format and all of which are keyed to the textbook. It includes a supplementary Cyrillic reader, an extensive glossary, and four-color illustrations and photographs throughout. Course usually offered in fall term Activity: Lecture 1 Course Unit

TURK 032 Elementary Uzbek II
Continuation of TURK 031, Elementary Uzbek I. Designed to cover beginning college levels of language instruction, Uzbek: An Elementary Textbook provides learners and instructors with a wide selection of materials and task-oriented activities to facilitate the development of language learning. It offers a thematically organized and integrative approach to the Uzbek language and its culture, including a functional approach to grammar, an emphasis on integrated skills development, and the use of authentic materials such as videos filmed in various regions of Uzbekistan. Uzbek: An Elementary Textbook contains one CD-ROM that includes authentic audio and video materials to accompany the text and integrated, interactive exercises and games, all in Flash format and all of which are keyed to the textbook. It includes a supplementary Cyrillic reader, an extensive glossary, and four-color illustrations and photographs throughout. Course usually offered in spring term Activity: Lecture 1 Course Unit

TURK 033 Intermediate Uzbek I
Designed to strengthen and develop further skills, in listening, speaking, reading and writing and to deepen an understanding of the cultural context of Uzbek. Emphasis on the expansion and refinement of linguistic and communicative skills learned in elementary Uzbek Course usually offered in fall term Activity: Lecture 1 Course Unit

TURK 034 Intermediate Uzbek II
Continuation of Intermediate Uzbek I. Will focus on to develop language skills, in listening, speaking, reading and writing and to deepen an understanding of the cultural context of Uzbek. Emphasis on the expansion and refinement of linguistic and communicative skills learned in elementary Uzbek and Intermediate Uzbek I Course usually offered in spring term Activity: Lecture 1 Course Unit

TURK 121 Advanced Turkish Culture & Media I
This course is for students who are from all different levels of Turkish knowledge. They are expected to write and talk about Turkish movies, culture, politics according to their own level and pace. They will talk to Turkish visitors and interview them. Turkish movies will be the part of the course and once a month, students will watch a Turkish movie and analyze it. Discussions will take place and students will write essays about the movie. This course is designed with a technology-rich, project based approach. The materials will go beyond instruction in grammar and vocabulary to support the acquisition of socio-cultural pragmatics, and intercultural learning. For BA Students: Advanced Language Course Taught by: Hatiboglu Course usually offered in fall term Activity: Seminar 1 Course Unit

TURK 122 Advanced Turkish Culture & Media II
Similar to TURK 212, Advanced Turkish Culture & Media I, in this course students also will have exposure to social Turkish clubs and to establish their own. They will arrange their Turkish tea parties and learn about Turkish cuisine. Expose Turkish daily news and media will be discussed in class. Students will have chance to interview interview Turkish businessman, writer, journalists in class and/or skype or zoom people in Turkish. Team spirit or ethics with those of the United States. Students will present and prepare a drama. Mainly students will create and decide their activities and discussions. and the instructor will just monitor them most of time. They will continue watching Turkish movies and expose to Turkish culture through these films. After each movie discussions and essay writings will be expected. For BA Students: Advanced Language Course Taught by: Hatiboglu Course usually offered in spring term Activity: Seminar 1 Course Unit

TURK 229 Ottoman Turkish I
This course is an introduction to Ottoman Turkish with basic characteristics. Ottoman Turkish through readings in printed selections will be exercised with different techniques. Students will learn Persian and Arabic effects on Ottoman Turkish. They will be able to read simple texts at the end of this course. General information on Ottoman Turkish will be given to students during this course. This course will be offered one semester during the school year. Not open to auditors Taught by: Hatiboglu Course not offered every year Prerequisites: Two semesters of Turkish and two semesters of Arabic or Persian OR four semesters of Turkish or equivalent Activity: Seminar 1 Course Unit
TURK 329 Advanced Readings Ottoman Texts  
Course not offered every year  
Activity: Seminar  
1 Course Unit  

TURK 521 Advanced Turkish Culture & Media I  
This course is TURK 121 for graduate students.  
For BA Students: Advanced Language Course  
Taught by: Hatiboglu  
Course usually offered in fall term  
Activity: Seminar  
1 Course Unit  

TURK 522 Advanced Turkish Culture & Media II  
This course is TURK 122 for graduate students.  
For BA Students: Advanced Language Course  
Taught by: Hatiboglu  
Course usually offered in spring term  
Activity: Seminar  
1 Course Unit  

TURK 621 Elementary Turkish I  
This course is TURK-021 for graduate students. Introduction to the spoken and written language of contemporary Turkey.  
For BA Students: Language Course  
Taught by: Hatiboglu  
Course usually offered in fall term  
Activity: Lecture  
1 Course Unit  

TURK 622 Elementary Turkish II  
This course is TURK 022 for graduate students.  
For BA Students: Language Course  
Taught by: Hatiboglu  
Course usually offered in spring term  
Prerequisites: TURK 621, Elementary Turkish II or equivalent.  
Activity: Lecture  
1 Course Unit  

TURK 623 Intermediate Turkish I  
This course is TURK 023 for graduate students.  
For BA Students: Language Course  
Taught by: Hatiboglu  
Course usually offered in fall term  
Prerequisites: TURK 622, Elementary Turkish II, or equivalent.  
Activity: Lecture  
1 Course Unit  

TURK 624 Intermediate Turkish II  
This course is TURK 024 for graduate students.  
For BA Students: Last Language Course  
Taught by: Hatiboglu  
Course usually offered in spring term  
Prerequisites: TURK 623, Intermediate Turkish I or equivalent.  
Activity: Lecture  
1 Course Unit  

TURK 625 Advanced Modern Turkish I  
The study of modern Turkish at the advanced level; emphasis on grammar and reading, focusing on business Turkish. Interviews with professionals from different business groups will take place, such as, education, medicine, business, law, and political science. This course is TURK 025 for graduate students.  
For BA Students: Advanced Language Course  
Taught by: Hatiboglu  
Course usually offered in fall term  
Prerequisites: TURK 024, Intermediate Turkish II or equivalent  
Activity: Lecture  
1 Course Unit  

TURK 627 Advanced Spoken Turkish and Cinema I  
In this course, we will look at differing degrees of interaction between literature and the films it inspires. Discussions of each novel will be followed by screening the related film, allowing us to explore themes such as the different forms of banditry (old school vs. organized), honor killings, the use of books in films, the problems of artistic representation. This course will give students the opportunity to improve significantly written and spoken discourse strategies and raise language competence to an academic register. Students work across Turkish Language, literary genres and media as they interpret and analyze cultural, political and historical moments in Turkish movies. Students will attempt to understand how political shifts over the past 20 years have impacted the current situation and cultural conception, religious and cultural norms and traditions. Contemporary Turkish authors' books will be analyzed and discussed in this course. We'll have sessions in Penn Museum related to exhibitions from Turkey and the region.  
For BA Students: Advanced Language Course  
Taught by: Hatiboglu  
Course usually offered in fall term  
Activity: Lecture  
1 Course Unit  

TURK 629 Ottoman Turkish I  
This course is an introduction to Ottoman Turkish with basic characteristics. Ottoman Turkish through readings in printed selections will be exercised with different techniques. Students will learn Persian and Arabic effects on Ottoman Turkish. They will be able to read simple texts at the end of this course. General information on Ottoman Turkish will be given to students during this course. This course will be offered one semester during the school year.  
Taught by: Hatiboglu  
Course not offered every year  
Prerequisites: Two semesters of Turkish and two semesters of Arabic or Persian OR four semesters of Turkish or equivalent  
Activity: Seminar  
1 Course Unit
TURK 631 Elementary Uzbek I
Designed to cover beginning college levels of language instruction, Uzbek: An Elementary Textbook provides learners and instructors with a wide selection of materials and task-oriented activities to facilitate the development of language learning. It offers a thematically organized and integrative approach to the Uzbek language and its culture, including a functional approach to grammar, an emphasis on integrated skills development, and the use of authentic materials such as videos filmed in various regions of Uzbekistan. Uzbek: An Elementary Textbook contains one CD-ROM that includes authentic audio and video materials to accompany the text and integrated, interactive exercises and games, all in Flash format and all of which are keyed to the textbook. It includes a supplementary Cyrillic reader, an extensive glossary, and four-color illustrations and photographs throughout.
Course usually offered in fall term
Activity: Lecture
1 Course Unit

TURK 632 Elementary Uzbek II
Continuation of TURK 631, Elementary Uzbek I. Designed to cover beginning college levels of language instruction, Uzbek: An Elementary Textbook provides learners and instructors with a wide selection of materials and task-oriented activities to facilitate the development of language learning. It offers a thematically organized and integrative approach to the Uzbek language and its culture, including a functional approach to grammar, an emphasis on integrated skills development, and the use of authentic materials such as videos filmed in various regions of Uzbekistan. Uzbek: An Elementary Textbook contains one CD-ROM that includes authentic audio and video materials to accompany the text and integrated, interactive exercises and games, all in Flash format and all of which are keyed to the textbook. It includes a supplementary Cyrillic reader, an extensive glossary, and four-color illustrations and photographs throughout.
Taught by: Saff
Course usually offered in spring term
Activity: Lecture
1 Course Unit

TURK 633 Intermediate Uzbek I
Activity: Lecture
1 Course Unit

TURK 634 Intermediate Uzbek II
Course usually offered in spring term
Activity: Lecture
1 Course Unit

TURK 729 Advanced Readings Ottoman Texts
Activity: Seminar
1 Course Unit
URBS 010 Homelessness & Urban Inequality
This freshman seminar examines the homelessness problem from a variety of scientific and policy perspectives. Contemporary homelessness differs significantly from related conditions of destitute poverty during other eras of our nation's history. Advocates, researchers and policymakers have all played key roles in defining the current problem, measuring its prevalence, and designing interventions to reduce it. The first section of this course examines the definitional and measurement issues, and how they affect our understanding of the scale and composition of the problem. Explanations for homelessness have also been varied, and the second part of the course focuses on examining the merits of some of those explanations, and in particular, the role of the affordable housing crisis. The third section of the course focuses on the dynamics of homelessness, combining evidence from ethnographic studies of how people become homeless and experience homelessness, with quantitative research on the patterns of entry and exit from the condition. The final section of the course turns to the approaches taken by policymakers and advocates to address the problem, and considers the efficacy and quandaries associated with various policy strategies. The course concludes by contemplating the future of homelessness research and public policy.

Taught by: Culhane
Course usually offered in fall term
Activity: Seminar
1 Course Unit

URBS 018 Freshman Seminar
The primary goal of the freshman seminar program is to provide every freshman the opportunity for a direct personal encounter with a faculty member in a small setting devoted to a significant intellectual endeavor. Specific topics be posted at the beginning of each academic year. Please see the College Freshman seminar website for information on course offerings: http://www.college.upenn.edu/requirements-courses.
Course usually offered in fall term
Activity: Seminar
1 Course Unit

URBS 046 Urban Sound Studies
Sound is all around us and shapes almost every aspect of our everyday days, and yet, in comparison to our rich descriptions of visual culture, we often lack the explanatory power to analyze and assess the overwhelming influence of the sonic. This introduction to sound studies course will combine a rigorous conceptual and a creative, hands-on approach. We will explore how sound and auditory cultures have been theorized, how soundscapes shape built environments and transform social relations, and how technologies have affected our relationships to sound. The course will focus on urban spaces. Cutting across disciplinary, historical and geographical boundaries, we will cover themes including sound-reproduction and mobile technologies, sonic consumption, noise regulation, protest, the politics of listening under Trumpism. We will encounter a wide variety of materials from literary texts to mobile apps and video games, not to mention a vast range of sounds drawn from fieldwork around the world from Las Vegas to Shanghai, Paris to Johannesburg. Alongside written work, you will make fieldwork recordings on the streets of Philadelphia and develop creative projects using media of your choice to reflect upon urban sound.

Taught by: Waltham Smith
Course not offered every year
Activity: Lecture
1 Course Unit

URBS 050 Womanism and Identity Politics in the Realm of Hip-Hop
This course centers on the intersections of womanism, woman of color identity development, and agency within hip-hop culture. We will touch on several topics that uncover the condition of minoritized women in hip-hop media, including creating/owning space, lyrical assault, defining womanhood, sexuality, and fetishes. In exploring music, literature, advertisements, film, and television, we will discuss the ways women of color construct understandings of self, while navigating and reimagining reality within hip-hop contexts.

Taught by: Patterson
Activity: Seminar
1 Course Unit

URBS 103 Industrial Metropolis
Although we no longer think of most U.S. cities as industrial cities, metropolitan areas today are all products of industrial economies, technologies, and social systems. This course explores the industrialization and deindustrialization of American cities within their evolving global context from the era of European colonization to the present. It includes weekly readings and discussion, regular response papers and walking tours, in-class exercises, and a research paper using primary sources. Themes include energy and ecology, labor and production, inner city and suburban development, globalization, and economic restructuring. Ultimately, the class aims to give students a broad knowledge of 1) the history of industrial capitalism, 2) its effects on cities and regions over the past three centuries, and 3) analytical tools for understanding the past, present, and future of metropolitan economies, geography, and society.

For BA Students: History and Tradition Sector
Taught by: Vitiello
Course usually offered in fall term
Activity: Seminar
1 Course Unit
Notes: Course is available to freshmen and sophomores

URBS 104 The Transformation of Urban America
The course traces the economic, social, and political history of American cities after World War II. It focuses on how the economic problems of the industrial city were compounded by the racial conflicts of the 1950s and 1960s and the fiscal crises of the 1970s. The last part of the course examines the forces that have led to the revitalization of cities in recent years.

For BA Students: Society Sector
Taught by: Stern
Course usually offered in spring term
Activity: Lecture
1 Course Unit
URBS 106 Freshman Seminar
Topic varies. Fall 2017: This course will examine the fascination with ecology in artistic thinking from late Modernism to the present, with a particular attention to the developing interest in social and environmental systems in the late 1960's and early 1970's. From Robert Smithson's Spiral Jetty to Rachel Carson's Silent Spring, artists, scholars and activists of this generation were deeply invested in the interconnectedness of life in all its forms. This new sensitivity to the affinities that bind individuals, and our vulnerability to social, political and economic environments, enabled new aesthetic approaches that have continued relevance today. As part of the course, we will meet with a range of artists, curators and institutions in Philadelphia who are continuing these investigations, including the Colored Girls Museum in Germantown and the Health Ecologies Lab here at Penn. No familiarity with contemporary art is required.
Activity: Seminar
1 Course Unit
Notes: For Freshmen Only

URBS 112 Urban Sociology
This course is a comprehensive introduction to the sociological study of urban areas. This includes more general topics as the rise of cities and theories urbanism, as well as more specific areas of inquiry, including American urbanism, segregation, urban poverty, suburbanization and sprawl, neighborhoods and crime, and immigrant ghettos. The course will also devote significant attention to globalization and the process of urbanization in less developed counties.
Taught by: Flippen
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 120 Literature of the South Asian City: Space, Culture, Politics
The South Asian city as a way of organizing space and social relations, as a symbol, as a memory is the subject of this course. Through primarily, though by no means exclusively, readings of literature in translation, we will gain a sense for the history of the city and the ways in which it is a setting for protest and nostalgia, social transformation and solitary flâneurie. We will see reflections of the city in poetry recited in its homes, detective novels sold in its train stations, stories scribbled in its cafes, plays staged in its theaters, and films produced in its backlots. Readings will attempt to address urban spaces across South Asia, and will include works by writers such as Mirza Ghalib, Rabindranath Tagore, Saadat Hasan Manto, and Vijay Tendulkar. We will examine these works in the context of secondary readings, including histories and ethnological works that take up life in the modern city. Students will finish this course prepared to pursue projects dealing with the urban from multiple disciplinary perspectives. This course is suitable for anyone interested in the culture, society, or literature of South Asia, and assumes no background in South Asian languages.
Taught by: Goulding
One-term course offered either term
Activity: Lecture
1 Course Unit

URBS 121 Origin and Culture of Cities
The UN estimates that 2.9 of the world's 6.1 billion people live in cities and that this percentage is rapidly increasing in many parts of the world. This course examines urban life and urban problems by providing anthropological perspectives on this distinctive form of human association and land use. First we will examine the "origin" of cities, focusing on several of the places where cities first developed, including Mesopotamia and the Valley of Mexico. We will then investigate the internal structure of non-industrial cities by looking at case studies from around the world and from connections between the cities of the past and the city in which we live and work today.
For BA Students: History and Tradition Sector
Taught by: Zettler
Course usually offered in fall term
Activity: Lecture
1 Course Unit

URBS 122 The City in South Asia
This interdisciplinary social science course examines key topics, themes, and analytic methods in the study of South Asia by focusing on significant South Asian cities. With one-fifth of the world's population, South Asia and its urban centers are playing an increasingly important role in recent global economic transformations, resulting in fundamental changes within both the subcontinent and the larger world. Drawing primarily on ethnographic studies of South Asia in the context of rapid historical change, the course also incorporates research drawn from urban studies, architecture, political science, and history, as well as fiction and film. Topics include globalization and new economic dynamics in South Asia; the formation of a new urban middle class; consumption and consumer culture; urban political formations, democratic institutions, and practices; criminality & the underworld; population growth, changes in the built environment, and demographic shifts; everyday life in South Asia and ethnical, ethnic, cultural, and linguistic identities, differences, and violence in South Asia's urban environments. This is an introductory level course appropriate for students with no background in South Asia or for those seeking to better understand South Asia's urban environments in the context of recent globalization and rapid historical changes. No prerequisites. Fulfills College sector requirement in Society and foundational approach in Cross-Cultural Analysis.
For BA Students: Society Sector
Taught by: Mitchell
One-term course offered either term
Activity: Lecture
1 Course Unit

URBS 135 Creat. Non-Fiction Writ
One-term course offered either term
Activity: Seminar
1 Course Unit

URBS 136 Urban Politics in the United States
This course focuses on political responses to urbanization in the United States. Topics include local government, national urban politics, and the changing nature of cities.
For BA Students: Society Sector
Taught by: Reed
Course usually offered in spring term
Activity: Lecture
1 Course Unit
URBS 139 Ancient Civilizations of the World
This course explores the archaeology (material culture) of early complex societies or civilizations in Egypt, Mesopotamia, and the Aegean. According to the traditional paradigm, civilization first emerged during the fourth millennium BCE in Egypt and Mesopotamia. In the Mediterranean, state-level societies first appeared in Crete and mainland Greece in the early second millennium BCE. This course investigates how and why these civilizations developed, as well as their appearance and structure in the early historic (or literate) phases of their existence. A comparative perspective will illustrate what these early civilizations have in common and the ways in which they are unique. This course will consist largely of lectures which will outline classic archaeological and anthropological theories on state formation, before turning to examine the available archaeological (and textual) data on emerging complexity in Egypt, Mesopotamia, and the Aegean. This course does not presuppose any knowledge of archaeology or ancient languages; the instructor will provide any background necessary. Because this is a course on material culture, some of the class periods will be spent at the Penn Museum of Archaeology and Anthropology. These will consist of a guided tour of a relevant gallery, as well as a hands-on object-based lab with archaeological materials selected by the instructor. This course meets the General Education Curriculums Cross Cultural Analysis foundational requirement, whose aim is to help students understand and interpret the cultures of peoples (even long-dead peoples) with histories different from their own; it also fulfills the History and Tradition Sector breadth requirement.

For BA Students: History and Tradition Sector
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit

URBS 160 Race and Ethnic Relations
The course will focus on race and ethnicity in the United States. We begin with a brief history of racial categorization and immigration to the U.S. The course continues by examining a number of topics including racial and ethnic identity, interracial and interethnic friendships and marriage, racial attitudes, mass media images, residential segregation, educational stratification, and labor market outcomes. The course will include discussions of African Americans, Whites, Hispanics, Asian Americans and multiracials.

Taught by: Charles, Kao, Zuberi
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Previously URBS 214

This seminar will examine the experiences of recent African immigrants and refugees in Philadelphia in an historical framework. We will employ a variety of sources—newspapers, census data, legal briefs, literature and film, and diaspora internet sites—to explore the lives, aspirations, and perceptions of Philadelphia’s African residents. There will be opportunities for dialogue with high school students, teachers, and parents; with representatives of African community and business organizations; and with local government and service agencies. Students will be required to do a final project which involves volunteering with an African immigrant non-profit or business and/or conducting focused research on specific African communities in Philadelphia.

Taught by: Cassanelli
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 171 The Socialist City
This course will explore the ideology and politics of the socialist city in the Soviet Union, East Europe, and the Second World. We will focus on how design professionals, politicians, and residents realized utopian socialist values in the face of national design traditions, local politics, and limited resources. Beginning with the Soviet case, the course will consider how planners and architects addressed modernization, multi-family housing, and neighborhood units in new city plans. We will consider capitals, like Moscow, as well as less well-known regional centers that had strong local identities, such as Tashkent, Belgrade, and Prague. We will examine the state’s use of public spaces for commemorations and preservationists’ reinterpretation of existing historic sites. In addition, we will consider how everyday residents experienced the socialist city, such as multi-family housing, shopping centers, and subway systems. We will address how citizens circumvented official state channels to obtain state housing and illegally build homes for themselves, sometimes in a folk style. The course will center on Soviet and East European cities, but also address socialist cities in Cuba and Africa whose design was influenced by transnational exchanges. Most broadly, this course explores the question, what was the socialist city? How did its planners, architects, and politicians understand it, and what did they intend to construct? And, what resulted? In the past fifteen years, North American scholars have begun to take seriously the study of the socialist city, and this course draws on the emerging scholarship on this exciting, cross-disciplinary topic. How do scholars understand the socialist city today? We will examine the shared legacies that socialist cities across East Europe shared with their Western European counterparts, as well as the particularities of design that have sparked North American scholars’ debates on what distinguished the socialist city from ones that emerged in a capitalist context. In our discussions, we will seek to understand how socialist design professionals understood their work and the emerging cities at the time, as well as how North American scholars view the socialist city today. Disciplinarily, the focus of the call will fall at the intersection of architectural history and politics.

Taught by: Aplenc
Course not offered every year
Activity: Seminar
1 Course Unit
URBS 178 Faculty-Student Collaborative Action Seminar in Urban University-Community Relations
One of the goals of this seminar is to help students develop their capacity to solve strategic, real-world problems by working collaboratively in the classroom, on campus, and in the West Philadelphia community. Research teams help contribute to the improvement of education on campus and in the community, as well as the improvement of university-community relations. Among other responsibilities, students focus their community service on college and career readiness at West Philadelphia High School and Sayre High School. Students are typically engaged in academically based community service learning at the schools for two hours each week.
Taught by: Harkavy
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: previously URBS 078; Benjamin Franklin Seminar

URBS 180 Asian American Food
You are what you eat. Asian American Food explores the history, politics, and ethnic identity of food through a cultural lens. Growing food, eating, and sharing meals serve as intimate expressions of self and community. By examining the production and consumption of food, the course investigates the ways that Asian Americans navigate traditions, gender norms, religious dietary laws, food habits, and employment as they create lives in the United States. The course overviews the history of Asian American foodways, but has a particular focus on Philadelphia’s Asian American communities.
Taught by: Khan, F
Activity: Seminar
1 Course Unit

URBS 181 Comparative Cultures of Sustainability
Sustainability is more than science, engineering, policy, and design. Surveying the world, we see that the politics and practice of sustainability play out in different ways depending on cultural factors. Some cultures are more prone to pursue ecological goals than others. Why? Do the environmental history and experience of a nation affect policy? Do nature and the environment play a crucial role in the cultural memory of a nation? Can cultural components be effectively leveraged in order to win approval for a politics of sustainability? And what can we, as residents of a country where climate change and global warming are flashpoints in an enduring culture war, learn from other cultures? This course is designed to equip undergraduate students with the historical and cultural tools necessary to understand the cultural aspects of sustainability in two countries noted for their ecological leadership and cultural innovation, Germany and the Netherlands. This hybrid course combines online instruction with a short-term study abroad experience in Berlin and Rotterdam. During the pre-tip online portion of the course, students will become acquainted with the cultural histories of German and Dutch attitudes toward sustainability and the environment through a combination of recorded lectures by the instructor, reading assignments, viewing assignments (documentary and feature films), threaded discussions, and short written assignments. The goal of the pre-trip instruction are to help students develop tools for analyzing and interpreting cultural difference, construct working models of German and Dutch concepts of sustainability, and formulate hypotheses about the relation between culture and policy in Germany and the Netherlands.
Taught by: Richter
Course usually offered summer term only
Prerequisites: There are no prerequisites or language requirements.
Activity: Lecture
1 Course Unit
Notes: Summer abroad course.

URBS 200 Urban Research Methods
This course will examine different ways of undertaking urban research. The goal will be to link substantive research questions to appropriate data and research methods. Computer-based quantitative methods, demographic techniques, mapping / GIS and qualitative approaches will be covered in this course. Student assignments will focus on constructing a neighborhood case study of a community experiencing rapid neighborhood change.
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Fulfills Quantitative Data Analysis Requirement
URBS 202 Urban Education
This seminar focuses on two main questions: 1) How have US schools and urban ones in particular continued to reproduce inequalities rather than ameliorating them? 2) In the informational age, how do the systems affecting education need to change to create more successful and equitable outcomes? The course is designed to bridge the divide between theory and practice. Each class session looks at issues of equity in relation to an area of practice (e.g., lesson design, curriculum planning, fostering positive student identities, classroom management, school funding, policy planning...), while bringing theoretical frames to bear from the fields of education, sociology, anthropology and psychology. Among the theoretical frames students will learn will be the tools of systems thinking (Bertalanffy, 1968). While most of us have internalized the key lesson of the industrial revolution—that to understand something we must break it into its parts; systems thinking, in contrast, is about understanding the parts in relation to whole. The power of systems thinking is that each point of connection also serves as a point of intervention. By showing the importance of decisions of those within classrooms and those outside of them, this course is well-suited to students of education, but also any who seek a role in creating a more just society.

Taught by: Michael Clapper
One-term course offered either term
Activity: Seminar
1 Course Unit

URBS 203 Introduction to City Planning: Planning Urban Spaces
This course will provide a general introduction to the concepts and practice of city planning. Topics to be discussed include: the process and nature of planning - theories, methods and roles as manifested in practice; history and trends in city planning; functional planning practice; planning within constraints—a field project; planning in the international arena; present crisis in planning.

Taught by: Gorostiza
Course usually offered summer term only
Activity: Seminar
1 Course Unit

URBS 204 Urban Law
This course will focus on selected aspects of urban law that are particularly relevant to areas of high population density. After an introduction to the American judicial system, it will examine the legal issues that arise in the management of land development and use, with special attention to constitutional questions involving equal protection, due process, and the "takings" clause, and routine run-of-the-mill zoning challenges. This course meets the Cultural Diversity requirement.

Taught by: Keene
Course usually offered in fall term
Activity: Lecture
1 Course Unit

URBS 205 People and Design
The built environment of a city is more than a mere backdrop; the design can actually affect people's experiences. Environmental design primarily focuses on the relationship between people and the built environment. It also looks at how the built environment interacts with the natural one (and the potential for greater sustainability). This course will allow students to gain a deeper understanding of how people create, perceive, and use the designed environment. We'll approach these concepts by analyzing design at a variety of scales, from products to interior design to architecture. Finally, using that knowledge, we'll conclude by analyzing urban spaces of the city.

Taught by: Berman
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 206 Public Environment of Cities: An Introduction to the Urban Landscape
This course will explore the role of public spaces - streets, boulevards, parks and squares - in cities and their social uses. With the University of Pennsylvania campus and the City of Philadelphia serving as our laboratory, we will critically examine the evolution of the movement of corridors, open space and buildings of the urban landscape and their changing uses. Case studies of social spaces on campus and public open spaces in Center City will help inform our understanding of how public environment serves, well or poorly, the varying needs of diverse users. While graphic skills are not required, graphic means as well as writing will be employed to communicate critical thought, ideas, and conclusions.

Taught by: Nairn
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 207 Asian American Communities
Who is Asian American and how and where do we recognize Asian America? This interdisciplinary course explores the multiple factors that define Asian American identity and community. In order to provide a sketch of the multifaceted experience of this growing minority group, we will discuss a wide variety of texts from scholarly, artistic, and popular (film, cinematic) sources that mark key moments in the cultural history of Asia America. The course will address major themes of community life including migration history, Asian American as model minority, race, class, and transnational scope of Asian America. In combination with the readings, this class will foster and promote independent research based on site visits to various Asian American communities in Philadelphia and will host community leaders as guest lecturers.

Taught by: Khan
One-term course offered either term
Activity: Seminar
1 Course Unit
URBS 210 The City
Urbs/Hist 210 will focus on Baltimore and use The Wire as one of its core texts. The course will explore the history and development of the city and its institutions, with a thematic focus on issues such as industrialization and deindustrialization; urban renewal and the role of universities; public education and youth; policing and the criminal justice system; drugs and underground markets; public housing and suburbanization; and Baltimore's so-called renaissance amidst persistent poverty. The seminar will include field trips both in Philadelphia and a concluding all-day trip to Baltimore.
For BA Students: Humanities and Social Science S
Taught by: Nairn
Course usually offered in spring term
Activity: Seminar
1 Course Unit
Notes: Also fulfills General Requirement in Society for Class of 2009 and prior

URBS 213 Urban Ethnography: Capturing the Cultures of Cities
With its multi-ethnic neighborhoods and rich cultural life, Philadelphia is an ideal site for learning how to carry out urban ethnography. In the course, students will understand the ethnographic approach and learn skills to conduct their own ethnography as they explore urban life and culture in the nation's sixth largest city. The course is structured as a seminar in which students will read ethnographic studies of Philadelphia and other urban settings. With our focus on the urban landscape, we will gain an appreciation for the macro processes, such as globalization, that shape the city. Ethnography attends to such processes as well as how humans experience them. The class will explore various themes, including the ethnic city, the gendered city, the contested city, the sacred city, the global city, and the aesthetic and expressive city. In addition to reading assignments, we will look at images, videos, and online material. Students will design and execute their own ethnographic fieldwork project on an urban topic that interests them. Through step-by-step instruction throughout the semester, students will learn qualitative research techniques such as field notes, participant-observation, interviewing, and how to interpret their own data, so that they will be able to complete their semester project.
Taught by: Saverino
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 216 Social Entrepreneurship
Amidst perceptions that public sector and philanthropic support for local communities is increasingly scarce, many community development practitioners are turning to social enterprise as a means to improve social and economic conditions in their neighborhoods. This course will do a deep dive into the segment of social enterprises addressing workforce development and job creation challenges, especially as they relate to returning citizens and other vulnerable adults, including several planned field visits. Building on their understanding of these fields, students will then divide into groups for a hands-on course project.
Taught by: Mandujano
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 219 The Heart of Social Change
The Heart of Social Change: Experiments in Urban Development, Activism, and Social Entrepreneurship will seek to challenge those who desire to work for social change to consider how they may not only employ their heads and their hands, but also their hearts as they work to improve the aspects of contemporary society that mean the most to them. This seminar-based class will examine past and contemporary examples of heart-based activism, urban development and social entrepreneurship yet it will also be a space where students will be asked to experiment with ways that they too may be change agents.
Taught by: Charles Howard
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 220 Jews and the City: Advanced Benjamin Franklin Seminar
Jews have always been an extraordinarily urban people. This seminar explores various aspects of the Jewish encounter with the city, examining the ways that Jewish culture has been shaped by and has helped to shape urban culture. We will examine European and American cities as well as some in Palestine/Israel, covering an expansive view of urban culture. We will consider Jewish involvement in political and cultural life, the various neighborhoods in which Jews have lived, relations with other ethnic groups, as well as many other topics. We will read some classic works in the field along with contemporary scholarship. No prior background in Jewish history is required. *This course may be applied toward the US, European, or Middle East requirements for the History Major or Minor, depending upon the research paper topic. Students must consult with the instructor to determine which geographic requirement will be fulfilled.*
Taught by: Beth Wenger
One-term course offered either term
Activity: Seminar
1 Course Unit

URBS 232 World Hist: Afric/Mdl East
Course usually offered in fall term
Activity: Seminar
1 Course Unit

URBS 234 Urbanization and Its Discontents
One-term course offered either term
Activity: Seminar
1 Course Unit
URBS 236 Iraq: Ancient Cities and Empires
This course consists of an analytical survey of civilization in the ancient Mesopotamia from prehistoric periods to the middle centuries of the first millennium B.C. A strong focus is placed on Mesopotamia (Iraq, eastern Syria) proper, but it occasionally covers its adjacent regions, including Anatolia (Turkey), north-central Syria, and the Levantine coast. As we chronologically examine the origin and development of civilization in the region, various social, political, economic, and ideological topics will be explored, including subsistence, cosmology, writing, trade, technology, war, private life, burial custom, and empire. Based on both archaeological and historical evidence, these topics will be examined from archaeological, anthropological, historical and art historical perspectives. Students will be exposed to a variety of theoretical approaches and types of relevant evidence, including settlement survey data, excavated architectural remains and artifacts, and written documents. The course aims to provide students with a strong foundation for further study in Near Eastern civilization.
Taught by: Zettler
Course not offered every year
Activity: Lecture
1 Course Unit

URBS 237 Berlin: History, Politics, Culture
What do you know about Berlin's history, architecture, culture, and political life? The present course will offer a survey of the history of Prussia, beginning with the seventeenth century, and the unification of the small towns of Berlin and koeln to establish a new capital for this country. It will tell the story of Berlin's rising political prominence in the eighteenth century, its transformation into an industrial city in the late nineteenth century, its rise to metropolis in the early twentieth century, its history during the Third Reich, and the post-war cold war period. The course will conclude its historical survey with a consideration of Berlin's position as a capital in reunified Germany. The historical survey will be supplemented by a study of Berlin's urban structure, its significant architecture from the eighteenth century (i.e. Schinkel) to the nineteenth (new worker's housing, garden suburbs) and twentieth centuries (Bauhaus, Speer designs, postwar rebuilding, GDR housing projects, post-unification building boom). In addition, we will read literary texts about the city, and consider the visual art and music created in and about Berlin. Indeed, Berlin will be a specific example to explore German history and cultural life of the last 300 years. The course will be interdisciplinary with the fields of German Studies, history, history of art, and urban studies. It is also designed as a preparation for undergraduate students who are considering spending a junior semester with the Penn Abroad Program in Berlin.
For BA Students: Humanities and Social Science S
Taught by: Weissberg
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All readings and lectures in English

URBS 244 Metropolis: Culture of the City
An exploration of modern discourses on and of the city. Topics include: the city as site of avant-garde experimentation; technology and culture; the city as embodiment of social order and disorder; traffic and speed; ways of seeing the city; the crowd; city figures such as the detective, the criminal, the flaneur, the dandy; film as the new medium of the city. Special emphasis on Berlin. Readings by, among others, Dickens, Poe, Baudelaire, Rilke, Doeblin, Marx, Engels, Benjamin, Kracauer. Films include Fritz Lang's Metropolis and Tom Tykwer's Run Lola Run.
For BA Students: Arts and Letters Sector
Taught by: MacLeod
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: All lectures and readings in English

URBS 250 Urban Public Policy: Philadelphia -- A Case Study
An introduction to a broad range of substantive policy areas affecting the city, and an exploration into the complexities of policy formulation and implementation in a large and pluralistic metropolitan setting. The course subtitle, "Philadelphia -- A Case Study," describes our approach. Donna Cooper leads the region's foremost child advocacy organization focused on poverty, child welfare and education issues, she formerly served as the Deputy Mayor for Policy for the City of Philadelphia, and Secretary of Policy of the Commonwealth of Pennsylvania.
Taught by: Donna Cooper
One-term course offered either term
Activity: Seminar
1 Course Unit

URBS 252 Urban Journalism
This course will examine the state of urban journalism today with special emphasis on how large newspapers are redefining themselves, and the news, in an era of dwindling readership and growing financial pressures. The course will look at online journalism, ethics, and alternative sources of news, and will explore the techniques journalists use in reporting the news. Students will report and write four pieces of their own about Philadelphia and its environs. The course is taught by Dan Biddle, the Philadelphia Inquirer's former politics editor, an award-winning journalist for 40 years.
Taught by: Biddle
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 253 Cities, Suburbs, Regions
This course will explore the political, economic, social, and demographic forces impacting development patterns in metropolitan areas, with a particular focus on Philadelphia. We will examine the government policies, economic forces, and social attitudes that affect the way a region grows, and the impact of these forces on poverty, equity and segregation. Specific topics to be discussed include the factors that make a region competitive, the city's changing role in the region, the impact place has on opportunity, and approaches to revitalizing and improving communities.
Taught by: Black
Course offered spring; even-numbered years
Activity: Seminar
1 Course Unit
URBS 264 Poverty, Race and Health
This course is designed to introduce students to current literature on race/ethnic difference in health and mortality in the United States, covering such topics as explanations for why some race/ethnic groups fare better than others, how inner city poverty and residential segregation may contribute to racial/ethnic differences in health outcomes, and health of immigrants versus native-born populations. Current policy debated and recent policy developments related to health are also briefly discussed. The course is organized as a seminar with a combination of lectures and class discussions.
Taught by: Jaeger
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 270 The Immigrant City
Immigration is among the most important phenomena shaping neighborhoods, cities, and regions. Understanding migration is fundamental to understanding urbanization, community development, and urban society today. This course examines the development of immigrant communities in United States cities and suburbs. Class readings, discussions, and visits to a variety of Philadelphia immigrant neighborhoods explore themes including labor markets, commerce, housing, civil society, racial and ethnic relations, integration, and the public sphere. We study the diverse dynamics and impacts of immigration through foundational readings and close observation of various newcomer and receiving communities. The first part of the course surveys migration and community formation among a broad range of ethnic groups in different sorts of city and suburban neighborhoods, mainly through history, sociology, and geography. The second part focuses on public policy and community and economic development practices related to migration at the local, regional, national, and trans-national scales.
For BA Students: Society Sector
Taught by: Vitiello, Domenic
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 273 Advanced Non-Fiction Writing
Writing with a view to publication in the freelance sections of newspapers such as THE PHILADELPHIA INQUIRER and THE NEW YORK TIMES, in magazines such as THE ATLANTIC and THE NEW YORKER, and in the literary quarterslies and the journals of opinion. Among the areas likely to be considered are writing as a public act, issues of taste and of privacy, questions of ethics and of policy, methods of research and of checking, excerpting, marketing, and the realistic understanding of assignments and of the publishing world. Student papers will be the basis of weekly editorial sessions, with concentration on the language: how to render material literate, how to recognize and dispose of padding and self-indulgence, how to tighten structure and amplify substance. See the English Department's website at www.english.upenn.edu for a description of the current offerings.
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course is not open to freshmen. May be repeated for credit with a different instructor.

URBS 274 Advanced Topics in Theatre
This course will combine an intensive practical and intellectual investigation of some area of the making of theatre: performance techniques, theatrical styles, a particular period of theatre history. For the current topics contact the Theatre Arts office or visit the website.
One section of 275 every other Spring will consist of a small number of Theatre Arts majors selected by the faculty to become members of "the Edinburgh Project." This ensemble will mount a production that will be performed at the Edinburgh Festival Fringe in August. Many of the readings and exercises in this course will be geared to prepare for production; rehearsals for the project will continue after the exam period at the end of the semester.
Taught by: Fox, Fergusson, Malague, Mazer, Schlatter
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course, with different topics, may be repeated for credit. Please look at the program website for the current semester's topic(s).

URBS 275 The Edinburgh Project
Taught by: Fox, Ferguson, Malague, Mazer, Schlatter
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course, with different topics, may be repeated for credit.

URBS 270 The Immigrant City
Immigration is among the most important phenomena shaping neighborhoods, cities, and regions. Understanding migration is fundamental to understanding urbanization, community development, and urban society today. This course examines the development of immigrant communities in United States cities and suburbs. Class readings, discussions, and visits to a variety of Philadelphia immigrant neighborhoods explore themes including labor markets, commerce, housing, civil society, racial and ethnic relations, integration, and the public sphere. We study the diverse dynamics and impacts of immigration through foundational readings and close observation of various newcomer and receiving communities. The first part of the course surveys migration and community formation among a broad range of ethnic groups in different sorts of city and suburban neighborhoods, mainly through history, sociology, and geography. The second part focuses on public policy and community and economic development practices related to migration at the local, regional, national, and trans-national scales.
For BA Students: Society Sector
Taught by: Vitiello, Domenic
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 274 Advanced Topics in Theatre
This course will combine an intensive practical and intellectual investigation of some area of the making of theatre: performance techniques, theatrical styles, a particular period of theatre history. For the current topics contact the Theatre Arts office or visit the website.
One section of 275 every other Spring will consist of a small number of Theatre Arts majors selected by the faculty to become members of "the Edinburgh Project." This ensemble will mount a production that will be performed at the Edinburgh Festival Fringe in August. Many of the readings and exercises in this course will be geared to prepare for production; rehearsals for the project will continue after the exam period at the end of the semester.
Taught by: Fox, Fergusson, Malague, Mazer, Schlatter
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: This course, with different topics, may be repeated for credit. Please look at the program website for the current semester's topic(s).

URBS 280 Neighborhood Dynamics of Crime
Crime varies in time, space and populations as it reflects ecological structures and the routine social interactions that occur in daily life. Concentrations of crime can be found among locations, with antisocial activities like assaults and theft occurring at higher rates because of the demographic make-up of people (e.g. adolescents) or conflicts (e.g. competing gangs), for reasons examined by ecological criminology. Variation in socio-demographic structures (age, education ratios, and the concentration of poverty) and the physical environment (housing segregation, density of bars, street lighting) predicts variations between neighborhoods in the level of crime and disorder. Both ethnographic and quantitative research methods are used to explore the connections between the social and physical environment of areas and antisocial behavior.
Taught by: Loeffler
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 289 Metropolitan Nature
In order to understand the complex and often skewed relationship between the built and natural systems, we must think in processes and examine different scales simultaneously. The course explores urban sustainability and resilience. At its core, sustainability is a radical concept that integrates the economy, equity (social justice), and the environment. Co-opted by marketing slogans, stripped of meaning and context, it has become vague and pliable. Sustainability and resilience demand a holistic systems view of the world. The course focuses on communities such as New Orleans and Eastwick where urban development has focused on economic concerns at the expense of the environment and equity resulting in unintended, and sometimes, catastrophic consequences. Students will have the opportunity to interact with community residents who have organized to develop strategies to address these ongoing issues.
Taught by: Nairn
Course usually offered in fall term
Activity: Seminar
1 Course Unit
URBS 294 Cities of the Future: Urbanization in the Global South
This course examines the futures of urbanization in most of the world. With cities in “developing” countries set to absorb 95% of urban population growth in the next generation, the course explores the plans, spaces and social experiences of this dramatic urban century. How do proliferating urban populations sustain themselves in the cities of Latin America, Africa and Asia? What kinds of social and political claims do these populations make more just and sustainable cities? The course investigates the ongoing experiences in urban planning, infrastructure development and environmental governance in cities of the Global South. In so doing, it imagines new forms of citizenship, development and sustainability that are currently unfolding in these cities of the future.
Taught by: Anand
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 300 Fieldwork Seminar
Students work 15 hours per week in field placement and meet weekly with class and instructors. The class is intended to help students reflect from a variety of perspectives on the work that they are doing in their placement organizations. The class format is primarily discussion. Students are required to complete assigned readings, prepare written and oral presentations, and submit a final project.
Course usually offered in spring term
Activity: Seminar
2 Course Units
Notes: Urban Studies majors and minors only.

URBS 320 Who Gets Elected and Why? The Science of Politics
What does it take to get elected to office? What are the key elements of a successful political campaign? What are the crucial issues guiding campaigns and elections in the U.S. at the beginning of the 21st century? This class will address the process and results of electoral politics at the local, state, and federal levels. Course participants will study the stages and strategies of running for public office and will discuss the various influences on getting elected, including: Campaign finance and fundraising, demographics, polling, the media, staffing, economics, and party organization. Each week we will be joined by guest speakers who are nationally recognized professionals, with expertise in different areas of the campaign and election process. Students will also analyze campaign case studies and the career of the instructor himself. Edward G. Rendell is the former Mayor of Philadelphia, former Chair of the Democratic National Committee, and former Governor of Pennsylvania.
Taught by: Rendell
Course usually offered in fall term
Activity: Lecture
1 Course Unit

URBS 321 Urban Ethnography: Documenting The City of Brotherly Love
How do qualitative social scientists study urban communities? What kinds of powerful tales can be told about urban lifestyles and social issues/conflicts in places like Philadelphia? This course will allow students to study various ethnographic treatments of urban communities in the United States, using films, articles, TV serials, and books as guides for the framing of their own independent research on the streets of Philadelphia. Students will also form production teams of two or three people, and these production teams will be responsible for (i) identifying and researching an important urban issue in contemporary Philadelphia and (ii) turning that research into a 15-30 minute radio documentary that will be broadcast on a local Philadelphia radio station, WURD 900AM. Mixing radio/audio journalism with ethnographic methods, will enhance their skills at archival and social research, participant-observation, interviewing techniques, sound editing, and production. This course is intended to be a rigorous and exciting opportunity for students to tell empirically grounded stories using the voices of their subjects and the sounds of the city. Potential texts include: Sidewalk (a book and documentary film by Mitchell my Mitchell Duneeier), Righteous Dopefiend (a book and museum exhibit by Philippe Bourgois), and excerpts from other ethnographic work by Ana Ramos-Zayas, Elijah Anderson, Todd Wolfson, David Grazian, Setha Low, Ulf Hannerz, Leith Mullings, John Gwaltney, Dana-ain Davis, Carol Stack, Melissa Checker, Katherine S. Newman, and others. By Permission Only.
Taught by: Jackson
Prerequisite: COMM 220 or permission of instructor
Activity: Seminar
1 Course Unit

URBS 322 The Big Picture: Mural Arts in Philadelphia
The history and practice of the contemporary mural movement couples step-by-step analysis of the process of designing with painting a mural. In addition, students will learn to see mural art as a tool for social change. This course combines theory with practice. Students will design and paint a large outdoor mural in West Philadelphia in collaboration with Philadelphia high school students and community groups. The instructor, Jane Golden, is the founder and Director of the Philadelphia Mural Arts Program.
Taught by: Golden/Walinsky
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: Previously URBS 222. The Undergraduate Fine Arts Department will now include a $75 fee for this course.

URBS 323 Tutoring School: Theory and Practice
This course represents an opportunity for students to participate in academically-based community service involving tutoring in a West Phila. public school. This course will serve a need for those students who are already tutoring through the West Phila. Tutoring Project or other campus tutoring. It will also be available to individuals who are interested in tutoring for the first time.
Taught by: Parker, Cheryl
Course usually offered in fall term
Activity: Seminar
1 Course Unit
URBS 326 Tutoring in Urban Public Elementary Schools: A Child Development Perspective

The course provides an opportunity for undergraduate students to participate in academically based community service learning. Students will be studying early childhood development and learning while providing direct, one-to-one tutoring services to young students in Philadelphia public elementary schools. The course will cover foundational dimensions of the cognitive and social development of preschool and elementary school students from a multicultural perspective. The course will place a special emphasis on the multiple contexts that influence children's development and learning and how aspects of classroom environment (i.e., curriculum and classroom management strategies) can impact children's achievement. Also, student will consider a range of larger issues impacting urban education embedded in American society. The course structure has three major components: (1) lecture related directly to readings on early childhood development and key observation and listening skills necessary for effective tutoring, (2) weekly contact with a preschool or elementary school student as a volunteer tutor and active consideration of how to enhance the student learning, and (3) discussion and reflection of personal and societal issues related to being a volunteer tutor in a large urban public school.

Taught by: Fantuzzo
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 330 GIS Applications in Social Science

This course will introduce students to the principles behind Geographic Information Science and applications of (GIS) in the social sciences. Examples of GIS applications in social services, public health, criminology, real estate, environmental justice, education, history, and urban studies will be used to illustrate how GIS integrates, displays, and facilitates analysis of spatial data through maps and descriptive statistics. Students will learn to create data sets through primary and secondary data collection, map their own data, and create maps to answer research questions. The course will consist of a combination of lecture and lab.

Taught by: tba
Course usually offered in fall term
Activity: Seminar
1 Course Unit

Notes: Fulfills the Qualitative Data Analysis Requirement

URBS 352 Food Habits in Philadelphia Communities: Exploring Eating and Changing Food Habits in Philadelphia Middle Schools

In this course, Penn undergraduates will explore and examine food habits, the intersection of culture, family, history, and the various meanings of food and eating, by working with a middle-school class in the Philadelphia public schools. The goal of the course will be to learn about the food habits of a diverse local community, to explore that community's history of food and eating, and to consider ways and means for understanding and changing food habits. Middle school students will learn about the food environment and about why culture matters when we talk about food. Topics include traditional and modern foodways, ethnic cuisine in America, food preferences, and 'American cuisine'. The course integrates classroom work about food culture and anthropological practice with frequent trips to middle school where undergraduates will collaborate with students, their teachers, and a teacher partner from the Agatson Urban Nutrition Initiative (UNI). Students will be required to attend one of two time blocks each week to fulfill the service learning requirement-times TBA. Undergraduates will be responsible for weekly writing assignments responding to learning experience in the course, for preparing materials to use middle school children, being participant-learners with the middle school children, and for a final research project. The material for the course will address the ideas underlying university-community engagement, the relationships that exist between food/eating and culture, and research methods.

Taught by: Kauer
One-term course offered either term
Activity: Seminar
1 Course Unit

URBS 359 Nutritional Anthropology

This course will explore the significance as it relates to food behaviors and nutritional status in contemporary human populations. The topics covered will be examined from a biocultural perspective and include 1) definition and functions of nutrients and how different cultures perceive nutrients, 2) basic principles of human growth and development, 3) methods to assess dietary intake, 4) food taboos, 5) feeding practices of infants and children, 6) food marketing, 7) causes and consequences of under- and over-nutrition, and 8) food insecurity and hunger.

Course not offered every year
Activity: Seminar
1 Course Unit

URBS 367 Philadelphia, 1700-2000

Using Philadelphia as a lens, this course will examine the transformation of American cities from the colonial period to the present. Through readings, lectures, and tours, we will consider urbanization and suburbanization, race, class, and ethnicity, economic development, poverty and inequality, housing and neighborhood change, urban institutions, and politics and public policy.

Taught by: Sugrue
Course not offered every year
Activity: Lecture
1 Course Unit
URBS 390 Urban Agriculture
Urban Agriculture is a growing global trend. This course examines urban agriculture as an issue of sustainability, social justice, public health, and vacant land. It explores the potential of urban agriculture in both the Global North and South to provide a safe and secure source of food to city residents. Major topics include sustainable agricultural practices, operational and spatial requirements, distribution systems, and access to fresh food. Using Philadelphia as a laboratory, the course explores its robust agricultural scene of community gardens, guerilla gardens, and entrepreneurial farms, as well as its distribution system including programs such as City harvest, the emerging Common Market, and established farmers’ markets. The course will integrate lectures about sustainable agricultural practices with field trips to and hands-on work at community gardens and farms.
Taught by: Nairn
Course usually offered summer term only
Activity: Seminar
1 Course Unit

URBS 400 Senior Seminar
Urban Studies senior research project
Taught by: Grossman/McGlone/Simon
Course usually offered in fall term
Prerequisite: URBS 200; URBS 300
Activity: Seminar
1 Course Unit

URBS 401 Urban Studies Honors
Students in the fall Urban Studies Senior Seminar (URBS400) whose papers are exceptional and show promise for publication will be invited to participate in the spring honors seminar. If they choose to participate, honors seminar participants will revise and refine their research/papers with the goal of their work for publication in an academic journal relevant to the topic. The seminar meets periodically during the semester, structured around a set of assignments geared to facilitate the process of revision. Students will be assigned to read each other's work and meetings take the form of a workshop with students reporting on progress and providing feedback to improve and develop each other's papers. In addition to completing the revised paper for a grade, participants in the honors seminar are required to present their work to a wider Urban Studies audience in a special session at the end of the semester and to provide documentation that they have submitted their papers for publication. Students who successfully complete the honors seminar will graduate with distinction in the major, noted on their transcripts and in the graduation materials.
Taught by: Simon
Course usually offered in spring term
Prerequisite: URBS 400
Activity: Seminar
1 Course Unit

URBS 404 Philanthropy and the City
This course will focus on how urban communities are shaped by the nonprofit sector and the billions of philanthropic dollars that fuel their work. By bridging theory and practice, the class explores what dynamics are at play to deliver vital services or programs in healthcare, education, the arts, community development, and other issues. The course will also focus on these important questions: (1) Whose responsibility is the public good? How is that responsibility shared by the public, private, and nonprofit sectors? and (2) Given that responsibility for the public good, which individuals and groups make the decisions about how to serve the public good? How are these decisions made, and who benefits from these decisions? Students will consider these questions in an interdisciplinary context that will bring a historical and philosophical perspective to the examination of the values and institutions that characterize the contemporary philanthropy and the nonprofit sector.
Taught by: Bauer/Goldman
Course usually offered in fall term
Activity: Seminar
1 Course Unit

URBS 405 Religion, Social Justice & Urban Development
Urban development has been influenced by religious conceptions of social and economic justice. Progressive traditions within Judaism, Christianity, Islam, Buddhism, Hinduism, Jainism, Baha’i, Humanism and other religions and systems of moral thought have yielded powerful critiques of oppression and hierarchy as well as alternative economic frameworks for ownership, governance, production, labor, and community. Historical and contemporary case studies from the Americas, Europe, Africa, Asia, and the Middle East will be considered, as we examine the ways in which religious responses to poverty, inequality, and ecological destruction have generated new forms of resistance and development.
Taught by: Lamas
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 412 Building Non-Profits: The Business of a Mission-Driven Organization
This course will cover the basic elements of building and growing a non-profit organization, including the development of the mission and the board; needs assessment, program design, development, and management; financial management, contract compliance and understanding an audit; fundraising, public, foundation, corporate, and individual; communication and marketing; organizational administration (including staff and volunteer selection, management and development); public policy, research and advocacy. Students will make site visits and engage role play, in addition to research and writing.
Taught by: Goldman, Greg
Course usually offered summer term only
Activity: Lecture
1 Course Unit
URBS 415 Urban Real Estate Markets
Cities evolve over time, comprised of various inputs of different sizes at different stages of urban evolution. However, as cities continue to densify and navigate real estate market cycles, opportunities to redefine the urban context, while promoting the individual brand, become ever more sensitive. Projects are increasingly complex, often involving multiple partnerships among private developers, public agencies, non-profits, and community groups. Today’s development professionals need to be well-versed across a variety of disciplines and property types to effectively execute in an urban environment. As an introductory course in real estate development, this course will provide the underpinnings for critical decision-making in markets that change frequently and often unevenly - whether for financing, investing, development, public policy formulation, or asset management/disposition.
Taught by: Packard
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 417 Cities and Sustainability
A good idea is not enough - developing innovative and sustainable projects in cities requires understanding "how to get things done." Developing projects to promote sustainability in major US cities requires sensitivity to the political and operational context within which cities implement innovative initiatives. Cities and Sustainability uses Philadelphia as a case study to explore the issues confronting modern American metropolises as they look to manage their resources and promote environmentally friendly policies. URBS 417 will introduce students to leading Philadelphia practitioners of sustainability and municipal projects. Students will be given the tools to politically, economically and critically analyze various sustainable policy initiatives across the United States.
Taught by: Ben-Amos
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 419 Transportation & American Society
Transportation affects every aspect of American society; from how we get to work or school, to how we shop and play. Transportation policy at all levels of American government has serious implications for social justice and economic development. Moreover, some of today’s most intense political battles center on transportation policy across America and within its cities, be it funding High Speed Rail in California or placing bike lanes in the heart of Manhattan. Transportation and American Society will expose students to the role transportation has played in the development of America and its cities as well as its impact on politics and society.
Taught by: Ben-Amos
Course usually offered in fall term
Activity: Lecture
1 Course Unit

URBS 420 Perspectives on Urban Poverty
This course provides an interdisciplinary introduction to 20th century urban poverty, and 20th century urban poverty knowledge. In addition to providing an historical overview of American poverty, the course is primarily concerned with the ways in which historical, cultural, political, racial, social, spatial/geographical, and economic forces have either shaped or been left out of contemporary debates on urban poverty. Of great importance, the course will evaluate competing analytic trends in the social sciences and their respective implications in terms of the question of what can be known about urban poverty in the contexts of social policy and practice, academic research, and the broader social imaginary. We will critically analyze a wide body of literature that theorizes and explains urban poverty. Course readings span the disciplines of sociology, anthropology, urban studies, history, and social welfare. Primacy will be granted to critical analysis and deconstruction of course texts, particularly with regard to the ways in which poverty knowledge creates, sustains, and constrains meaningful channels of action in urban poverty policy and practice interventions.
Taught by: Fairbanks
Course usually offered in fall term
Activity: Seminar
1 Course Unit

URBS 428 Undergraduate Urban Research Colloquium
A seminar run in conjunction with the Institute for Urban Research at Penn, students will learn about the range of cutting-edge topics in urbanism that Penn faculty are working on and work closely with a faculty member on current research. Students will learn about new topics and methods in interdisciplinary urban research, and get first hand experience collecting urban data under the close supervision of an experienced researcher. Students and faculty jointly will present their findings for discussion. This course is a good introduction for how to frame and conduct an urban research project.
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 431 Mapping Philadelphia
Philadelphia is a city that was mapped before it was built, inhabited before it was developed. Founder William Penn's original concept for the gridded city continues to inform the historical evolution of Philadelphia, even as city planners, architects, artists, and social justice activists work to transform the layers of our built environment. This class will study the city through a variety of archival maps, historical mapping practices, and emergent digital approaches to representing space and time. We will explore public history projects that seek approaches to place-making and place-keeping at neighborhood intersections, share dialogue with social practice artists who produce site-specific works, and visualize civic data through platforms such as OpenDataPhilly. Each student will pursue a final research project resulting in a close study of a particular street or intersection in the city.
Taught by: Paul Farber
Course not offered every year
Activity: Seminar
1 Course Unit
URBS 435 The Political Economy of Urban Development
This course provides an introduction to the economic and political theories that have come to shape, for better or for worse, the spatial characteristics of late 20th century urbanism. It is intended to offer a range of analytical approaches to understanding the relationship between markets, states, and community actors. The course covers four different theories of modern political economy: Neoclassical, Keynesian, Marxian, and Neoliberal. Our purpose is to provide a framework for political economic analysis and an historical foundation for understanding postwar transformation. Part I of the course grounds the foundational material of Part I by tracing the economic and political forces that have shaped post-war urban development trends in Northeastern and Midwestern cities (especially Chicago, Detroit, Philadelphia and N.Y.). Particular attention will be given to issues such as race, suburbanization, deindustrialization, welfare state retrenchment, gentrification, and public housing transformation. Part II examines a range of contemporary (post 1970) approaches to urban development, focusing on processes of neoliberalization, neo-clientalism, urban informality, sub prime mortgage lending, and microfinance.
Taught by: Fairbanks
Course usually offered every year
Activity: Lecture
1 Course Unit

URBS 440 Introduction to City Planning: Past, Present and Future
Orientation to the profession, tracing the evolution of city and regional planning from its late nineteenth century roots to its twentieth century expression. Field trips included.
Taught by: Vitiello or Ammon
Course usually offered in fall term
Activity: Lecture
1 Course Unit

URBS 448 Neighborhood Displacement and Community Power
This course uses the history of black displacement to examine community power and advocacy. It examines the methods of advocacy (e.g. case, class, and legislative) and political action through which community activists can influence social policy development and community and institutional change. The course also analyzes selected strategies and tactics of change and seeks to develop alternative roles in the group advocacy, lobbying, public education and public relations, electoral politics, coalition building, and legal and ethical dilemmas in political action. Case studies of neighborhood displacement serve as central means of examining course topics.
Taught by: Palmer
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 450 Urban Redevelopment
This course will consider urban redevelopment from the early 20th century to the present day, looking at ways the economic, political, and social underpinnings of redevelopment practice have changed over that time. From the City Beautiful movement to Transit Oriented Development, the course will look at why and how the public, private, and non-profit sectors have intervened in urban neighborhoods, and will contemplate consequences - positive and negative - of those interventions. Students will be introduced to some of the technical aspects of redevelopment, including architecture/design, planning, and financing. The class will be in seminar format, mixing lecture, discussion, and guest speakers. The course requirements include a mid-term paper, an in-class charrette, and a final development project.
Taught by: Rachlin, Andrew
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 451 The Politics of Housing and Urban Development
This course offers an exploration of how legislative action, government policymaking, and citizen advocacy influence plans for the investment of public capital in distressed urban neighborhoods. Course topics this semester will include an evaluation of the results of City of Philadelphia development policies under the administration of former Mayor Michael A. Nutter, as well as consideration of plans being undertaken by the administration of Mayor James F. Kenney, who took office in January. The course will also include an assessment of a large-scale property acquisition and development strategy being implemented by the Philadelphia Housing Authority in North Philadelphia and a review of recent and current reinvestment proposals for Camden’s waterfront and downtown-area neighborhoods.
Taught by: Kromer
Course usually offered in fall term
Activity: Lecture
1 Course Unit

URBS 452 Community Economic Development
Community economic development concerns the revitalization of impoverished communities. As with all things economic, poor and working people may be the subjects or the objects of development. We will utilize case studies from Philadelphia and around the world in an exploration of various models of economic justice and sustainable development.
Taught by: Lamas
Course usually offered in fall term
Activity: Seminar
1 Course Unit

URBS 453 Metropolitan Growth and Poverty
This course analyzes the role of metropolitan regions in the U.S. and global economies, including the sources of metropolitan productivity, the ways that metropolitan structures affect residents, and analyses of public policy in metropolitan areas. The economic, political, and social forces that have shaped World War II urban and regional development are explored, including technology, demography, and government. Special attention is paid to how metropolitan change affects residents by income and race. Topics include: gentrification, schools, suburbanization, sprawl, metropolitan fragmentation, concentration of poverty, race, and various economic revitalization initiatives.
Taught by: Madden
Course not offered every year
Activity: Seminar
1 Course Unit
URBS 454 City Limits: The Impact of Urban Policy
This course assesses the changing role of public policy in American cities. In the past, government often believed that it could direct urban development. New realities - the rise of an informal labor market, global capital and labor flows, the flight of businesses and the middle class to the suburbs - have demonstrated that government must see itself as one - but only one - 'player' in a more complete, transactional process of policy making that crosses political boundaries and involves business, organized interest groups, and citizens. This seminar uses a case-study method to study how public policy can make a difference in the revitalization of distressed American cities. The seminar is designed for advanced undergraduates and graduate students. Seminar readings and projects will be organized around three themes: 1) history and vision, 2) data and analysis, and 3) policy and implementation. Students will be divided into project teams assigned to work on current development issues that will be reviewed by both public and private-sector experts. Extensive use will be made of real estate, economic development, and social indicator data to understand the complex forces at work in both large and small cities. Students will learn to access, analyze, and map information; to frame and interpret these data within a regional perspective; and to construct profiles of cities and neighborhoods. Students will study recent urban redevelopment initiatives in the Philadelphia region, including Philadelphia's Neighborhood Transformations Initiative and New Jersey's Camden Revitalization plans.
Taught by: Goldstein, Stern
Course usually offered in spring term
Prerequisite: Student must have taken an introduction to research methods course
Activity: Seminar
1 Course Unit

URBS 457 Globalization & The City: Global Urbanization
In 2008, the UN estimated that the world's population had become primarily urban, for the first time in history. According to the OECD, by the end of the century, close to 85% of the projected population will live in cities. The transition towards an urban planet is likely to have far-reaching economic, environmental, social, political, and cultural impacts on our species, many of which we cannot yet predict. But what is urbanization? Will it lead to more inequality, exploitation, conflict, resource consumption, and exposure to natural disasters and climate change, or is it an opportunity to move the world in a more sustainable and equitable direction? Taught by Chandan Deuskar and Patricio Zambrano Barragan, this course aims to explore these questions. In the first half of the semester, we will discuss various challenges associated with global urbanization and its impacts. In the second half, we will focus on responses to these challenges. The assignments will allow students to explore some of the most salient debates around global urbanization. By the end of the semester, students will be better able to understand the context for any future academic research, professional work, or business activities in the cities of the 'developing world'. The course will help provide a foundation for any students considering graduate studies or professional work in the fields of urban planning or international development.
Taught by: Chandan Deuskar and Patricio Zambrano Barragan
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 473 History & Theory of Community Organizing
Power is the ability to create change. This course will integrate the history and theories of community organizing so that each student will be able to develop a transformational praxis. We will examine social inequality and intersectionality, and explore effective strategies in organizing for social change. This course is inter-disciplinary, involving political economy, sociology, history, social work and leadership theory. Inquiry-based and problem-posing methods will serve as the primary means of formative assessment.
Taught by: Becker
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 476 Urban Housing & Community Development Policy in America
This course examines how public policy influences housing markets and how markets influence public policy. The course reviews the development of housing policy since World War II and how shifts in policy have influenced people's ability to find suitable shelter. Topics include: poverty and affordability, residential segregation / civil rights in housing, the financial crisis of 2008, mortgage foreclosure, affordable housing, and homelessness. The course focuses on the changing roles of different levels of government in housing policy and how the financial sector, the construction industry, and non-governmental organizations influence Americans' housing options.
Taught by: Stern, Goldstein
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 480 Liberation and Ownership
Who is going to own what we all have a part of creating? The history of the Americas, and of all peoples everywhere, is an evolving answer to the question of ownership. Ownership is about: the ties that bind and those that separate; production, participation, and control; the creation of community and the imposition of hierarchies—racial, sexual, and others; dreams of possessing and the burdens of debt and ecological despoliation; dependency and the slave yearning to breathe free. Of all the issues relevant to democracy, oppression, injustice, and inequality, ownership is arguably the most important and least understood. Utilizing a variety of disciplinary perspectives—radical and critical theories of liberation, and by focusing on particular global sites and processes of capitalism, students will assess and refine their views regarding ownership and liberation in light of their own social, political, religious, aesthetic, and ethical commitments.
Taught by: Lamas
Course usually offered in fall term
Activity: Seminar
1 Course Unit

URBS 501 Community Partnerships in Visual Arts & Education
This course will connect students with artists from the 40th Street Artist-in-Residence (AIR) program, which provides free studio space and in exchange asks residents to share their talents with the local community. This course is designated as an Academic-based Service Learning (ABCS) class, meaning that students will be evaluated partly on their work in the community outreach situation. Course registration is open to advanced undergraduates.
Taught by: Epstein
Activity: Seminar
1 Course Unit
URBS 506 Public Environment of Cities: An Introduction to the Urban Landscape
This course will explore the role of public spaces - streets, boulevards, parks and squares - in cities and their social uses. With the University of Pennsylvania campus and the City of Philadelphia serving as our laboratory, we will critically examine the evolution of the movement of corridors, open space and buildings of the urban landscape and their changing uses. Case studies of social spaces on campus and public open spaces in Center City will help inform our understanding of how public environment serves, well or poorly, the varying needs of diverse users. While graphic skills are not required, graphic means as well as writing will be employed to communicate critical thought, ideas, and conclusions.
Taught by: Nairn
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 513 Urban Ethnography
Using Philadelphia as the site of students' praxis, this course explores the symbolic meanings and social production of urban life and culture in the nation's fifth largest city. This course is structured as a seminar with ethnographic background readings from Philadelphia and other urban settings to introduce students to the study of the city as a site of everyday practice, as well as training in conducting an ethnographic fieldwork project. The urban landscape provides an intensification of macro processes such as globalization. Such processes and how humans experience them are more easily studied and understood in an urban setting. The class will explore social relational and cultural themes such as the ethnic city, the gendered city, the contested city, the sacred city, the global city, and the aesthetic and expressive city. A diverse range of reading assignments, images, and videos will augment our understandings of urban life. Students will design and execute their own ethnographic fieldwork projects on an urban topic that interests them. Through step-by-step instruction throughout the semester, students will learn qualitative research techniques such as field notes, participant-observation, interviewing, and how to interpret their own data, so that they will be able to complete their semester project.
Taught by: Saverino
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 516 Public Interest Workshop
This is a Public Interest Ethnography workshop (originally created by Peggy Reeves Sandy - Department of Anthropology) that incorporates an interdisciplinary approach to exploring social issues. Open to graduate and advanced undergraduate students, the workshop is a response to Amy Gutmann’s call for interdisciplinary cooperation across the University and to the Department of Anthropology’s commitment to developing public interest research and practice as a disciplinary theme. Rooted in the rubric of public interest social science, the course focuses on: 1) merging problem solving with theory and analysis in the interest of change motivated by a commitment to social justice, racial harmony, equality, and human rights; and 2) engaging in public debate on human issues to make the research results accessible to a broad audience. The workshop brings in guest speakers and will incorporate original ethnographic research to merge theory with action. Students are encouraged to apply the framing model to a public interest research and action topic of their choice. This is an academically-based-community-service (ABCS) course that partners directly with Penn's Netter Center Community Partnerships.
Taught by: Suess
Course usually offered in fall term
Activity: Seminar
1 Course Unit

URBS 524 Metro Labor Markets
This course examines contemporary labor markets through two thematic lenses. One is the growing discussion of knowledge industries and "knowledge workers" and their importance to regional innovative capacity and competitive advantage in a global economy. The other is the persistent challenge of unemployment, underemployment and working poverty within metropolitan regions. In exploring these themes, readings for the class synthesize perspectives on work, labor markets and economic growth from economics, sociology, history and political science. Class lecture and discussion, supplemented by the occasional guest practitioner, will focus on translating academic research into knowledge that can be used in local economic and community development practice.
Taught by: Wolf-Powers
Course usually offered in spring term
Activity: Seminar
1 Course Unit

URBS 530 GIS Applications in Social Science
This course will introduce students to the principles behind Geographic Information Science and applications of (GIS) in the social sciences. Examples of GIS applications in social services, public health, criminology, real estate, environmental justice, education, history, and urban studies will be used to illustrate how GIS integrates, displays, and facilitates analysis of spatial data through maps and descriptive statistics. Students will learn to create data sets through primary and secondary data collection, map their own data, and create maps to answer research questions. The course will consist of a combination of lecture and lab.
Taught by: Hillier
Course usually offered in fall term
Activity: Seminar
1 Course Unit
URBS 544 Public Environmental Humanities
This broadly interdisciplinary course is designed for Graduate and Undergraduate Fellows in the Penn Program in Environmental Humanities (PPEH) who hail from departments across Arts and Sciences as well as other schools at the university. The course is also open to others with permission of the instructors. Work in environmental humanities by necessity spans academic disciplines. By design, it can also address and engage publics beyond traditional academic settings. This seminar, with limited enrollment, explores best practices in public environmental humanities. Students receive close mentoring to develop and execute cross-disciplinary, public engagement projects on the environment. In spring 2018, participants have the opportunity to participate in PPEH's public engagement projects on urban waters and environmental data. These ongoing projects document the variety of uses that Philadelphians make of federal climate and environmental data, in and beyond city government; they also shine light on climate and environmental challenges our city faces and the kinds of data we need to address them. Working with five community partners across Philadelphia, including the City's Office of Sustainability, students in this course will develop data use stories and surface the specific environmental questions neighborhoods have and the kinds of data they find useful. The course hosts guest speakers and research partners from related public engagement projects across the planet; community, neighborhood, open data, and open science advocates; and project partners in government in the City of Philadelphia and Commonwealth of Pennsylvania. Course assignments include: * 2 short-form essays (course blog posts); * a 12-hour research stay (conducted over multiple visits) with a community course partner to canvas data uses and desires; * authorship of 3 multi-media data stories; * co-organization and participation in a city-wide data storytelling event on May 2, 2018.

Taught by: Wiggin  
Course not offered every year  
Activity: Seminar  
1 Course Unit

URBS 547 Anthropology and Education
An introduction to the intent, approach, and contribution of anthropology to the study of socialization and schooling in cross-cultural perspective. Education is examined in traditional, colonial, and complex industrial societies.

Taught by: Hall or Posecznick  
One-term course offered either term  
Activity: Lecture  
1 Course Unit

URBS 554 City Limits: The Impact of Urban Policy
This course assesses the changing role of public policy in American cities. In the past, government often believed that it could direct urban development. New realities - the rise of an informal labor market, global capital and labor flows, the flight of businesses and the middle class to the suburbs - have demonstrated that government must see itself as one - but only one - 'player' in a more complete, transactional process of policy making that crosses political boundaries and involves business, organized interest groups, and citizens. This seminar uses a case study method to study how public policy can make a difference in the revitalization of distressed American cities. The seminar is designed for advanced undergraduates and graduate students. Seminar readings and projects will be organized around three themes: 1) history and vision, 2) data and analysis, and 3) policy and implementation. Students will be divided into project teams assigned to work on current development issues that will be reviewed by both public and private-sector experts. Extensive use will be made of real estate, economic development, and social indicator data to understand the complex forces at work in both large and small cities. Students will learn to access, analyze, and map information; to frame and interpret these data within a regional perspective; and to construct profiles of cities and neighborhoods. Students will study recent urban redevelopment initiatives in the Philadelphia region - including Philadelphia's Neighborhood Transformations Initiative and New Jersey's Camden Revitalization plans.

Taught by: Goldstein, Stern  
Course usually offered in spring term  
Prerequisite: Student must have taken a research methods course  
Activity: Seminar  
1 Course Unit

URBS 608 Urban Studies Proseminar
Open to PhD students, this scholar-oriented seminar explores how academic researchers from different disciplines define researchable questions, craft research designs, and contribute to knowledge through an examination of important and/or recently published books and monographs with an urban focus. Required of all doctoral students enrolled in the Urban Studies Graduate Certificate Program. Enrollment is limited to 15 students. Other doctoral students may enroll on a space available basis. Course requirements include completion of a major research paper on a topic selected in consultation with the instructor.

Taught by: Stern  
Course usually offered in spring term  
Activity: Seminar  
1 Course Unit
URBS 614 Weimar Landscapes
This new course is designed for students of literature, landscape architecture and urban planning, and cultural history in general. It will explore the ideas of, and attitudes towards, landscape in selected works by Wolfgang Goethe, and consider his own considerable practical involvement in reshaping the town and gardens of Weimar. The course will provide the larger context of German literature, aesthetics and landscape taste, and politics of the later 18th and early 19th centuries. We will consider the development of new gardens and parks in a "new" style (e.g. Worlitz); they were regarded to be less formal and more "natural" than their French predecessors. We will study the English models for this movement, and offer and particular attention to the major German theorist, C.C.L. Hirschfeld, who would soon become famous outside Germany as well.
Taught by: Weissberg/Hunt
Course not offered every year
Activity: Seminar
1 Course Unit

URBS 619 Critical Perpectives in Contemporary Urban Education
The focus of this course is the conditions for teaching and learning in urban public schools, current theories of pedagogy in urban education, and perspectives on urban reform efforts.
Taught by: Schultz
One-term course offered either term
Activity: Lecture
1 Course Unit

URBS 706 Culture/Power/Subjectivities
This doctoral level course will introduce students to a conceptual language and theoretical tools for analyzing and explaining the complex intersection of racialized, ethnic, gendered, sexual, and classed differences and asymmetrical social relations. The students will examine critically the interrelationships between culture, power, and subjectivity through a close reading of classical and contemporary social theory. Emphasis will be given to assessing the power of various theories for conceptualizing and explaining mechanisms of social stratification as well as the basis of social order and processes of social change.
Taught by: Hall
One-term course offered either term
Prerequisite: EDUC 547
Activity: Lecture
1 Course Unit
URDU (URDU)

URDU 401 Beginning Urdu-Hindi, Part I
This introductory course core proficiency in Hindi-Urdu up to the intermediate level. It is designed for students with little or no prior exposure to Hindi or Urdu. The course covers all four language skills (speaking, listening, reading, and writing) and all three models of communication (interpersonal, presentational, interpretive). Students will develop literacy skills in the primary script of their choice (Hindi or Urdu script). All written materials will be provided in both scripts. All meetings are interactive and students acquire the language by using it in realistic contexts. Culture is embedded in the activities and is also introduced through various authentic materials.
For BA Students: Language Course
Taught by: Pien
Two terms. student must enter first term.
Activity: Lecture
1 Course Unit

URDU 402 Beginning Hindi-Urdu Part II
This introductory course core proficiency in Hindi-Urdu up to the intermediate level. It is designed for students with little or no prior exposure to Hindi or Urdu. The course covers all four language skills (speaking, listening, reading, and writing) and all three models of communication (interpersonal, presentational, interpretive). Students will develop literacy skills in the primary script of their choice (Hindi or Urdu script). All written materials will be provided in both scripts. All meetings are interactive and students acquire the language by using it in realistic contexts. Culture is embedded in the activities and is also introduced through various authentic materials.
For BA Students: Language Course
Taught by: Pien
Two terms. student must enter first term.
Prerequisites: Beginning Hindi or Urdu or equivalent ascertained through placement test or permission of instructor.
Activity: Lecture
1 Course Unit

URDU 421 Intermediate Urdu Part I
This course allows students to continue improving their Urdu proficiency while also gaining a broad foundational understanding of Urdu society and culture throughout South Asia. The course provides students the tools needed to handle a variety of authentic written and spoken Urdu sources including film, music, media reports, folk tales, and simple literature. Students will also continue to increase their speaking and writing proficiency to be able to discuss a broad range of concrete, real-world topics. The course is designed for students with one year of previous Urdu or Hindi study or the equivalent proficiency.
For BA Students: Last Language Course
Taught by: Menai
Two terms. student must enter first term.
Activity: Seminar
1 Course Unit

URDU 422 Intermediate Urdu Part II
This continuing second-year course allows students to continue improving their Urdu proficiency while also gaining a broad foundational understanding of Urdu society and culture throughout South Asia. The course provides students the tools needed to handle a variety of authentic written and spoken Urdu sources including film, music, media reports, folk tales, and simple literature. Students will also continue to increase their speaking and writing proficiency to be able to discuss a broad range of concrete, real-world topics. The course is designed for students with one year of previous Urdu or Hindi study or the equivalent proficiency.
For BA Students: Last Language Course
Taught by: Menai
Two terms. student must enter first term.
Prerequisites: Beginning Hindi or Urdu or equivalent ascertained through placement test or permission of instructor.
Activity: Seminar
1 Course Unit

URDU 431 Advanced Urdu: Language and Literature
This course is designed to give in-depth exposure to some of the finest works of classical and modern Urdu prose and poetry along with the historical and socio-political trends they represent. Figures covered range from Ghalib (b.1797) to Faiz, Fehmida Riaz, and post 9/11 Urdu prose and poetry. The course is open to both undergraduates and graduate students, subject to having intermediate level proficiency. The course is repeatable, and the content changes every semester. Multi-media content such as music, videos, blogs etc. will be actively incorporated. Every effort will be made to accommodate individual interests. Students are encouraged to contact the instructor with any questions, or if they are unsure about eligibility.
For BA Students: Advanced Language Course
Taught by: Menai
Course usually offered in fall term
Prerequisite: Intermediate Urdu or equivalent ascertained through placement test or permission of instructor.
Activity: Lecture
1 Course Unit

Notes: Intermediate reading, writing and speaking skills in Urdu are recommended but please contact the instructor if you are unsure of your eligibility and want to discuss further. Topic changes each semester.
URDU 452 Urdu Literature in Translation
This course will look at Urdu-Hindi expressions of resistance to militant fundamentalism trends, as well as literature resisting the influence of liberal progressive thought. Through comparisons of these divergent trends, we will explore the real intersections, comfortable comprises and contradictions that are internalized by people on the ground in developing societies. The historical and linguistic roots of resistance poetry will be studied, contrasting South Asian Urdu-Hindi poetry and prose (original and translated) with resistance movements from other parts of the world. This course provides students with the opportunity to deepen their knowledge of Urdu culture, literature, and society while expanding and refining their Urdu language skills. We will explore various social, political, and cultural issues through authentic sources such as journalism and media, prose literature and poetry, and film and music. The course is designed to be flexible to address students’ needs and interests. It targets students with two years of Urdu study or the equivalent proficiency.
Taught by: Menai
Course not offered every year
Prerequisites: Intermediate reading, writing and speaking skills in Urdu are recommended but please contact the instructor if you are unsure of your eligibility and want to discuss further.
Activity: Seminar
1 Course Unit

URDU 462 Urdu Topics Course
Topics vary by semester in advanced level Urdu.
Taught by: Menai
Course not offered every year
Prerequisites: Advanced proficiency in Urdu either through successful completion of URDU 431, Advanced URDU, or proficiency exam, or approval of instructor
Activity: Lecture
1 Course Unit
**VETERINARY & BIOMEDICAL SCIENCES (VBMS)**

**VBMS 601 Gross Anatomy - Structural Adaptations to Function**
This course is an intensive study by dissection of the gross anatomy of the dog, cat, horse, and goat. In addition, there is one laboratory session dedicated to the chicken. Functional and clinical considerations are intercalated throughout the laboratories. The lectures elucidate selected aspects of specific organ systems under study in the laboratory, stressing theoretical, functional or comparative rather than descriptive aspects of anatomy. Radiographic anatomy is also presented in the course with the assistance of the radiology residents. All first-year students will have free access to the Easy Anatomy program, an interactive 3-D anatomy study guide for the complete canine, through the course page on Learn.vet.

Taught by: Drs. Grandstaff, Orsini and Staff

Two terms. student must enter first term.

Activity: Lecture

11 Credit Hours

**VBMS 602 Histological Basis of Pathology**
This course covers microscopic anatomy of tissues and organ systems of mammals important in veterinary medicine, e.g. dog, cat, mouse, rat, horse and cow. The central thread in the course is light microscopic structure as observed in standard stains, but this picture is amplified by electron microscopy, special stains and histochemistry. The material is presented, through lecture and laboratory, from the point of view of experimental biology, cell function, and disease. The course reveals that the structure or histology of the tissues of an animals body is not an arbitrary assemblage of cells but rather the structural expression of the diverse cell types that interact to carry out the functions of the body. Thus, through the microscopic study of the structure of tissues (histology) the functions of the tissues of the body may be inferred.

Taught by: Drs. M. May and O. Jacenko and Staff

Activity: Lecture

5 Credit Hours

**VBMS 603 Developmental Biology**
The course examines classic and modern concepts in embryonic development as they relate to veterinary medicine. The lectures are designed to cover recent advances in the field with special emphasis on stem cells, specification of cell fate, manipulation of the genome and organogenesis. Examples of pathologies associated with aberrant development of major organ systems will be presented and discussed in the context of veterinary medicine.

Taught by: Drs. J. Wang and Staff

Activity: Lecture

3 Credit Hours

**VBMS 604 Introduction to the Neurosciences**
This is an introductory course to the neurosciences and assumes a basic background in anatomy, cell biology, histology and biochemistry. At the cell/molecular level the course covers neurocytology, membrane bioelectrical events and their channel protein basis, neurotransmitters and their actions at the synapse. It also covers aspects of neurochemistry, neuropharmacology and focuses on neuroanatomy and function of neural systems. The latter include the somatic and autonomic components of the peripheral nervous system, the spinal cord and reflexes, primary sensory systems, motor pathways and limbic visceral systems of the brain.

Taught by: Dr. T. Bale and Staff

Activity: Lecture

5 Credit Hours

**VBMS 605 Cellular and Biochemical Foundation of Disease**
This course teaches the principles of biological chemistry as applied to metabolic relationships underlying cellular and physiological processes and the molecular mechanisms of disease. The first third of the course covers the basic biochemistry of amino acids, proteins (e.g., enzymes), nucleic acids, vitamins and coenzymes, carbohydrates and lipids. Normal as well as disease-related pathways for the processing of these biological materials are discussed. Species differences in metabolic pathways and clinical relevance are pointed out, wherever pertinent. The latter part of the course includes discussions of molecular genetics, and the physiological-biochemical functioning and regulation of cellular structures, tissues and organs: membranes, endocrine glands and hormones, blood, bone and connective tissue, liver, muscle, etc. Diseases specific to these structures are discussed in the context of veterinary medicine. Also included are such topics as prostaglandins, biochemistry of growth regulation, vision, taste, cell cycle and cancer. Laboratories include clinically relevant problem-based and library research projects that relate biochemistry to veterinary medicine, and identification of reproductive and endocrine conditions by diagnostic problem solving using student generated biochemical data.

Taught by: Dr. A. Kashina and Staff

Activity: Lecture

10 Credit Hours

**VBMS 606 Animal Physiology**
A strong training in animal physiology is crucial for veterinary education. Extensive and profound knowledge of normal processes that maintain animal life and enable animals to cope with a changing environment provides the crucial foundation for the understanding of breakdowns in homeostasis and disease states, and of key principles underlying diagnostics and treatment of animal diseases. The course provides a brief review of relevant molecular and cell biology concepts that enhance the comprehension of physiology (including metabolism, cell membrane permeability, bioelectric potentials, active transport, etc.) and a detailed study of the functional processes in the circulatory, respiratory, digestives, endocrine, muscular, renal and reproductive systems. This course primarily focuses on normal physiologic mechanisms in mammals yet includes comparative physiology material pertinent to other vertebrates of veterinary interest. Furthermore, pathophysiological alterations of normal function and physiological principles of diagnostics and therapy are amply illustrated by clinical case examples.

Taught by: Drs. Serge Fuchs, Elizabeth Woodward and Staff

Activity: Lecture

10 Credit Hours
VBMS 607 Pharmacology & Toxicology
The major objective of this course is to help veterinary students learn the principles of pharmacokinetics, the mechanisms of drug action, the sites at which drugs act, and how drugs may interact with, and alter the activity of, various organ systems. The material will also include properties, mechanisms of action, and biological effects of various chemical substances (drugs, environmental pollutants, toxins of plant origin, etc.) that interfere with normal cell and organ function. The course is intended to deal chiefly with basic Pharmacology and Toxicology rather than clinical therapeutics, although some therapeutics and clinical material will be discussed in relevant areas.
Taught by: Dr. F. Luca and Staff
Activity: Lecture
11 Credit Hours
VMED 600 Introduction to Clinical Veterinary Medicine I
This course provides an introduction to clinical veterinary medicine for first year veterinary students, and includes sessions on management, restraint and physical examination of small animal patients. Laboratory sessions provide the opportunity for practicing physical examination and restraint of animals in supervised small groups. This course will be graded P/F.
Taught by: Dr. L. Waddell and Staff
Activity: Lecture
2 Credit Hours

VMED 601 Introduction to Clinical Veterinary Medicine II
Using a case-based organ/system approach, this course provides an introduction to the practice of clinical veterinary medicine in companion animals, and provides an introduction to special species companion animal, laboratory animal, and captive and wild animal veterinary practice. The course also introduces the concept of evidence-based medicine. Laboratory sessions provide exposure to auscultation, behavior abnormalities, clinical rounds discussion, grief management, nursing techniques and special species companion animal and laboratory animal examination.
Taught by: Dr. E. Davidson and Staff
Activity: Lecture
4 Credit Hours

VMED 602 Introduction to Clinical Veterinary Medicine III
This course provides an introduction to equine and production animal veterinary medicine for first year veterinary students, and includes sessions on management, restraint and physical examination of large animal patients. Laboratory sessions provide the opportunity for practicing physical examination and diagnostic procedures on horses and production animal species.
Taught by: Dr. E. Davidson and Staff
Activity: Lecture
4 Credit Hours

VMED 603 Introduction to Radiology
This lecture course is designed to provide the fundamental principles of clinical imaging in veterinary medicine as they pertain to physics and instrumentation. The emphasis is on radiography, but principles of ultrasonography, computerized tomography, magnetic resonance imaging and nuclear medicine are also discussed. Topics include production of diagnostic images, radiation safety, differences between the various imaging modalities and some features of normal radiographic anatomy of small animals (thorax and abdomen). The course includes a two-hour mandatory laboratory, focusing on case presentations with emphasis on thoracic and abdominal radiography.
Taught by: Dr. W. Mai and Staff
Activity: Lecture
2 Credit Hours

VMED 604 Veterinary Medical Genetics
The objective of this course is to provide a background for understanding the underlying mechanisms, distribution, and control of genetic disease in domestic animals. Emphasis will be on concepts and information useful on a clinical level. Problem-based learning exercises integrate the concepts presented in the course.
Taught by: Dr. P. Henthorn and Staff
Activity: Lecture
2 Credit Hours

VMED 605 Nutrition
Fundamental principles of nutrition are the background of recommendations for feeding various classes of animals. Types of foodstuffs and their nutrient composition are evaluated in relation to nutrient requirements, voluntary intake and food preferences of domestic species. Feeding programs for nutritional management of animal classes commonly encountered in veterinary medicine are discussed, and examples of clinical nutrition applications are presented.
Taught by: Dr. D. Pitta and Staff
Activity: Lecture
3 Credit Hours

VMED 606 Principles of Epidemiology
The fundamentals of descriptive, analytic, and clinical epidemiology will be covered as they relate to both population and individual animal problems in veterinary medicine. The major aims of the course are to provide an analytic basis for clinical decision making and the ability to interpret the veterinary literature for application in a practice setting. These aims will be accomplished by using examples to illustrate the epidemiologic approach to studying infectious and non-infectious disease, and in clinical decision-making.
Taught by: Dr. Gary Smith and Staff
Activity: Lecture
2 Credit Hours

VMED 607 Veterinary Public Health
This course examines the nature and scope of animal-human interactions with emphasis on the consequences of this relationship from an epidemiologic viewpoint. Included are the zoonotic diseases, those naturally transmitted from animals to man, and the role of pets in society. The traditional involvement of veterinarians in prevention and control of food borne diseases and in public health practice will also be discussed.
Taught by: Dr. Gary Smith and Staff
Activity: Lecture
2 Credit Hours

VMED 608 Introduction to Poultry, Swine, and Dairy Medicine
This course will cover clinical problem solving for disease diagnosis, treatment and control. In addition, current topics of interest in food animal medicine will be discussed. These include food safety, regulatory medicine, environmental impact, welfare issues and opportunities for food animal veterinarians. Class time will be used for both lecture and discussion. All material for quizzes will be presented in class. The grade for the course will be based on weekly quizzes.
Taught by: Dr. S. Davison and Staff
Activity: Lecture
2 Credit Hours
VMED 609 Infectious & Metabolic Diseases
A core course of lectures on infectious and metabolic diseases of domestic animals. The topics in this course include: Rabies, Lymphosarcoma, Blue Tongue, Parturient Paresis, Listeriosis, Anthrax, Botulism, Leptospirosis, Canine Distemper, and many other polysystemic diseases.
Taught by: Dr. R. Sweeney and Staff
Activity: Lecture
7 Credit Hours

VMED 610 Clinical Reproduction
Course covers reproduction in large and small domestic species, and includes the estrous cycle, heat detection, pregnancy, pregnancy loss, obstetrics, parturition, the postpartum period, male and female reproductive physiology, behavior, breeding soundness examination, and fertility problems. A two-hour problem solving session with the class divided into small groups will be held to discuss clinical cases. Grades will be based on a mid-term and a cumulative final examination.
Taught by: Dr. R. Turner and Staff
Activity: Lecture
5 Credit Hours

VMED 611 Veterinary Medicine/Surgery I
Principles of diagnosis, including radiology, and medical and surgical management of infectious and noninfectious diseases of the head, neck and chest, including diseases of the oral structures, eye, ear, nose and throat, esophagus, lung, heart, pleura and chest wall. Course material is broken down in 4 sections covering ophthalmology, cardiology, diseases of the head and neck and non-cardiac intrathoracic diseases. An examination covering the lecture material is administered after each section.
Taught by: Dr. V. Thawley and Staff
Activity: Lecture
9 Credit Hours

VMED 612 Veterinary Medicine/Surgery II
This portion of the Medicine/Surgery core course deals with the pathophysiology, clinical features, and medical and surgical treatment of hematologic, endocrine, nephrologic, urogenital and oncologic disorders.
Taught by: Dr. B. Callan and Staff
Activity: Lecture
9 Credit Hours

VMED 613 Veterinary Medicine/Surgery III
This core course covers the important medical and surgical diseases of the gastrointestinal system and the medical aspects of neurological diseases. Specific disease topics will include noninfectious gastrointestinal disorders, hepatobiliary, pancreatic and splenic disorders; and central and peripheral neurological diseases of domestic animals.
Taught by: Dr. M. Rondeau and Staff
Activity: Lecture
8 Credit Hours

VMED 615 Dermatology
A core course of lectures discussing the infectious, ectoparasitic, allergic, autoimmune and metabolic cutaneous disorders of small animals, exotics and horses. Diseases are discussed with particular emphasis on pathogenesis, clinical recognition and treatment. Methods of diagnosis also are stressed so that the student is prepared to recognize and treat the various dermatoses met in the clinical year.
Taught by: Dr. D. Morris and Staff
Activity: Lecture
3 Credit Hours

VMED 616 Clinical Animal Behavior
Behavior problems are among the most frequent reasons for surrender and euthanasia of pets. In this course we will discuss the most common behavior problems of dogs and cats, with an emphasis on diagnosis and treatment using both behavior modification and drug therapy. Prognosis and safety issues will also be discussed. Attention will be paid to the thought process used in working up and/or preventing behavioral disorders.
Taught by: Dr. C. Siracusa and Staff
Activity: Lecture
1 Credit Hour

VMED 617 Veterinary Ethical Issues
The course goal is to enhance students overall ethical literacy. The course involves a combination of lectures on ethical theory and methodology, and group discussions of ethical case studies drawn from various branches of veterinary practice. The course will be graded as Pass/Fail and full attendance by all students is required unless otherwise pre-authorized by the course organizer.
Taught by: Dr. J. Serpell and Staff
Activity: Lecture
1 Credit Hour

VMED 618 Introduction to Clinical Veterinary Medicine IV
This year-long course for second year veterinary students is designed as a reinforcement of the first year introduction to clinical veterinary medicine series (VMED 600, 601, 602) and as a transition to the clinical year rotations. The emphasis is on practical experiences in our hospitals that will increase your clinical and technical skills as you familiarize yourselves with the hospitals facilities, policies and operations. The course will include approximately 11 hours of lecture; 32 hours of small-group practical clinical sessions per student (NBC) and 29 hours of small-group practical clinical sessions per student (MJR-VHUP). This will be a graded course - A, B, C or F.
Taught by: Dr. C. Dougherty, Dr. L. Southwood and Staff
Two terms. student must enter first term.
Activity: Lecture
4 Credit Hours
VMED 619 Emerging and Exotic Diseases
This course will be offered on the internet through the Association of American Veterinary Medical Colleges web site. The Center for Food Security and Public Health at Iowa State University maintains the course and operates the learning management system. The course is part of a larger effort by US Department of Agriculture to improve awareness of and preparedness for foreign animal disease incursions among veterinarians and veterinary students. The ability of a veterinarian to suspect and assist in the diagnosis of a foreign animal disease in livestock or companion animals is crucial to safeguarding Americas animals and agricultural sector and to protecting public health. In addition, the course also aims to convey a more comprehensive understanding of the role of accredited veterinarians in world agriculture. Parts of this course will be required training for subsequent USDA veterinary accreditation of new graduates. There will be a mandatory one hour session to introduce the course site, objectives, materials and requirements. The course site comprises six overview topics; four accreditation modules; nineteen case scenarios and twenty infectious disease inquiries. There are short tests associated with the various sections and students are required to score at least an 80% on each test. Students can take the test multiple times if needed to achieve that score. In addition to the course per se, there are numerous links to supplementary materials.
Taught by: Dr. H. Aceto
Activity: Lecture
3 Credit Hours

VMED 620 Introduction to Clinical Veterinary Medicine V
This course will comprise 8 hours of lecture/classroom exercises and discussion per student in addition to a series of online tutorials. Two of the 8 hours of lecture time will be devoted to orientation and trouble-shooting sessions to help students access and complete the online tutorials. Students are expected to complete the online tutorials outside of the classroom setting. The online tutorials will demonstrate how to navigate the hospital computer systems at both campuses so that students will be familiar with them prior to entering the clinics in their fourth year. The material presented in this course will build upon principles learned in previous ICVM courses, specifically by providing further instruction on and practice of written and verbal communication skills and by building upon the orientation to the teaching hospitals provided in ICVM IV. After completing this course, students should be able to: - Describe and use key aspects of client communication skills that are essential in the veterinary medical setting. - Recognize and interpret common aspects of non verbal communication and understand how their non verbal communication can be used to improve their encounters with clients. - Understand and demonstrate the basic elements of a written discharge summary. - Navigate and utilize the electronic hospital systems on both campuses.
Taught by: Dr. E. Krick and Staff
Course usually offered in fall term
Activity: Lecture
2 Credit Hours
VETERINARY CLINICAL STUDIES - NEW BOLTON CENTER (VCSN)

VCSN 630 Equine Neonatology & Intensive Care Medicine
The objectives of this course are to: (1) Introduce students to neonatal physiology and behavior as it applies to the foal; (2) Acquaint students with the clinical signs and pathophysiologic mechanisms of diseases in neonates; and (3) Provide students experience in the neonatal intensive care unit learning monitoring techniques (e.g. noninvasive blood pressure measurements, PCV, TR, TId side blood glucose, etc.) Observing normal and abnormal neonatal behavior and neonatal/maternal interactions, learning techniques of neonatal restraint, and assisting with diagnostic and therapeutic procedures as well as general nursing. Lectures will focus on foal diseases, intensive care therapies, periparturient problems, ventilatory support, musculoskeletal disorders, pharmacology and the neonate. Seminars will be used to apply lecture and reading material to clinical case discussions. A set of clinically-oriented problems covering case presentations, blood gas analysis, nutrition formulations, fluid therapy, nursing care protocols and periparturient events will be completed during the fourth quarter. The course grade will be based upon evaluation of clinical case problems, seminar participation, and mastering clinical skills (monitoring techniques, etc.) learned during foal-sitting. Enrollment requires approval of the course organizer and satisfactory academic standing.
Taught by: Dr. M. Linton and Staff
Prerequisites: Prerequisites: Satisfactory acad. performance through Q2/2nd yr.
Activity: Lecture
4 Credit Hours
Notes: Limitations: 70 students max. for foal-sitting nursing shifts. Note: YOU MUST PROVIDE YOUR OWN TRANSPORTATION TO AND FROM NEW BOLTON CENTER

VCSN 631 Ecological Epidemiology
This course is concerned with the epidemiology of infectious diseases of domestic and feral animal species. The techniques of ecological epidemiology will be used to illustrate and explain the population biology of the causative organisms and how this is relevant to the control of infectious disease. The course will consider the dynamics of epidemic and endemic infections, the relevance of herd immunity and other characteristics of the host population, and methods for assessing the likely impact of control strategies. The illustrative examples will be drawn from a wide variety of animal species. All the mathematical techniques required will be taught as an integral part of the material.
Taught by: Dr. Gary Smith and Staff
Activity: Lecture
2 Credit Hours
Notes: NOT OFFERED DURING 2017-2018. Limitations: Maximum of 16 students

VCSN 632 Diseases & Management of Sheep & Goats
This course is an introduction to small ruminant medicine and surgery. Flock and herd health programs involve control of infectious, parasitic, reproductive and metabolic disorders and provision of proper housing, feeding and reproductive management systems. Prevalent diseases and management systems of the Eastern U.S. will receive emphasis.
Taught by: Dr. M. Fecteau
Activity: Lecture
3 Credit Hours

VCSN 633 Animal Health Economics
An introduction to a variety of economic concepts and decision making techniques that relate to the business of an agricultural enterprise and to the impact of veterinary services on that enterprise. Discussion of the role of production medicine in the overall profitability of animal agriculture.
Taught by: Dr. D. Galligan and Staff
Activity: Lecture
2 Credit Hours
Notes: Conflict: Scheduled concurrently with Clinical Exercises in Quarter 1

VCSN 634 Clinical Biostatistics
This course presents a unified approach to the analysis and interpretation of clinical data. We start with a discussion of general linear models and show the types of problems to which they apply, and then move to generalized linear models, to survival models, and finally to general estimating equations. Our goal is to acquaint participants with a fairly comprehensive array of approaches to data analysis and, most particularly, to circumstances to which they apply. The objective is to prepare students for research activities, either as a career, or as a step towards "Board Certification" enabling them to plan studies, analyze data ensuing from studies, and to critically read articles in their area of interest.
Taught by: Dr. D. Stefanovski and Staff
Activity: Lecture
2 Credit Hours
Notes: Limitations: Min: 6 students/Max: 16 students

VCSN 635 Equine & Farm Animal Anesthesia
This course will discuss sedation and intravenous or inhalant anesthesia of equine, food animal and camelid patients. The lectures will review the clinical pharmacology of the commonly used anesthetic drugs and the anatomic and physiologic differences among the species and their relevance to anesthetic management. Patient preparation, drug selection, induction and intubation techniques, intra-operative monitoring and management of cardiovascular and respiratory abnormalities, post-operative analgesia and recovery complications will also be discussed. Three case-based problems with multiple questions related to various aspects of anesthesia care will be distributed during the course. The problems are take-home, open-book and students may work alone or in pairs. Time will be spent discussing the cases after the written answers are turned in.
Taught by: Dr. K. Olson and Staff
Prerequisite: Prerequisites: VSUR 604 Anesthesia
Activity: Lecture
2 Credit Hours
Notes: Note: This course is a prerequisite for VCSN 815 and VCSN 875

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VCSN 636 Clinical Applications of Pharmacology
This course is focused on the clinical pharmacological management of the major problems in veterinary practice. The vast majority of lectures directly apply to companion animals but when necessary, to emphasize a drug group or specific clinical problem, there are also several large animal lectures. This is an extension of core pharmacology and not an expanded version. The lectures will be given by the clinical and basic sciences faculty in their areas of expertise. Emphasis will be on the clinical aspects of drug therapy such as dosage range, duration of therapy, evaluation of therapy, and problems encountered with current drug therapy. Pharmacological therapy in the following areas of medicine and surgery are covered: antibiotics, cardiovascular, neurology, respiratory, urinary, gastrointestinal, endocrine, emergency medicine, ophthalmology, chemotherapeutic agents, fluid therapy, anti-inflammatory, pain medications and other topics as needed for the most comprehensive clinical overview. Emphasis is on case-based approaches to drug therapy. The major objectives of this course are: (1) Provide practical information on rational drug therapy before entering the clinics and the real world of veterinary practice. (2) Provide a sound basis for rationally evaluating the presently available drugs and the drugs of the future. The course grade is based on a weekly quiz and/or mid-term/final. Taught by: Dr. J. Orsini and Staff
Prerequisites: Prerequisites: VBMS 607 Pharmacology and Toxicology, VPTH 605 Microbiology & VPTH 604 Immunology
Activity: Lecture
4 Credit Hours

VCSN 637 Animal Production Systems
This elective course provides an overview of: (i) management and operational basics of food animal production systems (dairy, beef, swine, poultry, and aquaculture), (ii) contemporary issues concerning current practice and sustainable future of animal production systems, e.g., food safety & biosecurity, antibiotics & antimicrobial resistance, nutrient management & environmental regulations, and animal welfare & public concerns. Students will work in teams on debates from pre-arranged topics, and will complete periodic assignments. Course grades will be based on class participation (40%), homework assignments (30%), and team debate performance (30%).
Taught by: Dr. Z. Dou and Staff
Activity: Lecture
2 Credit Hours
Notes: Limitations: Capacity of classroom

VCSN 638 Introduction to Animal Welfare
This course will cover the basic principles, history, and application of animal welfare science for multiple species. Over a series of lectures, the complex issue of assessing good versus poor welfare will be addressed. The first few lectures will provide students with the background of this field, as well as key terms which define the assessment methods of animal welfare science. The multifaceted issue of poor versus good welfare will be addressed in a lecture on ethics and sociology. The background lectures will also cover the disparity in the assessment of pain, pleasure, stress, and suffering based on applying physiological versus behavioral measurements. Given the tools provided by the background lectures, the students will then learn about species-specific welfare issues in the subsequent lectures to include swine, poultry, bovine, equine, aquaculture, exotic/zoo animals, lab animals, shelter animals, companion animals and current events. Following each one-hour lecture, the students will engage in an hour of hands-on activities, and debates concerning that week's topic. Students will also participate in one wet lab where they will have the opportunity to apply methods of welfare assessment that they have learned in class.
Taught by: Dr. M. Pierdon and Staff
Activity Lecture
4 Credit Hours
Notes: Limitations: Permission of instructor since class is capped at 25 participants

VCSN 640 Large Animal Medicine - NBC
The course is comprised of advanced lectures and discussions on medical diseases of large domestic animals. Laboratory sessions will include "hands-on" experience in performing the more common diagnostic procedures in large animal medicine, including: urethral catheterization of horses; rectal examination; ophthalmic examinations; epidural anesthesia (bovine); nasolacrimal duct flushing; cardiovascular examinations; use of ultrasound equipment; venipuncture in cattle and horses; intravenous injections in cattle, baling gun procedure for cattle; TB testing in cattle and endoscopy of the horse. Two in-course Progressive examinations and a course Final examination will be given.
Taught by: Dr. R. Nolen-Walston and Staff
Prerequisite: Prerequisites: Core Medicine Courses
Activity: Lecture
7 Credit Hours

VCSN 641 Advanced Poultry Medicine - NBC
This lecture/laboratory course is designed to provide students with a working knowledge of the recognition and diagnosis of selected diseases of poultry. Lectures will include discussion of the clinical, post-mortem and technical aspects of the diagnosis of selected avian diseases. The laboratory will provide each student with an opportunity to necropsy birds. Field visits to local poultry farms may be taken. The course grade will be based on weekly quizzes and a group project.
Taught by: Dr. S. Davison and Staff
Prerequisites: Prerequisites: VPTH 602 General & Systemic Pathology & VMED 608 Introduction to Poultry, Swine, and Dairy Medicine
Activity: Lecture
2 Credit Hours
Notes: Limitations: Maximum of 40 students. CONFLICT: VCSN 648 Equine Sports Medicine
VCSN 642 Dairy Cattle Nutrition - NBC
The complexity of evaluating and balancing rations requires computer models. CPM-Dairy - developed at Cornell University, The University of Pennsylvania and The William H. Miner Agricultural Research Institute - evaluates and formulates rations according to a modified National Research Council (NRC) model and according to The Cornell Net Carbohydrate and Protein System (CNCPs). CPM-Dairy will be used to describe nutrient requirements, supplies and utilization. Environmental effects on nutritional requirements will be demonstrated. The dynamics of ruminal fermentation and microbial growth will be illustrated in terms of how they affect nutrient supply. "Hands on Computer Sessions" will lead participants through ration formulation.
Taught by: Dr. L. Baker and Staff
Prerequisite: Prerequisites: VMED 605 Nutrition
Activity: Lecture
3 Credit Hours
Notes: CONFLICTS: Mon. 8-10 am conflicts with VCSN646 Equine Lameness; Thurs. 4-6 pm conflicts with VCSN 647 Equine Orthopedics

VCSN 643 Large Animal Reproduction - NBC
This course covers in-depth reproductive management of cattle, horses, swine and small ruminants. Emphasis is placed on the herd or flock as a unit rather than on the individual animal. This course is the same course as VCSN644 but with one-half of the laboratory time. The course is intended for those students who intend to pursue a career that will be exclusively or predominantly companion animal. A three-hour canine reproduction laboratory is included. The Laboratories include demonstrations by clinicians and hands-on practical experience for students in evaluating the male and the female reproductive status: PATH F - female pathology, PATH M - male pathology, OB1 - obstetrics, B&R - bull and ram breeding soundness examination, vaginal cytology of the bitch, MARE1 - palpation of the genital tract per rectum of mare, COW1 - physical exam of the vaginam, COW2 - bovine estrous cycle, palpation, COW3 - pregnancy diagnosis, palpation, COW4 - therapeutics, palpation.
Taught by: Dr. P. Sertich and Staff
Prerequisites: Prerequisites: VMED 610 Clinical Reproduction
Activity: Lecture
3 Credit Hours
Notes: Limitations: No Drop/Add

VCSN 644 Large Animal Reproduction - NBC
The course covers in-depth reproductive management of cattle, horses, swine, sheep and small ruminants. Emphasis is placed on the herd or flock as a unit rather than on the individual animal. Laboratories include demonstrations by clinicians and hands-on practical experience for students in evaluating the male and the female reproductive status of dogs and large domestic animals. Therapeutic information will be covered in problem-based cases that will be solved and formally presented by small student groups. Grades will be based on the therapeutic presentations, laboratory participation, mid-term exam and a comprehensive final examination. In addition to the laboratories listed in VCSN643 are the following eight laboratories: OB2 - fetomy, STALL - stallion breeding soundness examination SWINE - boar semen evaluation, heat detection and AI of sows, MARE2 - mare breeding soundness examination, palpation, MARE3 - using breeding soundness examination to solve infertility case, palpation, COW2 - bovine estrous cycle, palpation, COW3 - pregnancy diagnosis, palpation, COW4 - therapeutics, palpation.
Taught by: Dr. P. Sertich and Staff
Prerequisite: Prerequisites: VMED 610 Clinical Reproduction
Activity: Lecture
4 Credit Hours
Notes: Limitations: No Drop/Add. Note: This course is a prerequisite for Course VCSN 774 Large Animal Clinical Reproduction Rotation

VCSN 645 Large Animal Surgery & Surgical Exercises - NBC
Lectures given in this course will cover common surgical problems of the respiratory, the gastrointestinal, the musculoskeletal, and the urogenital systems of horses and of the gastrointestinal system of domestic ruminants. Lecture material will cover the procedures to be done in each laboratory beforehand so that ample opportunity is allowed for preoperative preparation. Lectures are given on anesthesia with special emphasis on drugs to be used during the laboratory sessions. The surgical exercises and related laboratory procedures are designed to teach surgical techniques and principles, surgical anatomy, and basic surgical procedures in horses and domestic ruminants. Students will administer general anesthetics and apply the principles and techniques of physiologic monitoring of anesthetized large animals. The importance and the application of preoperative and postoperative management will be emphasized and students take full responsibility for their patient's progress throughout the course. The course grade is derived from performance in the laboratories, quality of patient care, participation in conferences, and one final exam.
Taught by: Dr. E. Parente and Staff
Prerequisite: Prerequisites: Core Surgery Courses
Corequisites: Post-requisite: must sign up for VCSN 870 Large Animal Surgery Clinical Rotation 7 Conference Hrs.
Activity: Lecture
4 Credit Hours
Notes: Limitations: No Drop/Add; Maximum of 30 students

VCSN 646 Equine Lameness - NBC
This course covers the principles of lameness diagnosis and treatment in horses. The course features didactic lectures, actual lameness examinations, video tape viewing, computer aided learning and a diagnostic nerve block laboratory using cadaver specimens.
Taught by: Drs. M. Ross, D. Levine and Staff
Prerequisites: Prerequisites: Core Surgery and Anatomy Courses
Activity: Lecture
4 Credit Hours
Notes: CONFLICT: Mon. 8-10 am conflicts with VCSN 642 Dairy Cattle Nutrition. Notes:This course is a prerequisite for the following clinical rotations: VCSN 812,872 Sports Medicine/Imaging and VCSN 878 Sports Medicine Clinic

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VCSN 647 Equine Orthopedics - NBC
The course reviews specific techniques in equine orthopaedics, and emphasizes understanding orthopaedic principles that are applicable to all species. Topics include more detailed information on internal fixation, relevant first-aid techniques, osteochondrosis and orthopedic sepsis.
Taught by: Dr. D. Richardson and Staff
Activity: Lecture
1 Credit Hours
Notes: CONFLICT: VCSN 642 Dairy Cattle Nutrition

VCSN 648 Equine Sports Medicine - NBC
This seminar course concerns the clinical application of basic physiologic and pathologic principles as they relate to the diagnosis and management of exercise-related diseases in the horse. Material will be presented in light of the demands of specific types of athletic activity. Laboratory demonstrations using the high-speed treadmill will be provided. Hands-on sessions are also provided to demonstrate the collection of arterial blood gas samples and upper airway endoscopy. Paper or oral presentation required.
Taught by: Dr. J. Slack and Staff
Prerequisites: Prerequisites: VBMS 601 Gross Anatomy, VBMS 605 Principles of Biochemistry & VBMS 606 Animal Physiology
Activity: Lecture
3 Credit Hours
Notes: CONFLICT: VCSN 641 Advanced Poultry Medicine

VCSN 649 Large Animal Diagnostic Imaging - NBC
The course consists of a series of lectures, a radiographic positioning laboratory and an ultrasound/anatomy laboratory. Plain film radiography comprises the majority of the lectures but ultrasound, scintigraphy and preparchase examination are included. A brief introduction to CT & MRI is also presented. Strong emphasis is placed on the equine species but incorporates radiography of other large animals. The course is designed to cover the basic principles of the different imaging techniques, radiographic and sonographic anatomy, and the basic interpretation of the imaging modalities.
Taught by: Dr. V. Reef and Staff
Prerequisites: Prerequisites: Core Medicine, Surgery and Radiology Courses
Activity: Lecture
3 Credit Hours
Notes: Notes: This course is a prerequisite for the following clinical rotations: VCSN 812,872 Sports Medicine/Imaging and VCSN 814,874 Large Animal Radiology

VCSN 653 Catastrophic Epidemic Infectious Disease in Animals
Goals: Students who complete this course will: 1) Understand that large scale epidemics in domestic (and wild) animals have serious consequences for human health and well being even if the infection is not zoonotic; 2) appreciate that the consequences of large scale epidemics in domestic (and wild) animals are multiple and pervasive. Students will also: 1) See examples of the way in which large scale epidemics in domestic (and wild) animals adversely affect the economy, government and history of human society, provide opportunities for criminality, bring about changes in science policy and technology, and alter human demography and survivorship. 2) See a very broad range of examples of methodologies for bringing serious epidemics under control. 3) Understand how disease control strategies are devised and why it is necessary to pay attention to the acceptability of these strategies to producers, governments, and society at large. 4) Learn why it is important to have a definition of success. 5) acquire a sound theoretical basis for understanding how infectious diseases move through populations 6) begin to develop some insight into what might be done to defend animal agriculture from deliberate attack. Case Study 1: Rinderpest (directly transmitted disease of cattle and wildlife), Case Study 2: Dourine (sexually transmitted disease of horses). Case Study 3: Foot and Mouth Disease (directly transmitted disease cattle, sheep, swine). Case Study 4: Bovine BSE (a food borne, prion disease of cattle and people). Case Study 5: Avian Influenza (infection of birds transmitted by the fecal oral route). Case Study 6: Canine Distemper (directly transmitted infection of terrestrial and marine wildlife). Case Study 7: Nipah Virus Infections (emerging disease of bats, swine, people) The examples have been chosen to illustrate 1) a wide range of transmission mechanisms, 2) both zoonotic and nonzoonotic infections, 3) and emerging disease problems, Taught by: Dr. Gary Smith and Staff
Activity: Lecture
2 Credit Hours
Notes: NOT OFFERED DURING 2017-2018

VCSN 654 Veterinary Medicine Global Health and Food Security
This elective course focuses on the diversity of needs and expanding horizons for veterinary medicine in the developing world and will serve to introduce the scope and nature of issues in veterinary public health. Students will be evaluated based on attendance, participation, group exercises and required readings. Lectures will be presented by Penn Vet faculty as well as nationally known speakers.
Taught by: Drs. D. Galligan, A. Kelly and Staff
Activity: Lecture
4 Credit Hours
Notes: Note: Required for the Certificate in Public Health

VCSN 657 One Health & Global Food Security
By 2050 can the world sustain a population of over 9 billion people in the face of climate change, limited water and other natural resources, pollution, urbanization, political and income inequality, conflict, changing diets and patterns of disease? An interdisciplinary group of faculty will explore this complex question through six broad trends that affect global food sustainability and environmental health; 1) nutritional needs; 2) changing patterns of communicable and non-communicable diseases of humans and all types of animals; 3) natural resource inventory and management; 4) production technologies (intensive/extensive systems); 5) societal changes impacting production and food demand; 6) food distribution systems and access to food. The course is open to graduate and undergraduate students and will involve student participation and research.
Taught by: Drs. D. Galligan, A. Kelly and Staff
Activity: Lecture
4 Credit Hours
VCSN 661 Swine Neonatology - NBC
This is an introductory course for students who want to learn more about swine production and swine medicine. It aims to familiarize 2nd and 3rd year veterinary students with several important aspects of swine neonatology/farrowing room management that includes periparturate physiology and behavior of both the sow and the piglet, baby pig processing, and sow dystocia. All students will be required to attend the four hours of lecture, and four laboratory shifts. Each laboratory shift is 7 hours and available nights and weekends. Students will be required to monitor the farrowing house for sows in labor and attend the farrowings as needed to critically assess animal well-being. Students will be expected to provide appropriate sow or piglet interventions when indicated. Students will also assist with any routine management tasks such as piglet processing and vaccination. Students will be graded on their participation and success in meeting the course objectives.
Taught by: Dr. T. Parsons and Staff
Activity: Lecture
1 Credit Hour
Notes: Limitations: Permission of the Instructor. May be repeated once

VCSN 662 Swine Neonatology - NBC
This course is similar to VCSN 661, but provides students with a more intensive experience and the opportunity to pursue a higher level of proficiency in swine neonatology. The course also aims to familiarize 2nd and 3rd year veterinary students with several important aspects of swine neonatology/farrowing room management that includes periparturate physiology and behavior of both the sow and the piglet, baby pig processing, and sow dystocia. All students will be required to attend the four hours of lecture, and eight laboratory shifts. Each laboratory shift is 7 hours and available nights and weekends. Students will be required to monitor the farrowing house for sows in labor and attend the farrowings as needed to critically assess animal well-being. Students will be expected to provide appropriate sow or piglet interventions when indicated. Students will also assist with any routine management tasks such as piglet processing and vaccination. Students will be graded on their participation and success in meeting the course objectives.
Taught by: Dr. T. Parsons and Staff
Activity: Lecture
2 Credit Hours
Notes: Limitations: Permission of the Instructor; cannot be repeated

VCSN 663 Swine Husbandry - NBC
This is the second introductory course for students who want to learn more about swine production and swine medicine. It aims to familiarize 2nd and 3rd year veterinary students with several other aspects of swine husbandry and health management. All students will be required to attend four laboratory shifts, and write a short report on an aspect of mutual interest related to swine management or disease. Each laboratory shift is 7 hours and is available nights and weekends. Students will be expected to participate in all aspects of swine husbandry with special emphasis given to herd health, reproductive and nutritional management. Students will be graded on their participation and success in meeting the course objectives.
Taught by: Dr. T. Parsons and Staff
Prerequisite: Prerequisites: Swine Neonatology (VCSN 661 twice or VCSN 662 once)
Activity: Lecture
1 Credit Hour
Notes: Limitations: Permission of the Instructor; can be repeated once

VCSN 664 Swine Husbandry - NBC
This is a course similar to VCSN 663, but provides students with a more intensive experience and the opportunity to pursue a higher level of proficiency in swine husbandry. This course aims to familiarize 2nd and 3rd year veterinary students with several other aspects of swine husbandry and health management. All students will be required to attend eight laboratory shifts, and write a short report on some aspect of mutual interest related to swine management or disease. Each laboratory shift is 7 hours and is available nights and weekends. Students will be required to participate in all aspects of swine husbandry with special emphasis given to herd health, reproductive and nutritional management. Students will be graded on their participation and success in meeting the course objectives.
Taught by: Dr. T. Parsons and Staff
Prerequisite: Prerequisites: Swine Neonatology (VCSN 661 twice or VCSN 662 once)
Activity: Lecture
2 Credit Hours
Notes: Limitations: Permission of the Instructor; can be repeated once

VCSN 700 Large Animal Medicine - Foundation - NBC
Students in this rotation will assist clinicians in history taking, examinations and the medical management of large animal patients presented to the hospital at New Bolton Center. Students will participate in daily ward and Medicine teaching rounds, Radiology rounds and Pathology rounds. All students, whether in core or elective, will be expected to participate in night and weekend duty on a rotating basis. All students will prepare and present one clinical case discussion for Grand Rounds. Time commitment: at least 8 hours per day plus night and weekend duty.
Taught by: Dr. R. Sweeney and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours

VCSN 701 Large Animal Emergency/Critical Care - Foundation Rotation - NBC
This rotation is designed to teach students basic principles of large animal emergency medicine and surgery as well as the daily management of critically ill equine patients. Students will be involved in a variety of large animal emergency admissions including diagnostic procedures and surgery as well as post-operative or post-admission case management of horses with gastrointestinal disease. Students will attend regular 8 am morning rounds (see course description for Large Animal Surgery, VCSN 800), followed by morning case-based discussion rounds. The day will be spent either on emergency admissions or procedures and management of in-house patients. Daily afternoon rounds will be topic-based, and may be selected from the following topics: Laceration Repair, Emergency Stabilization of Fractures, Acute Abdomen (colic), Diarrhea, Fluid Therapy, Respiratory Distress, Acute Blood Loss/Hemorrhagic Shock, Food Animal Emergencies, Blood Gas Interpretation, Acute Neurologic Patient, Monitoring the Critically Ill Patient, Reproductive Emergencies, Management of Rectal Tears, Critical Care Journal Club.
Taught by: Dr. L. Southwood and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
VCSN 712 Food Animal Reproduction - NBC
The course is designed for those students anticipating entering large animal or mixed practice. Students will participate in the diagnosis and treatment of clinical reproductive cases in the hospital. Students will be responsible for the daily treatment and examination of all hospitalized cases at the Hofmann Center. Students will also assist in the management of reproductive problems of Widener Hospital patients. Exposure will vary due to fluctuations in case load. Additional "hands-on" practice of reproductive procedures will occur by the use of teaching animals. Organized laboratories will allow the student to become comfortable with diagnostic techniques of large animal species. On-call, weekend, and night duty are required. Students will be required to give a 15 minute presentation during the rotation and prepare two case letters/discharge instructions on animals they evaluated during the rotation. If student interest and time permit, students may go on field trips to breeding farms.

Taught by: Dr. T. Dobbie and Staff
Prerequisite: Prerequisites: VCSN 644 Large Animal Reproduction
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours
Notes: Satisfies requirement for: EQ, FA, LA. Limitations: 2-6 students/rotation. Priority: FA

VCSN 713 Field Service - NBC
Students in this rotation will assist staff doctors in history taking, physical examinations, and the medical management of patients seen on the Field Service activities of the School's large animal practice. The student is required to attend the appropriate 8:00 a.m. daily rounds at New Bolton Center. The remainder of the day will be spent on field calls. The student will be required to be on night and weekend duty. Night duty will be divided equally among field service students in the rotation. Students on emergency duty are required to be within 15 minutes from New Bolton Center while on duty. Case presentations will be given by students on the second Wednesday of the rotation. Boots and coveralls are essential for this rotation.

Taught by: Dr. B. Smith and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Required: SALA

VCSN 715 Diagnostic Ultrasound in Large Animals - NBC
This rotation will provide students with experience in the diagnosis and treatment of large animal cardiac diseases and the use of M-mode, 2-dimensional real-time, pulsed wave, color flow and continuous wave Doppler echocardiography and exercising electrocardiography. Students will also gain experience in the use of diagnostic ultrasonography in the evaluation of tendon and ligament injuries, diseases of the thorax and abdomen, and the evaluation of masses, swellings, neonates and high-risk pregnancies. Students will also gain experience in patient preparation; obtaining a quality ultrasonographic or echocardiographic image and cardiac Doppler studies; and in interpretation of these images and studies with staff and faculty supervision. Students will be responsible for patient care of animals presented to the Heart Station/Ultrasound Service during the rotation.

Taught by: Dr. V. Reef and Staff
Prerequisite: Prerequisites: Core Medicine and Surgery
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 2 students/week in VCSN 776, VCSN 775 combined. Satisfies imaging requirement: SALA. Notes: Not offered during VCSN 812,872 Sports Medicine/Imaging

VCSN 716 Ultrasonography in Large Animals - NBC
For full course description see VCSN 715.
Taught by: Dr. V. Reef and Staff
Prerequisites: Prerequisites: Core Medicine and Surgery
Activity: Clinical Rotation Dental & Vet school
2 Credit Hours
Notes: Limitations: 2 students/week in VCSN 106,776, VCSN 715,775 combined. Satisfies requirement for: EQ, FA, LA. Note: Not offered during VCSN 812,872 Sports Medicine/Imaging

VCSN 770 Large Animal Medicine Clinic - NBC
Students participating in this elective rotation will be assigned with the core students in VCSN700 in the Medicine Section. These elective students will participate in the same manner as core students, although attempts will be made, when possible, to allow them to focus more on some cases or diseases of particular interest to them. They are expected to participate, to the same extent as core students, in all emergency duties including night and weekend on-call duty. At least eight hours per day, plus duty hours.

Taught by: Dr. R. Sweeney and Staff
Prerequisite: Prerequisites: Core Medicine Courses
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSN 772 Food Animal Reproduction - NBC
The course is designed for those students anticipating entering large animal or mixed practice. Students will participate in the diagnosis and treatment of clinical reproductive cases in the hospital. Students will be responsible for the daily treatment and examination of all hospitalized cases at the Hofmann Center. Students will also assist in the management of reproductive problems of Widener Hospital patients. Exposure will vary due to fluctuations in case load. Additional "hands-on" practice of reproductive procedures will occur by the use of teaching animals. Organized laboratories will allow the student to become comfortable with diagnostic techniques of large animal species. On-call, weekend, and night duty are required. Students will be required to give a 15 minute presentation during the rotation and prepare two case letters/discharge instructions on animals they evaluated during the rotation. If student interest and time permit, students may go on field trips to breeding farms.

Taught by: Dr. R. Sweeney and Staff
Prerequisite: Prerequisites: Core Medicine Courses
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSN 773 Field Service - NBC
This is an elective rotation equivalent to course VCSN 713. Students participating in this elective rotation will be assigned with the core students in VCSN700 in the Medicine Section. These elective students will participate in the same manner as core students, although attempts will be made, when possible, to allow them to focus more on some cases or diseases of particular interest to them. They are expected to participate, to the same extent as core students, in all emergency duties including night and weekend on-call duty. At least eight hours per day, plus duty hours.

Taught by: Dr. B. Smith and Staff
Prerequisite: Prerequisites: Core Medicine Courses
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs
VCSN 774 Large Animal Clinical Reproduction - NBC
The course is designed for those students anticipating entering large animal or mixed practice. Students will participate in the diagnosis and treatment of clinical reproductive cases in the hospital. Students will be responsible for the daily treatment and examination of all hospitalized cases at the Hofmann Center. Students will also assist in the management of reproductive problems of Widener Hospital patients. Exposure will vary due to fluctuations in case load. Additional "hands-on" practice of reproductive procedures will occur by the use of teaching animals. Organized laboratories will allow the student to become comfortable with diagnostic techniques of large animal species. On-call, weekend, and night duty are required. Students will be required to give a 15 minute presentation during the rotation and prepare two case letters/discharge instructions on animals they evaluated during the rotation. If student interest and time permit, students may go on field trips to breeding farms.
Taught by: Dr. P. Sertich and Staff
Prerequisite: Prerequisites: VCSN 644 Large Animal Reproduction
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 2-5 students/rotation. Priority: EQ, FA, LA Majors

VCSN 775 Diagnostic Ultrasound in Large Animals - NBC
This is an elective rotation equivalent to course VCSN 715.
Taught by: Dr. V. Reef and Staff
Prerequisites: Prerequisites: Core Medicine and Surgery
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 2 students/week in VCSN 776, VCSN 775 combined.
Note: Not offered during VCSN 872 Sports Medicine/Imaging

VCSN 776 Ultrasonography in Large Animals - NBC
For full course description see VCSN 715.
Taught by: Dr. V. Reef and Staff
Prerequisites: Prerequisites: Core Medicine and Surgery
Activity: Clinical Rotation Dental & Vet school
2 Credit Hours
Notes: Limitations: 2 students/week in VCSN 776, VCSN 775 combined.
Note: Not offered during VCSN 872 Sports Medicine/Imaging

VCSN 777 Large Animal Neonatal Intensive Care Rotation - NBC
This elective provides students with experience in the management of critically ill large animal neonates and dams with periparturient complications. Daily rounds emphasize the use of monitoring techniques (e.g. capnography, ECG, BP monitor, fetal and neonatal ultrasonography), and various treatment modalities (e.g. parenteral nutrition, positive pressure ventilation, and fluid therapy) required in the management of critically ill neonatal foals and late-term pregnant mares. Students will have the opportunity to master the following manual and theoretical skills: arterial puncture and arterial blood gas analysis, calculation and application of parenteral and enteral nutrition formulations, catheterization techniques for veins and bladder, principles of fluid therapy as applied to patients with septic shock and patients requiring maintenance fluids, radiographic interpretation of neonatal thoracic and musculoskeletal disease, interpretation of fetal and neonatal sonograms, familiarity with different types of respiratory support and resuscitation protocols, and a working knowledge of a wide variety of pharmacologic agents including antibiotics, anticonvulsives, sedatives, analgesics, pressors and inotropic agents.
Taught by: Dr. J. Palmer and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 4 students min; 8 students maximum

VCSN 780 Ration Evaluation and Formulation - NBC
This course is intended to provide students with practical experience in evaluating dairy feeding programs and formulation of rations. Students will visit dairy farms, inspect feed storage and delivery systems, obtain representative samples of feedstuffs for analysis, examine production records, and assess animal body condition. Students will then evaluate the nutritional and economic adequacy of the whole feeding program, suggest recommendations for its improvement and prepare producer reports for discussion with faculty prior to implementation.
Taught by: Dr. L. Baker and Staff
Prerequisite: Prerequisites: VCSN 642 Dairy Cattle Nutrition
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Minimum of 3 students

VCSN 800 Large Animal Surgery-Foundation - NBC
Students rotating through Large Animal Surgery at NBC will participate in all aspects of examination and diagnosis, including lameness evaluation and endoscopy, medical and surgical treatment and daily patient care of large animals. During one week of the two-week rotation, each student will be assigned to treat cattle, other domestic farm animals and horses, and during the other week, horses only. Night, weekend and holiday assignments, including treatments and emergency service, will be made according to the requirements of the overall hospital operation during a given session. Students usually are exposed to various surgical procedures (general soft tissue, abdominal, orthopedic, etc.) during any one rotation. During the rotation, students may gain experience with horses being examined on the High Speed Treadmill or undergoing imaging in the Nuclear Scintigraphy Unit. Students will also participate in a variety of didactic teaching rounds, barn rounds and teaching laboratories as described: Monday, Tuesday, Wednesday, Friday 4-5 pm - Surgery Teaching Rounds. Thursday 3-5 pm - Surgery Teaching Laboratory (Wet labs). Monday 8-9 am Radiology Rounds (case-based discussion led by surgery faculty). Tuesday 8-9 am - Lameness Rounds (case-based discussion led by Sports Medicine faculty). Wednesday 8-9 am - Radiology Rounds (case-based discussion led by radiology faculty). Thursday 8-9 am - Grand Rounds (Student case presentations). Friday 8-9 am - Medicine Teaching Rounds (case-based discussion with Medicine faculty and house officers).
Taught by: Dr. D. Richardson and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours

VCSN 812 Sports Medicine/Imaging - NBC
Goals of this rotation are to provide the students with the opportunity to obtain diagnostic skills through the use of different modalities and to incorporate these techniques into the decision-making process during the diagnosis and treatment of horses with performance problems. Students in this rotation will take more responsibility for their cases and follow them through the different specialties without being drawn away to the next case in their assigned area. Each student will spend his/her time in the following areas: 1 week - Ultrasound/Cardiology. 1 week - Nuclear Scintigraphy/Radiology/MRI. 1 week - Treadmill/Podology. 1 week - Poor performance clinic (lameness)
Taught by: Dr. E. Davidson and Staff
Prerequisites: Prerequisites: VCSN 649 Large Animal Diagnostic Imaging and VCSN 646 Equine Lameness
Activity: Clinical Rotation Dental & Vet school
10 Credit Hours
Notes: Limitations: Maximum of 4 students per rotation Notes: Offered Rotations 1-8, possibly 9-10; Individual rotations in Sports Medicine Clinic, LA Radiology, LA Ultrasound and Podology are not offered during this time period. Satisfies imaging requirement: EQ, LA, FA
VCSN 814 Large Animal Radiology - NBC
In this rotation, students will gain experience in making and interpreting large animal radiographic examinations. They will assist the radiology technicians in taking and processing routine radiographs, attend film reading sessions, daily hospital rounds and review large animal radiographs independently and under supervision. Students will be required to write radiology reports.
Taught by: Dr. K. Wulster and Staff
Prerequisite: Prerequisites: VCSN 649 Large Animal Diagnostic Imaging
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 2 students/rotation. Satisfies imaging requirement: EQ, FA, LA, SALA.

VCSN 815 Large Animal Anesthesiology Service - NBC
During the Large Animal Anesthesia Service Rotation, students will gain experience in: (1) anesthetizing equine and other farm animal patients for elective and emergency procedures; (2) alleviating pain in animals; (3) maintaining adequate vital functions during anesthesia and (4) managing fluid, electrolyte and acid-base disturbances in the perioperative period. In addition, the course offers the opportunity to apply the clinical pharmacology of perianesthetic drugs in various farm animal species. Students are requested to attend Anesthesia Service rounds on Mondays and Fridays (8-9:00 am) during their clinical rotation, which will also offer the opportunity to discuss anesthesia cases. Night and weekend emergency duty is mandatory and shared with veterinary technician students. The maximum emergency duty is 4 weekday nights and one 24-hour weekend day. Students are expected to report to the Sports Medicine Conference Room or Anesthesia Office promptly at 8:00 am on the first Monday morning of the 2-week rotation with scrubs, stethoscope and calculator. Students are requested to review the information contained in the class notes of the following courses for appropriate sections prior to entering the rotation: General Pharmacology and Toxicology (VBMS 607), Animal Physiology (VBMS 606), Anesthesia (VSUR 604), and the Equine and Farm Animal Anesthesia Elective (VCSN 635). Students should also be familiar with dosages of commonly used drugs and their clinical pharmacology and technical aspects of the practice of large animal anesthesia.
Taught by: Dr. B. Driessen and Staff
Prerequisite: Prerequisites: VCSN 635 Equine and Farm Animal Anesthesia
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 2 students/rotation, not Early Entry. Required: EQ. Satisfies anesthesia/pain management requirement: FA, LA, SALA

VCSN 816 Food Animal Anesthesiology Service - NBC
In this rotation, students will gain experience in planning and performing sedation and anesthesia in small ruminants, swine and camelids. Specific clinical objectives during the five-day rotation include physical and chemical restraint, regional and general anesthesia techniques in various food and fiber producing animals, and operation and use of various anesthetic monitoring devices. Emphasis is on techniques and drugs commonly used in the field. Students will formulate plans for sedation and/or short term anesthesia in sheep/goats, pigs and camelids and will then carry them out on teaching animals. Techniques for regional anesthesia for flank surgery in the bovine will be performed at Marshak Dairy.
Taught by: Dr. K. Olson and Staff
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours
Notes: Limitations: 2-4 students/rotation, not Early Entry. Priority: Food Animal Majors. Satisfies anesthesia/pain management requirement: FA, LA

VCSN 870 Large Animal Surgery Clinic - NBC
This is an elective clinical rotation equivalent to VCSN 800. Students electing VCSN 645 during Large Animal Block are required to take this rotation in addition to VCSN 800 in their fourth year.
Taught by: Dr. D. Richardson and Staff
Prerequisite: Prerequisites: Core Surgery Courses
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs. Note: This rotation is a postrequirement of VCSN 645 Large Animal Surgery and Surgical Exercises

VCSN 871 Equine Surgery Clinic - NBC
This elective is specifically designed to provide students interested in equine practice after graduation with additional exposure to a variety of orthopedic and soft tissue surgical problems of horses. Students will actively participate in all aspects of lameness and soft tissue diagnosis, treatment, surgery and patient care. Teaching rounds will involve daily barn rounds, daily didactic presentations and/or wet labs covering surgical topics. Laboratories include internal fixation of fractures, wound repair, arthroscopy, intestinal surgical techniques, laser surgery, head and neck surgery, video analysis of lameness and field anesthesia. Every effort is made to have students in this course perform field castrations with local veterinarians. Students will be expected to participate in after-hours treatments and surgical emergencies of horses; however, students will not be assigned to food animal patients during this rotation.
Taught by: Dr. D. Richardson and Staff
Prerequisite: Prerequisites: VCSN 800 Large Animal Surgery-Foundation
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 6-10 students. Priority: Equine Majors

VCSN 872 Sports Medicine/Imaging - NBC
This is an elective rotation equivalent to course VCSN 812.
Taught by: Dr. E. Davidson and Staff
Prerequisite: Prerequisites: VCSN 649 Large Animal Diagnostic Imaging and VCSN 646 Equine Lameness
Activity: Clinical Rotation Dental & Vet school
10 Credit Hours
Notes: Limitations: Maximum of 4 students per rotation Notes: Offered Rotations 1-8, possibly 9-10; Individual rotations in Sports Medicine Clinic, LA Radiology, LA Ultrasound and Podology are not offered during this time period
**VCSN 873 Large Animal Emergency/Critical Care Service - NBC**
This rotation is designed as a supplement to the Foundation Emergency / Critical Care rotation, for students with a specific interest in this field or those desiring more large animal exposure. The format will follow that outlined for the Foundation rotation (VCSN 701), with emphasis on more advanced critical care topics. Elective students will not be required to complete a Grand Rounds presentation.

Taught by: Dr. L. Southwood and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours

**VCSN 874 Large Animal Radiology - NBC**
This is an elective rotation equivalent to course VCSN 814

Taught by: Dr. K. Wulster and Staff
Prerequisite: Prerequisites: VCSN 649 Large Animal Diagnostic Imaging
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 2 students/rotation. Note: Not offered during VCSN 812,872 SportsMedicine/Imaging

**VCSN 875 Large Animal Anesthesiology Service - NBC**
This is an elective rotation equivalent to course VCSN 815

Taught by: Dr. B. Driessen and Staff
Prerequisite: Prerequisites: VCSN 635 Equine and Farm Animal Anesthesia
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 2 students/rotation, not Early Entry

**VCSN 876 Food Animal Anesthesiology Service - NBC**
This is an elective rotation equivalent to course VCSN 816

Taught by: Dr. K. Olson and Staff
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours
Notes: Limitations: 2-4 students/rotation, not Early Entry. Priority: FA Majors

**VCSN 877 Food Animal Medicine and Surgery Clinic - NBC**
This elective rotation is designed to provide additional experience in food animal medicine and surgery to students who are likely to pursue bovine practice following graduation. Students will participate in the diagnosis and treatment of food animal (primarily dairy cattle) medical and surgical diseases. Teaching rounds will involve daily barn rounds, didactic presentations and wet labs covering medical and surgical topics. The emphasis will be on individual animal (as opposed to herd health) problems. Students will be responsible for after-hours treatments and emergencies of food animals only; students will not work with equine patients during this rotation. Each student will have three weeknights and one 24-hour weekend shift during the rotation (based on 8 students enrolled). Note: students that desire further experience in medical or surgical problems of all large animal species should elect either VCSN 770 or VCSN 870.

Taught by: Dr. R. Sweeney and Staff
Prerequisites: Prerequisites: Large Animal Medicine and Surgery Rotations. Additional prerequisites for non-food animal majors: VCSN 640 Large Animal Medicine, VCSN 645 Large Animal Surgery and Surgical Exercises, and VCSN 644 Large Animal Reproduction
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Maximum of 8 students, not Early Entry Priority: FA majors. First priority to students who are taking VCSN 810,880 Dairy Production Medicine Clinic

**VCSN 878 Sports Medicine Clinic - NBC**
The Sports Medicine Clinic provides exposure to many types of problems facing the equine practitioner, concentrating on lameness and performance evaluations. While part of the course stresses traditional lameness evaluation and clinical diagnoses, high-speed treadmill evaluations and nuclear scintigraphy enable the student to participate in more intricate problems affecting sport horses. The course will provide students with the opportunity to develop techniques of examination and diagnosis, and permit direct contact with clients. Students are expected to perform in all areas and participate to the maximum of their ability.

Duties may include care and SOAPs of in patients and may include care over a weekend. There is NO emergency duty. In order to participate students are required to have satisfactorily completed the prerequisite courses.

Taught by: Dr. E. Davidson and Staff
Prerequisites: Prerequisites: VCSN 646 Equine Lameness and VCSN 649 Large Animal Diagnostic Imaging
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 2 students/rotation. Notes: Not offered during VCSN 812,872 SportsMedicine/Imaging

**VCSN 879 Equine Podology - NBC**
This course covers the principles of both normal and corrective shoeing as well as examining the current theories of hoofcare. The student will: attend surgery rounds beginning in radiology each morning; and work with the resident farrier and equine clinicians on the various lameness problems presented to the clinic. Foot anatomy and physiology will be stressed. While the students will not be required or expected to manually make or nail on a shoe, they will be required to participate in and observe the procedures utilized. Procedures expected of Equine veterinarians such as removing shoes and debriding the sole will be covered in detail.

Additional specialties such as the application of extensions to foal hooves can be incorporated into the rotation if requested.

Taught by: P. Reilly and Staff
Activity: Clinical Rotation Dental & Vet school
2 Credit Hours
Notes: Limitations: 2 students/rotation. Note: Not offered during VCSN 812,872 SportsMedicine/Imaging
VCSN 880 Dairy Production Medicine Clinic - NBC
This program is an integrated curriculum sponsored by the Sections of CAHP, Field Service and Reproduction as a part of the Food Animal Majors Program of the School of Veterinary Medicine. Curriculum begins with an overview of the "Economic Reality" of dairy production progressing through "Quantitative Skills" - T test, Chi Square, and Proportions; "Semen Selection" - visit stud, concepts in genetics semen selection and allocation and linear programming approaches; "Heifer Rearing" - systems view of heifer rearing, evaluation of heifer weight gain and evaluation of heifer reproduction; "Dairy Herd" - vaccination programs through body condition scoring; "Milk Quality" - principles of milking machine, procedures evaluation, mastitis control programs, DHIA, SCC monitoring programs, microbiology and quality assurance Reproduction - traditional programs, new programs and evaluation and interpretation of infertility and pregnancy loss; "Monitoring Reproduction" - current measures, heat detection, breeding intervals, developing a heat detection program; "Record Systems" - DHIA records, paper records, DAIRY COMP 305 (down loading data); "Dairy Nutrition" - ration evaluation using Spantan, interaction with reproduction, MUN interpretations; "Culling" - basic economic concepts and sample applications; "Facilities Evaluation" - ventilation and free stalls; "Computer Data Bases" - DairyL, AABPL, Merck Diagnostic Program, Cornell Diagnostic Program and Internet sites; "Laboratories" - obstetrics/fetotomy, special procedures, follow the estrus cycle in a cow (2 students/cow), milk progesterone kits and breeding soundness examination; "Herd visits with private practitioners" Taught by: Dr. D. Galligan, M. Kristula and Staff
Activity: Clinical Rotation Dental & Vet school
24 Credit Hours
Notes: Limitations: 10 students. Priority: FA Majors

VCSN 881 Food Safety and Quality Assurance - NBC
The purpose of this course is to prepare the student to: 1) Identify human health hazards in food of animal origin. 2) Define some of the roles of the veterinarian in preventing/reducing the introduction of biohazards into the food chain. 3) Discuss the principles of safe food practices for both animals and humans. 4) Recognize and describe where laboratory studies (microbiology, toxicology, chemistry) would help define real or potential problems. 5) Define the appropriate times to utilize laboratory evaluations and become familiar with interpretive criteria. 6) Participate in field trips to learn about different practices and processes. Assess sites in terms of HACCP criteria. 7) Interact with representatives from local and federal agencies concerning policies, application of technology and recommendations concerning problem solving issues. 8) Discuss intervention actions that can be initiated during acts of bioagroterrorism and/or naturally-occurring disasters (using recent events as models for discussion). Case studies will be introduced as problem solving activities.
Taught by: Dr. C. Benson and Staff
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: Maximum of 10 Students. NOT OFFERED UNTIL FURTHER NOTICE

VCSN 882 Swine Production Medicine - NBC
On-farm problem solving and client communications will be emphasized in this course. Students will be required to interact with producers. Students will write a follow-up report describing the findings and recommendations from the farm visit. Each student will also be assigned a case that will require collation of careful history taking, judicious performance of diagnostic tests and critical analysis of computerized production records to reach their diagnosis. Students will visit farms and other allied industries to survey production systems and collect data to be analyzed in the course. Various production systems and cycles will be reviewed, performance targets will be explained, and their elasticity and economic prioritization will be discussed. Records and data will be analyzed and students will learn how to identify significant production deficiencies and associate these with disease processes - either non-infectious, management-related, or infectious. Strategies for dealing with specific deficiencies will be outlined and the benefits of intervening to improve productivity will be compared to the costs of disease and used in developing a recommendation for action by the producer.
Taught by: Dr. M. Pierdon and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 2-6 students. Note: Students are required to have no other contact with swine for the duration of the course

VCSN 883 Advanced Swine Production Medicine - NBC
A new role for swine veterinarians is emerging in large scale swine production. So-called "corporate veterinarians" are employed by a single company and have the challenge of overseeing the production and health care concerns of the animals owned or managed by their employer. This course provides students with the opportunity to gain exposure to this emerging discipline in swine veterinary medicine. Principles of epidemiology, economics and health care delivery systems and their application to optimizing swine health and production will be provided. Students will work closely with selected professionals who are in a leading role in defining the veterinarians place in large scale, vertically integrated swine production. This course extends the offerings in VCSN 882. Students will be expected to complete a small project or investigation during their visit.
Taught by: Dr. G. Althouse and Staff
Prerequisites: Prerequisites: VCSN 882 Swine Production Medicine and permission of instructor.
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Note: Students are required to have no other contact with swine for the duration of the course.
VCSN 884 Swine Production - NBC
Veterinarians today cannot make useful contributions to the swine industry without an intimate understanding of swine production. The successful practice of modern swine production medicine depends on the ability of the veterinarian to interweave their traditional training in medicine with the intricacies of swine husbandry. This course provides students with the opportunity to gain hands-on experience in modern swine production systems and/or swine production medicine practices. Students will learn through immersion the basic management, husbandry and/or production medicine practice by working with a practice or a farm in specific phases of swine production at a few selected, nationally recognized swine companies. Permission of instructors required. Taught by: Dr. G. Althouse and Staff
Prerequisites: Prerequisites: VCSN 882 Swine Production Medicine and permission of instructor.
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Note: Students are required to have no other contact with swine for the duration of the course

VCSN 885 Equine Ophthalmology - NBC
This course is designed to provide students with ophthalmology experience to supplement what they obtain in the Large Animal Medicine foundation rotation, and, if taken, the Small Animal Ophthalmology elective. It is intended both for students with a special interest in ophthalmology, to broaden their exposure to include equine ophthalmology, and for equine students, to provide them with ophthalmology training that will benefit their equine patients in either general or specialty practice. This latter is particularly important given that most equine students do not take the Small Animal Ophthalmology elective and so graduate without clinical ophthalmology experience. Students will participate in the diagnosis and treatment of clinical ophthalmology cases in the hospital. Students will assist with evaluation of new cases, both inpatient and outpatient, and will be responsible for the daily treatment and examination of all hospitalized ophthalmology cases. Students will handle communication with clients and construct discharge summaries when appropriate. Exposure will vary due to fluctuations in case load. Organized laboratories in slit-lamp biomicroscopy, indirect ophthalmoscopy, and tonometry will allow the student to become comfortable with ophthalmic diagnostic techniques. Taught by: Dr. N. Scherrer and Staff
Prerequisite: Prerequisites: Completion of Large Animal Medicine rotation
Activity: Lecture
6 Credit Hours
Notes: Limitations: preferred minimum 14 students / rotation

VCSN 890 Large Animal Medicine and Surgery Holiday Emergency Rotation - NBC
Students will assist emergency clinicians and house officers in history taking, examinations, and the medical and surgical management of large animal patients presented on an emergency basis to the hospital at New Bolton Center. Students will also be responsible for the care and treatment of medical and surgical patients hospitalized at New Bolton Center. This rotation will consist of two 12-hour shifts per day including the weekends and any holidays (example Christmas and New Years Day). All students will be expected to participate in night, weekend, and holiday duty on a rotating basis. Students in this rotation will be responsible for five 12-hour shifts each during the one-week rotation. Students are expected to be on the premises during their duty shifts. Rounds to acquaint students with the hospitalized patients will be held daily during each shift with the emergency clinician/house officer/nursing staff on duty, but no formal teaching or Grand Rounds will occur during this rotation. Taught by: Dr. B. Dallap Schaer and Staff
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours
Notes: Limitations: preferred minimum 14 students / rotation
VETERINARY CLINICAL STUDIES - SURGERY COURSES (VSUR)

VSUR 601 Surgical Principles
This Core lecture/laboratory/computer course emphasizes the basic principles of surgery and the application to surgical diseases of domestic animals. Attendance at laboratories for this course is mandatory. Missed laboratories will result in the grade of Incomplete for the course. Missed laboratories will be made up during the next time the missed laboratory becomes available. Clinical Exercises, Course VSUR 602, in Quarter 1 cannot be taken until all course requirements for Surgical Principles have been completed.
Taught by: Drs. M. Ross, Ortved and Staff
Activity: Lecture
4 Credit Hours

VSUR 602 Clinical Exercises
Taught by: Dr. D. Holt & Dr. G. Gianotti and Staff
Prerequisites: Passing grades in VSUR 601 Surgical Principles and VSUR 604 Anesthesia
Activity: Lecture
1 Credit Hour

VSUR 603 Clinical Orthopedics
This course presents the basic principles of orthopedic surgery and orthopedic disease. Course material includes small animal orthopedics, large animal orthopedics and orthopedic radiology. Laboratories include two radiograph reading sessions, one splint lab, and a lab pining and wiring plastic bones.
Taught by: Dr. K. Agnello and Staff
Activity: Lecture
4 Credit Hours

VSUR 604 Anesthesia
This course reviews basic physiologic and pharmacologic aspects and their relationship to clinical application of general anesthesia. Uptake of anesthetic agents and distribution to various organ systems are discussed as are the changes in acid-base balance produced by the state of anesthesia. Effects of anesthesia on pulmonary gas exchange and cardiovascular function are emphasized. The clinical aspects of pre-anesthetic medications, the choice of anesthesia, equipment and techniques, cardiopulmonary resuscitation, and the management of specialized cases are discussed. One progressive examination is given, and the final exam is comprehensive.
Taught by: Dr. J. Pavez and Staff
Activity: Lecture
4 Credit Hours
VCSP 630 Hematopoiesis
This course aims to correlate clinical and basic science in comparative hematology. Faculty from the Veterinary and Medical Schools will present recent developments in clinical medicine and basic research of disorders of blood cells, including transfusion medicine, erythrocyte defects, myelodysplasia, transplantation, cytokines, etc. Informal lecture presentations will allow for ample discussions with instructors. Attendance, participation in class and a paper on a suitable topic of hematology submitted at the end of the course will make up part of the grade for this course. The written review and discussion of an original study paper will serve also as one of the clinical competency requirements.
Taught by: Dr. U. Giger and Staff
Prerequisites: Prerequisites: 1st and 2nd year core courses
Activity: Lecture
2 Credit Hours
Notes: NOT OFFERED DURING 2017-2018

VCSP 632 Diagnosis of Common Veterinary Intoxications
The diagnosis of poisoning in small animals has become an important part of Veterinary Medicine. All parts of Veterinary education are used in making diagnoses and formulating treatment of the poisoned animal patient. Thus, the course involves the integration of preclinical and clinical subjects, rather than simply the study of toxicology. The instructors will provide detailed descriptions of cases from the Emergency Service files, integrated with the more typically academic aspects of toxicology. A variety of common toxins will be discussed including ethylene glycol, lead, zinc, organophosphates, rodenticide anticoagulants, cholecalciferol and non-steroidal anti-inflammatory drugs. The format for this course will be creative and include interactive lectures and discussions. The major emphasis of the course will be the clinical diagnosis and clinical management of intoxicated patients utilizing basic physiological and pharmacologic principles.
Taught by: Dr. K. Drobatz and Staff
Activity: Lecture
2 Credit Hours
Notes: Limitations: Minimum of 10 students

VCSP 635 Introduction to Companion Avian Medicine
This course is designed to provide the future veterinarian with the tools to evaluate, diagnose, and treat pet avian species in clinics and beyond. Although the course will mainly focus on common psittacine species kept as pets, information on columbiform and passerine species will be provided as well. Topics covered will include pet parrot taxonomy, husbandry, nutrition, clinical examination, common infectious diseases, and practical diagnostic and surgical techniques. The final grade is based on attendance (students with 3 unexcused absences will receive a penalty to their grade) and completion of an in-class final examination. Submission of a course evaluation at the end of the course is required for a grade.
Taught by: Dr. N. Wyre and Staff
Prerequisites: Prerequisites: 1st and 2nd Year Core Courses
Activity: Lecture
2 Credit Hours

VCSP 636 Introduction to Reptile and Amphibian Medicine
This course is designed to provide the future veterinarian with the tools to evaluate, diagnose, and treat captive reptiles and amphibians in clinics and private practice, zoological institutions, and herpetological collections. This course will focus on the more common species kept as pets. Topics covered will include captive husbandry, basic herpetology, nutrition, clinical examination, common infectious and noninfectious diseases, surgery and anesthesia, diagnostic and treatment techniques. The final grade is based on attendance (students with 3 unexcused absences will receive a penalty to their grade) and completion of an in-class final examination. Submission of a course evaluation at the end of the course is required for a grade.
Taught by: Dr. L. Latney and Staff
Prerequisites: Prerequisites: 1st and 2nd Year Core Courses
Activity: Lecture
2 Credit Hours

VCSP 637 Professional Foundations
Includes: 1) making the transition from student to employed veterinarian (resumes, cover letters/letters of intent, interviews, and job selection); 2) personal finance and investment strategies; 3) negotiation skills; 4) stress management; 5) evaluating disability insurance and understanding basic retirement planning options to know what to ask in an interview as part of your benefit plan; 6) time management & goal planning and 7) workshops on obtaining internship or a residency, and (b) Interview Role-Playing/Communication skills. Students are required to submit detailed personal budgets for their first year after graduation and a typewritten resume or curriculum vitae. To receive an "A" students also must submit a 3-year personal, professional, and financial plan. Course notes will be distributed at the first class session.
Taught by: Dr. M. Bryant and Staff
Activity: Lecture
2 Credit Hours
VCSP 638 Legal Issues for Veterinarians
Course is a broad overview of the legal issues veterinarians face on a daily basis, including legal constraints on practice; overview of laws regulating animals (including laws specific to Pennsylvania); divorce and custody battles; illegal drug compounding; internet pharmacies; lemon laws; pet health insurance; vaccination and liability; negotiating and understanding the employment relationship; veterinary malpractice and state board investigations; responding to client complaints; importance of medical records/informed consents; and, applied professional ethics with clients and colleagues including study of social media. A course hand-out will be provided. Testing of students will be through the use of 2 homework assignments. Attendance mandatory.
Taught by: Dr. C. Vite and Staff
Activity: Lecture
2 Credit Hours

VCSP 641 Small Animal Pediatrics
The objective of this course is to further familiarize the student with the small animal pediatric patient and the proper approach to clinical diagnosis. Lectures are complemented with case reports which serve as a basis for small group discussions. Emphasis is placed on integration of new and previously acquired knowledge to construct differential diagnoses when presented with appropriate historical data and physical as well as laboratory findings. Diagnostic tests and therapeutic regimes for various conditions are discussed in the context of these cases. Grading is based upon attendance, participation in case discussions and performance at a final take home exam.
Taught by: Dr. M. Casal and Staff
Prerequisite: Prerequisites: 1st-3rd Year Core Medicine Courses
Activity: Lecture
2 Credit Hours
Notes: Limitations: 40 Students

VCSP 642 Topics in Neurology
This seminar series will stress broad topics, the majority to be selected by the students, which relate to clinical neurology or neuroscience in general. Seminar topics will be selected and presented by students. The course grade (Pass/Fail) is based on class participation.
Taught by: Dr. C. Vite and Staff
Prerequisites: Prerequisites: 1st, 2nd, 3rd Year Core Medicine Courses
Activity: Lecture
2 Credit Hours
Notes: Limitations: Min. 8 students; Max. 20 students. CONFLICT: Possible conflict with VPTH641 Laboratory Animal Medicine

VCSP 643 Small Animal Clinical Nutrition
The first half of the small animal nutrition course will be devoted to: (1) information on feeding normal dogs and cats for maintenance and the prevention of disease and (2) the pet food industry, including labeling, regulation and laboratory on the evaluation of pet foods. The second half of the course will examine the role of dietary manipulation in the management of a wide variety of canine and feline diseases. The course format utilizes a combination of individual and group exercises, discussion, cases, and lectures some of which will require preparation outside of scheduled class time. Grading will be pass/fail and based on attendance, class participation and an individual take-home project.
Taught by: Dr. K. Michel and Staff
Prerequisite: Prerequisites: Core Nutrition Course
Activity: Lecture
2 Credit Hours

VCSP 646 Small Animal Surgery
This course will cover selected topics of advanced surgical procedures in dogs and cats. Emphasis will be given to diseases and conditions where treatment usually requires elaborate procedures. Material presented will involve most major organ systems such as the gastrointestinal tract, the respiratory tract and the urogenital tract. Furthermore, the skin, the endocrine system, and the peritoneal and pleural cavities will be given special consideration. Minimally invasive surgery as well as advanced surgical tools and equipment will also be discussed. The course will be restricted to what is generally understood as soft tissue surgery.
Taught by: Dr. L. Aronson and Staff
Activity: Lecture
3 Credit Hours

VCSP 647 Small Animal Surgery/Anesthesia Laboratory
The class is divided into 2 groups. Building on the Core Anesthesia and Surgery laboratory course, this course provides the student with experience as assistant surgeon, surgeon and anesthetist while performing exploratory laparotomy and hysterectomy in cats. The cats are provided by an animal shelter and are returned to the shelter for adoption following surgery. Students enrolled in the course, working in teams of three, are responsible for examination and veterinary care (under supervision) at least daily while the cats are at the Veterinary School. There are two additional laboratory sessions. One is a session during which enterotomy, intestinal Anastomosis and other soft-tissue procedures will be performed by each student on tissues. The other is an orthopedic procedure session during which pinning and plating techniques are performed by each student on models.
Taught by: Dr. J. Runge and Staff
Prerequisites: Prerequisites: Passing grade in Core Surgery and Anesthesia Courses
Corequisite: Postrequirements: Students taking this course must take Small Animal Orthopedic Surgery Rotation VCSP 811 or VCSP 871
Activity: Lecture
2 Credit Hours
Notes: Limitations: No Add/Drop period; max. of 24 students

VCSP 648 Small Animal Anesthesia
This lecture and discussion course will stress the application of physiology, pharmacology, clinical pharmacology, and economics to the problems encountered during the clinical administration of anesthesia.
Taught by: Dr. Juan Pavez and Staff
Prerequisite: Prerequisites: VSUR604 Anesthesia
Activity: Lecture
1 Credit Hour

VCSP 649 Emergency/Critical Care Medicine
Small group case-based discussions pertain to the clinical evaluation and management of small animal emergency and critical care patients. Life-threatening abnormalities of the nervous, cardiovascular, respiratory, endocrine, gastrointestinal, and urinary systems are presented in a problem-oriented manner. Actual clinical case material is used to illustrate principles with emphasis placed on the physiology and pathophysiology of the presenting problem. Monitoring and therapeutic procedures (both conservative and non-conservative) will be presented. The grade will be based on a final examination given to small groups at the end of the course. The examination will be a clinical problem similar to all the other clinical problems presented in the course. Everyone in the same group will receive the same grade.
Taught by: Dr. E. Reineke and Staff
Prerequisites: Prerequisites: 1st, 2nd and 3rd Year Core Courses
Activity: Lecture
3 Credit Hours
VCSP 650 Small Animal Dentistry and Oral Surgery
Building on the dentistry and oral surgery information presented in VMED611, Med/Surg I, the lectures cover the spectrum of dental and oral diseases and procedures seen and practiced in small animals. The course is integrated with oral surgery lectures presented in VCSP 648, Small Animal Surgery elective. Although there are normally no laboratory practice sessions included in this course, laboratory practice sessions based on material in this course are included in the Small Animal Dentistry and Oral Surgery clinical rotation (VCSP 817,VCSP 877).
Taught by: Dr. A. Reiter and Staff
Prerequisites: Prerequisites: Core Medicine and Surgery Courses
Activity: Lecture
2 Credit Hours

VCSP 651 Practice Management
Includes establishing a realistic fee schedule; effectively marketing veterinary services; determining how much income a practice owner really makes; the veterinary client’s perception of value; establishing a small or mixed animal practice; medical records as a legal defense and to generate income; understanding the vet-pet-client relationship to develop a bond-centered practice; introduction to personnel management and employment law; understanding the Internal Revenue Code, the payment of taxes, and the need for a schedule C to reduce one’s tax liability; successfully organizing one’s basic business management strategies; and marketing veterinary services. A 300-page notebook and 150 page hard cover book entitled The Art of Veterinary Practice Management will accompany this course and be provided at no charge by a corporate sponsor. The final examination consists of a group project to be completed by 2-4 people using a typical practice management “headache” as the problem to be resolved. Four guest speakers will participate in this course.
Taught by: Dr. D. Eigner and Staff
Activity: Lecture
3 Credit Hours

VCSP 652 Introduction to Shelter Animal Medicine
This course is designed to complement the senior year Shelter Animal Medicine rotation by introducing students to some of the particular problems and issues facing veterinarians who work with animal shelters and animal control facilities. The course will combine lectures and discussion periods, and will involve significant out-of-course reading assignments. Topics covered will include: Husbandry and disease management, pet population dynamics and control, behavior and behavior problems, feral cats, and animal cruelty & neglect. Course grades will be determined by attendance, participation in discussions and a final take home exam.
Taught by: Dr. B. Watson and Staff
Activity: Lecture
2 Credit Hours
Notes: CONFLICT: VPTH 635 Introduction to Fish Diseases

VCSP 654 Small Animal Critical Care Medicine
This course offers a comprehensive overview of several key aspects of critical care medicine. Lectures will primarily use a "case-based" approach with discussion of the physiology of organ function and the pathophysiology of disease, and will highlight state-of-the-art concepts for these exciting patients. The final session will be a "hands-on" laboratory in which the students will work with the monitoring instruments that have been discussed during the course. Evaluation will be based on a take home examination.
Taught by: Dr. D. Silverstein and Staff
Prerequisites: Prerequisites: Core Medicine and Surgery Courses
Activity: Lecture
2 Credit Hours

VCSP 655 Introduction to Wildlife Medicine I
This course is designed to provide an overview of the field of wildlife medicine for first year veterinary students through lectures from veterinarians working in various aspects in wildlife medicine. Wildlife Medicine I will present current issues in environmental monitoring, emerging diseases and public health, disease surveillance and prevention, disease outbreaks and control, captive propagation and species re-introduction, disaster medicine, and wildlife rehabilitation. The format will consist of eight lectures, each approximately one hour in length, and a required two- hour wet lab held at Tri-States facility, the Frink Center for Wildlife, in Newark, DE. Optional lectures may be scheduled during the semester based on student interest and speaker availability. Students are expected to attend all required lectures and participate in the wet lab to receive credit for the course. Grades will be based on attendance (50%) and on three worksheets (50%); a five-page paper may be substituted with the approval of the instructor. Opportunities for clinical experience at the Frink Center for Wildlife will be scheduled during the semester; students are expected to sign up in advance and are responsible for their own transportation.
Taught by: Dr. S. Welte and Staff
Activity: Lecture
1 Credit Hour
Notes: Note: This course is a prerequisite for Course VCSP 656 Introduction to Wildlife Medicine II. This course is graded Pass/Fail

VCSP 656 Introduction to Wildlife Medicine II
This course is designed to provide an introduction to the clinical aspects of wildlife medicine for first year veterinary students through a lecture and wet lab format. Lecture and/or laboratory topics will include zoonotic diseases, diseases of native mammals, marine mammals, reptiles and birds; pathology, physical examination techniques, and introductions to necropsy techniques, fracture immobilization, and emergency care. The format will consist of six lectures, each approximately one hour in length, and three two-hour wet labs. Optional lectures may be scheduled during the semester based on student interest and speaker availability. Students are expected to attend all lectures and participate in the wet labs to receive credit for the course. Grades will be based on attendance (50%) and on three worksheets (50%); a five-page paper may be substituted with approval of the instructor. Opportunities for clinical experience at the Frink Center for Wildlife will be scheduled during the semester; students are expected to sign up in advance and are responsible for their own transportation.
Taught by: Dr. S. Welte and Staff
Prerequisite: Prerequisite: VCSP 655 Introduction to Wildlife I
Activity: Lecture
1 Credit Hour
Notes: Limitations: Maximum of 72 students. This course is graded pass/fail. Note: In case of over enrollment, permission of course organizer is required
VCSP 657 Case Studies in Exotic Companion Animals
This course is designed to allow the student to use what they have learned about special species and put all of the information together to work through a clinical case. The first three weeks will be spent discussing topics in special species medicine. Week one will include ethical dilemmas in special species medicine. The second and third week will be reviewing and critiquing journal articles in special species medicine. Thereafter, each week, a case history will be posted on the courses website and the students will come to class to discuss that case. The course instructor will lead the discussions including how to ask the correct history questions and how to interpret the physical examination findings. The class will decide on rule outs, diagnostic testing, and treatment options. During the second to last class, the students will be divided into groups and will be given an unknown case to work out on their own. At the last class meeting, each group will present their findings. Attendance is mandatory since this is a case-discussion class. Missed classes cannot be made up; for each missed class the grade will be lowered. Grades will be based on attendance and participation in the unknown case presentation.
Taught by: Dr. N. Wyre and Staff
Prerequisites: Prerequisites: 1st and 2nd Year Core Courses
Activity: Lecture
2 Credit Hours
Notes: Limitations: Limited to 20 students

VCSP 658 Pet Small Mammal Med/Surg
This introductory course will mainly cover pet rabbits and ferrets with some discussion of rodents and other small mammals seen in veterinary practice. Husbandry, physical examination, diagnostic testing, and treatment techniques of these animals will be presented. The most common health problems and surgeries will be discussed. After this course, the student should be better prepared to see these patients during their clinical rotations and in practice. Student evaluation will be based on a final exam.
Taught by: Dr. L. Latney and Staff
Prerequisites: Prerequisites: 1st and 2nd Year Core Courses
Activity: Lecture
2 Credit Hours

VCSP 659 Small Animal Advanced Cardiology
This course will build on the core cardiology curriculum by introducing a wider range of topics involving cardiovascular disease, treatment, and research in small animals. In-depth topics include diagnosis and treatment of cardiac arrhythmias, correction of congenital heart defects using minimally invasive catheter-based therapies, echocardiography of feline cardiomyopathy, clinical pathophysiology of degenerative mitral valve disease, and a review of the clinical trial evidence that forms the basis of standard treatment recommendations for congestive heart failure. The course is designed for a relatively small number of students so that discussion and interaction with the instructor(s) is facilitated. The course is suitable for students that might be interested in cardiology specialization or research careers as well as for future general practice veterinarians that wish to provide a high level of cardiac care for their patients.
Taught by: Dr. M. Oyama and Staff
Activity: Lecture
1 Credit Hour
Notes: Maximum enrollment 20 students

VCSP 660 Advanced Small Animal Electrocardiography and Arrhythmias
This course will build on the core cardiology curriculum by providing practical experience involving electrocardiographic (ECG) interpretation and the diagnosis and treatment of cardiac arrhythmias in small animals. Specific topics include diagnosis of both supraventricular and ventricular arrhythmias as well as proper selection of antiarrhythmic therapy and an introduction to artificial pacemaker implantation. The course is designed for a relatively small number of students so that discussion and interaction with the instructor(s) is facilitated. The course includes 6 hours of laboratory where students will work through ECG cases in a small group setting. The course is suitable for students that might be interested in cardiology specialization as well as for future general practice veterinarians that wish to provide a high level of cardiac care for their patients.
Taught by: Dr. M. Oyama and Staff
Activity: Lecture
2 Credit Hours

VCSP 666 Shelter Surgical Opportunities I
This course is an introduction to High Quality High Volume (HQHV) surgery in the shelter environment and is based on the Association of Shelter Veterinarians veterinary medical care guidelines for spay-neuter programs. Lecture topics and examinations are delivered online and include an overview of HQHV surgery, patient handling, anesthesia and pain management in the shelter environment, partner protocols, patient monitoring, patient pre-surgical preparation, basic surgical principles and sterilization of the male cat. The lab component of this course consists of two hours of knot laboratory and knot certification followed by six hours at a partner shelter participating in the peri-operative activities, organized as stations, which include physical exam, induction, patient preparation and recovery. The final eight hours are devoted to rotation through the stations and performance of cat castrations under direct supervision. This course is designed to prepare students to pursue castration certification (certification that a student can castrate a male cat without direct supervision, required for Shelter Surgical Opportunities II). This elective can be taken after the Spring semester of first year, including the summer, and grading is pass/fail.
Taught by: Dr. Brittany Watson
Activity: Lecture
1 Credit Hour
Notes: Notes: Ongoing (may be taken after the Spring semester of the 1st year, including summer)
VCSP 667 Shelter Surgical Opportunities II
This course is designed to be a continuation of Shelter Surgical Opportunities I and consists of six hours of online lectures/exam that cover inhalant anesthesia, more advanced knots and suture patterns, sterilization of the female cat, special sterilization cases, emergency procedures in the shelter environment and surgical instruments and pack preparation. Eighteen hours of on-site work at a partner shelter will be devoted to learning to spay and participation in peri-operative activities. Spay participation is designed to incrementally build surgical skills and confidence through the process of students scrubbing into a cat spay and performing one portion of the spay surgery. This permits students to achieve competency with the spay procedure over the course of multiple surgeries, eventually allowing a student to seek spay certification (certification that the student can perform an entire cat spay without direct supervision, required for Shelter Surgical Opportunities III). This course can be taken any time, including the summer, after passing VSUR 601 Surgical Principles (offered as part of the core curriculum in the first quarter of second year), passing Shelter Surgical Opportunities I and achieving castration certification. Grading is pass/fail.
Taught by: Dr. Brittany Watson
Prerequisites: Prerequisites: VSUR 601 Surgical Principles, Shelter Surgical Opportunities I, Castration Certification
Activity: Lecture
1 Credit Hour
Notes: Ongoing (may be taken after the Spring semester of the 1st year, including summer)

VCSP 668 Shelter Surgical Opportunities III
This course is designed to be a continuation of Shelter Surgical Opportunities II and is an advanced elective offered to students who wish to achieve spay certification (if not previously spay certified) and pursue additional surgical opportunities. Four hours of didactic instruction will be offered online covering sterilization surgeries of adult and pediatric dogs as well as specialty surgeries such as enucleation, amputation, wound repair and mass removal. At least six hours of the 20 clinical hours will be spent at a partner shelter that provides opportunities to perform surgery on dogs. It is anticipated that students will perform 15-30 sterilization surgeries in this elective. Every effort will be made to allow students to meaningfully participate in non-sterilization surgeries such as mass removal, enucleation, amputation and wound repair after they are spay certified, although achievement of this goal may require an on-call option depending on caseload and individual student interest. This course can be taken any time, including the Summer, after passing Shelter Surgical Opportunities II and grading is pass/fail.
Taught by: Dr. Brittany Watson
Prerequisite: Prerequisites: Shelter Surgical Opportunities II
Activity: Lecture
1 Credit Hour
Notes: Ongoing (may be taken after the Spring semester of the 1st year, including summer)

VCSP 700 Small Animal Internal Medicine-Foundation
The Internal Medicine rotation involves clinical training in all core medicine disciplines including endocrinology, gastroenterology, hematology, infectious disease, nephrology, oncology and pulmonary medicine. Fourth year students will assist doctors in history taking, physical examinations and the medical management of patients presented to the Matthew J. Ryan Veterinary Hospital of the University of Pennsylvania. Students will also have directed supervision on nutritional aspects of internal medicine cases by a board-certified clinical nutritionist. Emphasis will be placed on problem solving, understanding of pathophysiology and integration and utilization of principles of medicine. As experience is gained, students will assume more responsibility in patient management. Students and staff will participate in daily rounds and conferences.
Taught by: Dr. M. Rondeau and Staff
Activity: Clinical Rotation Dental & Vet school
12 Credit Hours

VCSP 710 Small Animal Internal Medicine
Fourth year students will assist the faculty and house officers in history taking, physical examination, and medical management of patients presented to the Matthew J. Ryan Veterinary Hospital of the University of Pennsylvania. Clinical teaching will emphasize a problem-solving approach to disease associated with the endocrine, gastrointestinal, hemolytic, pulmonary and urogenital systems. Interpretation of clinical pathology data will be an integral part of this exercise. As experience is gained, the student will assume more responsibility in patient management. Students, faculty and house officers will participate in medicine rounds and conferences on a daily basis.
Taught by: Dr. M. Rondeau and Staff
Prerequisite: Prerequisites: VCSP 700 Small Animal Internal Medicine-Foundation
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Required: SA

VCSP 712 Small Animal Intensive Care Medicine Service
The ICU rotation provides a good medical approach to the management of critical and often very unstable patients. Since these cases are often very challenging diagnostically, and also very dynamic, they provide an excellent learning experience, with ample opportunity for one-on-one discussion with the clinician, and for background reading. Students have an opportunity to become familiar with use and interpretation of the advanced technical equipment available in the ICU, and are also encouraged to perform and perfect technical skills such as catheterization of blood vessels and urinary bladder, obtaining arterial blood samples, etc. During the rotation, we encourage integration and a team approach among the students, the ICU clinicians, and the nursing staff. Students on the ICU service start daily at or before 7:00 a.m., and stay until their cases are stable and all of the proposed diagnostics have been completed (usually 6-7 p.m.). Students are expected to SOAP the cases daily including weekends, to be closely involved in decision-making, diagnostics and therapeutics, and to present and discuss the cases at daily rounds. Students are internally scheduled to assist in treatments in the Intensive Care Unit; patient care shifts may include evening and overnight responsibilities. Weekend duties are distributed equitably among all assigned students. Cage rounds are held daily at approximately 2 PM. Student teaching rounds are held most weekdays at approximately 2.30 P.M.
Taught by: Dr. D. Silverstein and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 3-4 students per rotation. Required: SA
VCSP 715 Small Animal Cardiology Service
Students will participate in outpatient and inpatient cardiovascular examinations and treatments. Cardiology Clinic days are currently Wednesday/Thursday/Friday, but are subject to change. Cardiology invasive procedures are performed on Tuesdays. Cardiology also provides consultation to other services and accepts transfer of Cardiology cases for primary care. Student responsibilities include obtaining a complete medical history and performing a thorough physical examination with emphasis on the cardiovascular system. After an orientation period on the first day, students are responsible for recording and interpreting electrocardiograms as well as interpreting thoracic radiographs and pertinent clinical laboratory data. Students assist with recording echocardiograms and are expected to become familiar with echo image recognition and common measurement techniques. Students are also expected to summarize pertinent findings in cases under their care at daily rounds and be able to discuss their significance. Completion of the medical case record for review by the attending cardiologist is required. The group captain will develop a schedule for the daily examination and morning treatments (seven days/week) of all hospitalized cases for which the cardiology service is responsible. A quiz is administered the final day of the rotation and determines 15% of the students grade for the rotation. Students should review notes for VMED 611 and the small animal cardiology computer assisted learning site prior to beginning the rotation.
Taught by: Dr. M. Oyama and Staff
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Note: satisfies requirement: SALA. Required: SA

VCSP 716 Dermatology & Allergy Service
This course exposes the student to case material presented to the Dermatology and Allergy Clinic at the small animal hospital, and may include case material presented to the large animal hospital at New Bolton Center. Special emphasis is given in the discussion of each patient to the etio-pathogenesis, diagnosis, and treatment of disease. Attendance during receiving of large animal cases at NBC may be required on one Wednesday of each block, although volunteers will be sought first.
Taught by: Dr. C. Cain and Staff
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Required: SALA; SA

VCSP 717 Comprehensive Cancer Care Service
This rotation will expose students to a comprehensive approach to clinical oncology in small animals, including cancer diagnosis, staging, treatment, and palliative care. This service is primarily comprised of faculty and staff from Medical Oncology, Surgery, and Radiation Oncology. Other services, such as Interventional Radiology and Dentistry and Oral Surgery, will also be involved. Students are expected to participate in the care of outpatient and hospitalized cases (including pre and post-operative care for Surgical Oncology patients) and in patient care rounds in the morning and afternoon. Weekend duties include morning and afternoon treatments for hospitalized patients. Each student will present and discuss a journal article or relevant tumor topic once during the rotation.
Taught by: Dr. J. Mahoney and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Maximum 5-6 students per rotation

VCSP 721 Primary Care Services
This rotation will offer students the opportunity to evaluate cases scheduled with the Primary Care Service (PCS). The Primary Care Service is designed to give students first-hand experience in dealing with common general practice clinical cases and with client communication. The main objective is for students to have the opportunity to be the vet while working under the guidance and supervision of a PCS veterinarian.
Taught by: Dr. G. Mengel
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: Minimum of 3 and maximum of 5 students per rotation. Required for: SA, SALA

VCSP 722 Small Animal Pediatrics/Genetics/Reproduction
The Small Animal Pediatrics-Genetics-Reproduction Clinic is run under the supervision of two board-certified faculty and two residents and emphasizes the unique care of pediatric patients, the approach and management of hereditary diseases, and reproductive problems. Pediatric and genetics clinics are held on Mondays and Tuesdays, and reproduction appointments are seen any day of the week. In addition to the clinical appointments, there is opportunity to see several unique genetic diseases in dogs and cats and handle the youngest of pediatric patients in the animal colonies, as well as get an appreciation for the specialty diagnostic laboratories. The clinical rotation deals with the initial yet crucial pediatric wellness visits including nutrition, socialization and preventive care and disease issues specific to this age group. The clinic highlights the evaluation of normal development and diagnosis of diseases of puppies and kittens (<1 year). Moreover, kittens and puppies with known or suspected inherited disorders are examined for which genetic counseling or special diagnostic studies are required. It provides experience with routine immunizations, treatment and prevention of parasitism, and nutritional and spay/neuter counseling.
Taught by: Dr. M. Casal and Staff
Activity: Clinical Rotation Dental & Vet school
2 Credit Hours
Notes: Required for: SA; Recommended for SALA

VCSP 770 Small Animal Internal Medicine Clinic
The elective rotation in small animal internal medicine will provide further contact and experience in problems of internal medicine (diseases of the endocrine, gastrointestinal, hematologic, pulmonary, and urogenital systems). Students in the elective rotation will be assigned more complex cases, and they will be expected to assume more responsibility for patient management and decision-making.
Taught by: Dr. M. Rondeau and Staff
Prerequisite: Prerequisites: VCSP 700 Small Animal Internal Medicine-Foundation
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSP 772 Small Animal Intensive Care Medicine
This is an elective clinical rotation equivalent to VCSP 712.
Taught by: Dr. D. Silverstein and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs; 3-4 students per rotation
VCSP 775 Small Animal Cardiology Service
This is an elective clinical rotation equivalent to VCSP 715 for Equine, Food Animal and Larger Animal Majors or as a second rotation in Cardiology for Small Animal or Small Animal/Large Animal Majors. Unless a student electing a second clinical rotation through the Heart Station makes special arrangements with the cardiology faculty on service, there is no distinction between this elective rotation and VCSP 715. However, if a student has objectives for the elective rotation beyond the opportunity to see additional case material, an attempt will be made to accommodate proposals for a more individualized rotation to the extent that the regularly scheduled Heart Station activities are not compromised. A quiz is administered the final day of the rotation and determines 15% of the students grade for the rotation.
Taught by: Dr. M. Oyama and Staff
Prerequisite: Prerequisites: Core Medicine Courses
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSP 776 Dermatology & Allergy Service
This is an elective clinical rotation equivalent to VCSP 716.
Taught by: Dr. C. Cain and Staff
Prerequisite: Prerequisites: Core Medicine Courses
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSP 777 Comprehensive Cancer Care Service
Taught by: Dr. J. Mahoney and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours

VCSP 778 SA Neurology
A two week long clinical rotation which will include: 1) Participation in receiving outpatients, 2) Participation in diagnosis, treatment/care and discharge of hospitalized patients, 3) Participation in all aspects of in-hospital patient consultations, 4) Students should anticipate having independent library-research projects for subsequent small group discussion, 5) Students will be expected to participate in all aspects of weekend duty which is typically (but not necessarily) 8:00 am to Noon each Saturday and Sunday. Primary emphasis will be placed on the student learning to perform and interpret the results of the neurologic examination. Reviewing the description of the examination procedures in any standard veterinary neurology textbook will be extremely valuable. The course will provide opportunity for the student to become familiar with various diagnostic methods. The student will be expected to have reviewed and know the contents of classroom notes. Faculty method of evaluation: Students will be judged on their knowledge, commitment, contribution and accomplishment.
Taught by: Dr. E. Galban and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 4 students maximum. Recommended: SA and SALA majors

VCSP 781 Primary Care Services
This is an elective clinical rotation equivalent to VCSP 721.
Taught by: Dr. G. Mengel
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: Minimum of 3 and maximum of 5 students per rotation

VCSP 782 Small Animal Pediatrics/Genetics/Reproduction Clinic
The Peds/Gen/Repro Clinic and their board certified faculty will emphasize aspects of pediatrics such as preventative health care programs, clinical evaluation of normal development, and diagnosis and management of diseases in puppies and kittens. The Clinic will also cover examination and management of animals with known or suspected inherited disorders in young and adult animals for which genetic counseling or special diagnostic studies are required. Reproduction issues such as infertility and semen evaluation will be addressed. Breeding timing with clinical hormonal assays and vaginal cytology, artificial insemination (vaginal, transcervical and surgical), pregnancy diagnosis with ultrasound and radiographs, and the occasional Caesarian section will also be performed. The practical information and hands-on experience provided by the Peds practice. This rotation can be paired with VCSP 876-SA Behavior. Alternatively, students may appreciate the extra time off the rest of the week (no evening, weekend and holiday coverage).
Taught by: Drs. Casal, Giger and Staff
Activity: Clinical Rotation Dental & Vet school
2 Credit Hours
Notes: Limitations: Minimum of 3 and maximum of 4 students per rotation. Required: SA

VCSP 790 Small Animal Medicine Holiday Rotation
The holiday internal medicine rotation will be a “learning on your feet” experience. Students will have similar responsibilities as during the core medicine rotations. Clinic appointments will be scheduled only for the first part of week one. Students will be assigned out patients and ES transfers and will evaluate these patients, formulate problem lists and appropriate diagnostic plans, participate in diagnostic procedures (e.g., bone marrow aspirate, tracheal wash), and perform treatments. Formal teaching rounds may not be held, but students will discuss patients on an individual basis with clinicians. The hours of the rotation shifts will be 6 AM to 6 PM and 12 noon to 12 midnight. Each student will be assigned to five shifts and will likely cover four 6 AM to 6 PM shifts and one noon to midnight shift.
Taught by: Dr. M. Rondeau and Staff
Prerequisite: Prerequisites: Satisfactory completion of VCSP 700 - SA Medicine Foundation rotation
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours
Notes: Limitations: preferred minimum 7 students, preferred maximum 10 students/rotation. (Maximum may vary between H1 and H2)

VCSP 798 Small Animal Neurology Holiday Rotation
Two one-week rotations will be offered during the Holiday period, each for 3 credits. Each rotation will consist of half of the Holiday period. This holiday rotation will have similar responsibilities as during the core neurology rotation. Clinic appointments will be scheduled for the first week only. Students will be assigned out patients, ES transfers, and will participate in neurology consultations for other services. Students will evaluate these patients, formulate problem lists and appropriate diagnostic plans, participate in diagnostic procedures (electrodiagnostic testing, CSF taps, imaging), and perform treatments that may include surgery. Formal teaching rounds may not be held, but students will discuss patients on an individual basis with clinicians.
Taught by: Dr. E. Galban and Staff
Prerequisite: Prerequisites: Satisfactory completion of VCSP 778 - Small Animal Neurology Service
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours
Notes: Limitations: preferred minimum of 2 students; preferred maximum of 3 students per rotation. (Maximum may vary between H1 and H2)
VCSP 800 Small Animal Soft Tissue Surgery-Foundation
Students rotate through the Soft Tissue Surgery Service and are responsible for the diagnosis, pre-operative, operative and post-operative care of animals presented to this service under the supervision of Surgery staff. Night and weekend duties will be scheduled. Ward rounds (informal case discussions) are conducted regularly. A neuter service is scheduled each week. Every effort will be made to provide at least one opportunity for each student during the 2-week rotation to have primary responsibility as surgeon to spay or castrate a dog or a cat. CONFERENCE HOURS: 3 hrs/day of clinics (5) = 15 hours. 2.4 hrs/day of surgery (5) = 10-20 hours. 1 hr/weekend morning (4) = 4 hour. TOTAL 29-39 hours.
Taught by: Dr. M. Mison and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours

VCSP 811 Small Animal Orthopedic Surgery
Students rotate through the Orthopedic Surgery Service and are responsible for the diagnosis, pre-operative, operative and post-operative care of animals presented to this service under the supervision of Surgery staff. Night and weekend duties will be scheduled. Ward rounds (informal case discussions) are conducted regularly. CONFERENCE HOURS: 4.5 hrs/day of clinics (4) = 16-20 hours. 6-8 hrs/day of surgery (6) = 42-48 hours. 2.3 hr/weekend day (4) = 8-12 hours. TOTAL 70-80 hours.
Emergency call - varies depending on the number of students and number of emergencies.
Taught by: Dr. M. Mison and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Required: SA

VCSP 813 Small Animal Emergency Service
Students are assigned to a busy 24-hour, 7-day per week emergency service on a shift system. The students are responsible for diagnosis and management of animals presented to the service under the supervision of Emergency Service staff. Emergency Service rounds are held Monday through Thursday inclusive, and include topics related to emergency medicine and surgery centered around case discussion.
Taught by: Dr. K. Drobatz and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Note: Satisfies SA requirement. Required: SALA; SA

VCSP 814 Small Animal Radiology Service
This course primarily offers experience in small animal diagnostic radiology with some exposure to diagnostic ultrasound. Principles of radiographic interpretation teaching rounds are held daily. Students will assist in the positioning of animals and taking of routine and special procedure radiographic examinations and will observe and assist with ultrasonographic examinations of Ryan Hospital clinic cases. Students will also interact with the radiologist or radiology resident during their interpretation of the clinic cases. A 2-hour examination is given on the last day of the rotation. See Learn.vet for information on clinical competencies to be assessed in this rotation and to access additional study materials.
Taught by: Dr. J. Suran and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Required: SA. Satisfies SALA Imaging Requirement

VCSP 815 Small Animal Anesthesiology Service
Students are responsible for anesthetizing animals presented to the anesthesia service under the supervision of the Anesthesia staff. During the day, students will work closely with either the anesthesiologist on duty or a senior technician. Students will be scheduled with a technician for "on-call" night and weekend duty. On-call duties begin the first Tuesday (or second day) of the rotation and continue through to the last Sunday (or last day before the next rotation). The anesthesia service provides on-call services from 8 pm until 8 am during weekdays, and from Friday 8 pm until Monday 8 am over the weekend. In general, students schedule themselves for the on-call duties. Most rotations assign one student on-call per night during weekdays and split the weekend into 8 or 12-hour shifts. Anesthesia student rounds are conducted Mondays, Wednesdays, Thursdays, and Fridays. The first rounds on the first day of the rotation (usually a Monday) will occur at 9 am. Rounds on Wednesdays are at 8 am. Rounds on Thursdays and Fridays are at 7:30 am. Students are expected to attend grand rounds on Tuesdays. It is highly recommended that students prepare for their rotation by reviewing the course notes from the anesthesia core course and student surgery labs. The anesthesia handout will be given to students on the first day of the rotation. The rounds schedule and topics will be presented in more detail then.
Taught by: Dr. G. Gianotti and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Required: SA. Satisfies anesthesia/pain management requirement: SALA

VCSP 817 Small Animal Dentistry and Oral Surgery
Students participate in the client communication (including assessment of medical history), clinical examination, diagnostic testing (including patient restraint for intravenous catheter placement), treatment planning and treatment of animals presented with dental and oral diseases, including periodontal, endodontic, restorative and occlusal problems and oral and maxillofacial inflammation, infection, malformation, trauma and cancer. Mondays and Wednesdays are clinic appointment days, with rounds and a teaching laboratory or treatment procedures in the afternoons. Tuesdays, Thursdays and Fridays are treatment days. Occasionally, cases are hospitalized into Saturdays, and emergency cases may be referred from ES on Saturdays and Sundays. Responsibility for Saturday and Sunday patient care will be one to maximum two weekend days per student during the two-week rotation, and will most often consist of being on-call. Typically, Mondays and Wednesdays run from 8.30am-5.30pm (only rarely are there cases to SOAP on these mornings), and Tuesdays and Thursdays from 7am-6.30pm. One student will be assigned to early-call (7am) on Fridays (other students will have an 8.30am start); Friday responsibilities typically extend to 4pm, except for one late-call student.
Taught by: Dr. A. Reiter and Staff
Prerequisites: Prerequisites: Core surgery lecture courses.
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 2-4 students/rotation in VCSP 817,VCSP 877 combined. Required: SA

VCSP 870 Small Animal Soft Tissue Surgery
This is an elective clinical rotation equivalent to courses VCSP 800.
Taught by: Dr. M. Mison and Staff
Prerequisites: Core Surgery Courses
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs
VCSP 871 Small Animal Orthopedics
This is an elective rotation equivalent to SA Orthopedic Surgery VCSP 811.
Taught by: Dr. M. Mison and Staff
Prerequisite: Prerequisites: Core Surgery Courses
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSP 872 Small Animal Ophthalmology
The goals of this clinical rotation are to ensure that students achieve proficiency in performing a complete ophthalmic examination and become familiar with recognizing and treating common problems in small animal ophthalmology practice. All students are required to meet at 7:30 am the first day, and then at 8:00 am on subsequent days of the rotation. Attendance is not required on Friday of each week but the free time is expected to be dedicated to independent study in ophthalmology. An introduction to the service will be given on the first day of the rotation which will include a graded, short quiz. It is recommended that students prepare for the clinical rotation by reviewing their course notes in ophthalmology. Clinical rounds will take place several times weekly. Topic rounds and a cadaver (pig eye), surgery wet lab will be included if time permits. Outpatient service (each day of the rotation): Students are responsible for history taking, clinical examination, treatment planning, preparation of client discharge instructions and some client communication. Surgery patients (each day of the rotation): Students assigned a patient for surgery will be responsible for helping with the patient's admission (7:30am the day of surgery). In preparation for surgery, the student must have reviewed the surgical technique, performed a complete physical examination and reviewed pertinent bloodwork. SOAPs, a surgical report and client communication following the procedure are also expected. There will be an opportunity to assist with some of the surgical procedures.
Taught by: Dr. Elaine Holt and Staff
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitation: maximum 3 students per rotation; minimum two students

VCSP 873 Small Animal Emergency Service
This is an elective clinical rotation equivalent to course VCSP 813.
Taught by: Dr. K. Drobatz and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSP 874 Small Animal Radiology Service
If this rotation is a first experience in small animal radiology (8721, e.g., equine, large animal or food animal majors), it is identical to course VCSP 814 and a two-hour final examination is given. If this represents a repeat experience in the small animal radiology service, and you have satisfied the clinical competencies in your previous radiology rotation, you are exempt from these clinical competency assessments in the elective rotation.
Taught by: Dr. J. Suran and Staff
Prerequisite: Prerequisites: Core Radiology Courses
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSP 875 Small Animal Anesthesiology Service
Students are responsible for anesthetizing animals presented to the anesthesia service under the supervision of the Anesthesia staff. During the day, students will work closely with either the anesthesiologist on duty or a senior technician. Students will be scheduled with a technician for "on-call" night and weekend duty. On-call duties begin the first Tuesday (or second day) of the rotation and continue through to the last Sunday (or last day before the next rotation). The anesthesia service provides on-call services from 8 pm until 8 am during weekdays, and from Friday 8 pm until Monday 8 am over the weekend. In general, students schedule themselves for the on-call duties. Most rotations assign one student on-call per night during weekdays and split the weekend into 8 or 12-hour shifts. Anesthesia student rounds are conducted Mondays, Wednesdays, Thursdays, and Fridays. The first rounds on the first day of the rotation (usually a Monday) will occur at 9 am. Rounds on Wednesdays are at 8 am. Rounds on Thursdays and Fridays are at 7:30 am. Students are expected to attend grand rounds on Tuesdays. It is highly recommended that students prepare for their rotation by reviewing the course notes from the anesthesia core course and student surgery labs. The anesthesia handout will be given to students on the first day of the rotation.
Taught by: Dr. G. Gianotti and staff
Prerequisite: Prerequisites: Core Anesthesia Courses
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs

VCSP 876 Small Animal Behavior Clinic
This is an elective clinical rotation in small animal behavioral medicine. Clinics are Wednesday and Thursday. Appointments are also seen on Fridays, and students are invited, but not required, to join us. Out-patient behavior clinic appointments are scheduled at approximately 3-4 hour intervals. Each student is responsible for reviewing behavior notes from VMED 616 (9005), prior to his/her first scheduled clinic. Students are required to attend all case rounds (twice per day), review records before rounds, and be prepared to present all cases. Students will assist with medical and behavioral history-taking, physical examination and diagnosis, and are responsible for a selecting handouts and writing discharge letter summarizing the recommendations made. Behavioral topics and volunteer training sessions are offered, when possible, between afternoon appointments and rounds.
Taught by: Dr. C. Siracusa and Staff
Prerequisite: Prerequisites: VMED 616 Clinical Animal Behavior
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours
Notes: Limitations: Based on hospital needs. Note: Not offered every rotation

VCSP 877 Small Animal Dentistry and Oral Surgery
This is an elective clinical rotation equivalent to VCSP 817.
Taught by: Dr. A. Reiter and Staff
Prerequisite: Prerequisites: Core surgery lecture courses
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 2-3 students/rotation in VCSP 817, VCSP 877 combined
VCSP 878 Exotic Companion Animal Medicine/Surgery

The purpose of this rotation is to introduce the student to exotic companion animal medicine and surgery. Students will gain knowledge of these animals by hands-on experience and participation in rounds. The student will be expected to obtain histories, develop a rule-out list and a diagnostic plan on all appointments. Students will participate in patient management and assist with various diagnostic and treatment procedures for all scheduled appointments and exotic animal emergencies transferred from the emergency service. There will be a Monday through Sunday clinic schedule as appointments are seen 7 days a week. Additionally, students are expected to be "on-call" for night and daytime emergencies with a clinician. Students should expect the typical day to run from 8:00 AM - 7:00 PM.

Taught by: Dr. L. Latney and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours


VCSP 879 Working Dog Medicine

To gain experience with all aspects of working dog medicine: Students will handle working dogs to perform general physical examinations as well as specialized assessments including but not limited to breeding soundness exams to assess dogs value in reproduction, dental examinations, and fitness evaluations. Students will examine and handling will be incorporated into behavioral training of dogs to being handled and touched on all areas of their body. Students will participate in routine preventive care and assess and treat injuries or illnesses that occur in the WDC working dogs. Students will gain experience in behavior and sports medicine through participation in impulse control, search work, fitness and conditioning exercises. Students may incorporate other aspects of working dog medicine into their rotations depending on their interests. These areas include sports nutrition, dentistry, and various aspects of research.

Taught by: Dr. C. Otto and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours

Notes: Limitations: permission of instructor required. Note: Not offered every rotation. Location: Penn Vet Working Dog Center, 3401 Grays Ferry Ave, Philadelphia PA 19146

VCSP 880 Shelter Animal Medicine

This rotation gives a complex overview of the field of shelter medicine and community outreach by partnering via a service-learning model with open and closed admission shelters, HQHV surgical clinics, schools, and outreach organizations like Pets for Life. A typical rotation focuses on authentic hands-on learning including four surgical days, mentored primary case management of medical cases and shelter population rounds, public clinical outreach, herd health management, training and behavioral assessment, and providing veterinary CE for shelter staff. Rounds and tour topics include cruelty investigation and humane law enforcement, behavior, ethics, exotics, and risk analysis. Dentistry, necropsies, consults, special procedures, and outreach to local middle schools can also be included as part of the rotation depending on the week.

Taught by: Dr. B. Watson and Staff
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours

Notes: Limitations: 4 students

VCSP 890 Small Animal Surgery Holiday Rotation

This rotation will be similar to a regular surgery rotation with some modifications dictated by the holiday schedule. Students will assist surgery faculty and house officers in history taking, examinations, and the surgical management of small animal patients presented on an emergency basis to the Veterinary Hospital of the University of Pennsylvania. Students will be responsible for the daily care of surgical patients hospitalized at Ryan Hospital. They will also assist in surgery and perform treatments. All students will be expected to participate in night, weekend, and holiday duty on a rotating basis. Two students will be assigned to On Call duty each night and will perform treatments until midnight and assist with cases needing surgery in the night and evening hours. Assignments will be made the first day of the rotation. Rounds to acquaint students with the hospitalized patients will be held each morning and as time permits with the emergency clinician/house officer/ nursing staff on duty, but formal teaching or rounds will occur as time permits during this rotation.

Taught by: Dr. L. Aronson and Staff
Prerequisite: Prerequisite: Satisfactory completion of the Small Animal Soft Tissue or Orthopedics rotation
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours

Notes: Limitations: preferred minimum 6 students, preferred maximum 10 students / rotation. (Maximum may vary between H1 and H2)

VCSP 893 Small Animal Emergency Service Holiday Rotation

This rotation will be very similar to the Emergency Medicine clinical rotation elective course. Students will be involved in triage, patient stabilization, history and physical examination, diagnostic workup and treatment of patients seen in the emergency room. (We want students who have an interest in learning more about emergency medicine!)

Specific time will not be set aside during the rotation for student rounds; however, teaching on a case-to-case basis will be stressed. Rotation shifts will be 8 AM to 8 PM and 8 PM to 8 AM. Each student will be assigned to 5 shifts during the rotation. There will be at least two students assigned to each shift.

Taught by: Dr. Drobatz and Staff
Prerequisite: Prerequisites: Satisfactory completion of the Small Animal Emergency Medicine rotation
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours

Notes: Limitations: preferred minimum 6 students, preferred maximum 9 students / rotation. (Maximum may vary between H1 and H2)

VCSP 894 Small Animal Radiology Service

Taught by: Dr. J. Suran and Staff
Prerequisites: Prerequisite: VCSP 814,841 SA Radiology
Activity: Clinical Rotation Dental & Vet school
3 Credit Hours

Notes: Limitation: 0 - 2 students per 1 week rotation
VETERINARY INDEPENDENT STUDY & RESEARCH (VISR)

VISR 648 Computer-Aided Learning
Independent study working on computer assisted learning (CAL) projects for the summer. Students work with Linda Lewis and various faculty members depending on the projects available.CAL students must be self-motivated and self-disciplined and able stay on task with minimal supervision. Students will need their own laptop and internet access or can work on either campus. Students should be comfortable working with computers, using Microsoft office, and browsing the web. Experience editing images, videos, and websites are helpful. Students may need to travel to NBC occasionally through the summer. Students work individually and as part of a team and typically work 40 hours/week for 10 weeks.
Taught by: L. Lewis
Activity: Lecture
5 Credit Hours

VISR 699 Independent Study and Research
This course enables student to undertake a self-directed study on a topic in Veterinary Medicine, under the supervision of a faculty member. Students are required to submit an Independent Study & Research (ISR) application to the Registrar Manager in the Office for Students. Credit may vary.
Taught by: Instructors Vary
Activity: Seminar
1 Credit Hour
VETERINARY PATHOBIOLOGY (VPTH)

VPTH 550 One Health Study Design Seminar
This course number is cross-listed with VPTH 650 and therefore shares the same schedule and course description. It exists for Penn students who wish to enroll and are not Vet students. Eligible students: Penn students who have completed one year of graduate or professional school and who have an interest in addressing problems related to human, animal, and environmental health. Students from the Med, Dental, Nursing, Social Policy, MPH, MES and Wharton programs are encouraged to apply. This seminar course will introduce students to One Health approaches that address critical local, regional and global health problems. Students will work in interdisciplinary teams to review case studies and analyze past and current literature where One Health approaches have been applied. The course is specifically designed to foster the development skills that allow students to think and communicate across professional disciplines. It will also help students develop transdisciplinary connections that might serve them in their professional futures. Students will be assigned a transdisciplinary team. Grading will be based on team-led presentations and analysis of literature, participation and discussion, and a final capstone project (One Health in Practice Plan) in the form of both a paper and presentation.
Taught by: Drs. S. Rankin, S. Cole, and J. Punt
Activity: Lecture
1 Course Unit
Notes: Limitations: 15 students. Penn students who have completed one year of graduate or professional school and who have an interest in addressing problems related to human, animal, and environmental health. Students from the Med, Dental, Nursing, Social Policy, MPH, MES, and Wharton programs are encouraged to apply. Please contact the Registrar at the School of Veterinary Medicine at vetregistrar@vet.upenn.edu if you wish to enroll.

VPTH 603 Parasitology
This core course is concerned with fundamentals of the morphology and developmental cycles of helminth, arthropod and protozoan parasites of animals and those that are transmissible from animals to man. The epidemiology and control of the infections are stressed along with pathogenesis, pathology and immunology. Lectures are supplemented by demonstrations of living and fixed materials and by exercises in identification and diagnosis. Laboratory exercises are supplemented by independent work on case studies of clinical parasitisms.
Taught by: Dr. J. Farrell and Staff
Activity: Lecture
8 Credit Hours

VPTH 604 Immunology
This course aims to educate students in Veterinary Medicine on fundamental aspects of immunology, including functional anatomy of the immune system, mechanisms of innate and adaptive immunity, immunological mechanisms of disease, and principles of vaccination.
Taught by: Dr. C. Lopez and Staff
Activity: Lecture
4 Credit Hours

VPTH 605 Microbiology
This course presents the fundamentals of medical microbiology (bacteriology, mycology, virology) and the applied art of diagnostic bacteriology. Emphasis is placed on the microbial agents of veterinary disease, their biology, mode of pathogenesis, and control with some introductory material concerning treatment and recognition. This course is presented as prerequisite to a later study of infectious disease.
Taught by: Dr. R. Harty and Staff
Activity: Lecture
7 Credit Hours

VPTH 606 Clinical Pathology
Appropriate test selection and interpretation are essential to diagnostic evaluation. This course is an introduction to Clinical Pathology presented via case-based learning. Topics include hematology, serum chemistries, urinalysis, cytopathology, clinical endocrinology and blood banking. Within each topic, discussion will cover indications, limitations and interpretation of specific tests, but the emphasis will focus on integrating this information in the context of laboratory panels. Laboratory exercises provide the opportunity to perform and demonstrate basic competency in urinalysis, blood smear preparation and evaluation, and blood banking, as well as to evaluate clinical cases individually and in groups. A microscope is needed for the laboratories.
Taught by: Dr. N. Weinstein and Staff
Activity: Lecture
6 Credit Hours

VPTH 615 Introduction to Comparative Medical Research
This course will review the broad scope of animal involvement in contemporary biomedical and veterinary research, with specific discussions of unique species (rodents, nonhuman primates) and laboratory animal medicine and science. Goals for the course are to gain a strong appreciation for the role of research in furthering the practice of veterinary and human medicine, as well as for importance of the humane care, welfare and responsible use of laboratory animals.
Completion of this course will permit students to readily participate in biomedical research opportunities available at the University. Grades will be determined by attendance, completion of compliance training, an out-of-class writing exercise and a final exam.
Taught by: Dr. J. Marx and Staff
Activity: Lecture
2 Credit Hours
VPTH 633 Ecotoxicology for Veterinarians
The major goal of this course is to provide an introduction to ecotoxicology, the science of assessing the effects of toxic substances on ecosystems with the goal of protecting entire ecosystems. The course will present lectures about various research and career opportunities involving ecotoxicology, such as measuring the effects of pollutants on ecosystems, wildlife serving as monitors of environmental quality, important environmental pollutants such as insecticides, petroleum hydrocarbons and metals, and approaches to rehabilitating damaged ecosystems. Students will research, plan, and present a PowerPoint presentation on a topic relevant to ecotoxicology. The course grade will be based on attendance, the group presentation, and student participation in class discussions.
Taught by: Dr. L. Murphy and Staff
Activity: Lecture
2 Credit Hours

VPTH 634 Microbial Pathogenesis
The goal of this course is to provide the student with a conceptual framework regarding the mechanisms of microbial pathogenesis. A range of host-microbe interactions will be studied to illustrate how different microbes breach host lines of defense and lead to infections. Transmission, etiological diagnosis, as well as prophylactic and therapeutic approaches against infectious agents will be discussed with examples related to viral and bacterial pathogens, including zoonotic and Category A select agents.
Taught by: Dr. D. Schifferli and Staff
Prerequisites: Prerequisites: VPTH 604 Immunology and VPTH 605 Microbiology
Activity: Lecture
2 Credit Hours
Notes: Limitations: Maximum of 20 students

VPTH 635 Introduction to Fish Diseases
This course is intended to introduce veterinary students to the biology and medicine of teleost fish. The first few lectures will provide a foundation in the classification, gross anatomy and immunology of fish, including practical laboratory classes. The remainder of the course will be more clinically oriented, and will present the most prevalent diseases of fish, emphasizing both the pathology and etiology of the diseases. In addition, the course will also focus on health maintenance through the control of water quality and treatment of diseases in fish. This part of the course will include some practical laboratory demonstrations. Grades will be determined on the basis of class participation and a 5-6 page research paper on a topic of the students choice.
Taught by: Dr. O. Sunyer and Staff
Prerequisites: Prerequisites: 1st and 2nd Year Core Courses
Activity: Lecture
2 Credit Hours

VPTH 636 Large Animal Pathology & Toxicology
The first goal of this course is to introduce large animal autopsy techniques for the purposes of identification of common postmortem lesions and review of clinical-oriented anatomy. The second goal is to provide a systems-based approach to domestic and global diseases commonly encountered large animal species, including horses, cattle and small ruminants, swine, camelids and cervids. The course requires students to recognize pertinent gross and microscopic lesions correlated with clinical history in order to formulate appropriate differential diagnoses and promote in-depth knowledge of non-infectious and infectious etiopathogeneses, including zoonoses and domestic and foreign reportable diseases. Components of this course include lecture, gross autopsy demonstration and laboratories that involve inspection of fresh gross specimens, and interactive small group seminars pertaining to toxicology and species-specific lesions. Grades will be determined by two homework assignments, one final exam, and attendance to laboratories and small group seminars.
Taught by: Dr. J. Engiles and Staff
Prerequisites: Prerequisites: VPTH 602 General and Systemic Pathology
Activity: Lecture
3 Credit Hours
Notes: Limitations: Maximum of 75 students

VPTH 640 One Health Study Design Seminar
This seminar course will introduce students to One Health approaches that address critical local, regional and global health problems. Students will work in interdisciplinary teams to review case studies and analyze past and current literature where One Health approaches have been applied. The course is specifically designed to foster the development of skills that allow students to think and communicate across professional disciplines. It will also help students develop transdisciplinary connections that might serve them in their professional futures. Students will be assigned a transdisciplinary team. Grading will be based on team-led presentations and analysis of literature, participation in discussion, and a final capstone project (One Health in Practice Plan) in the form of both a paper and presentation.
Taught by: Drs. S. Rankin, S. Cole, and J. Punt
Activity: Lecture
6 Credit Hours
Notes: Limitations: 10 students
VPTH 710 Small Animal Diagnostic Services
The course in the Small Animal Section consists of exposure to the Diagnostic Services of MJR-VHUP, namely clinical pathology, anatomic pathology (necropsy service), parasitology and microbiology. The course is focused on development of clinical pathology and necropsy skills and will include a practicum of necropsy technique. A portion of the rotation is also focused on biopsy, parasitology and microbiology. Furthermore, students will be exposed large animal necropsy by spending time at PADLS at New Bolton Center. The bioanalytical pathology portion, which comprises clinical pathology, parasitology and microbiology, will be divided into microscopy, discussion, and online interactive lesson sections. During the microscopy section, students will work with the supervising clinical pathologist or resident in the evaluation, interpretation, and reporting of cytologic specimens and blood film reviews. Discussions involving parasitology and microbiology will also include treatment options and best practices. Online content includes work in parasitology, clinical pathology and microbiology. Students are also required to perform necropsies, write necropsy reports and to familiarize themselves with the pathophysiology, histopathology and the clinical manifestations of various disorders encountered. Participation of students in presentation and discussion of cases is required. Students will be evaluated based upon enthusiasm, effort, ambition, and advancement in pathology knowledge as evaluated through the directed group discussions, necropsies, microscopy sessions and clinical competency outcomes assessments. A short paper is required. Taught by: Dr. C. Bradley and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 4 students/rotation - Required: SA - Satisfies pathology requirement: SALA

VPTH 711 Farm Animal Pathology-NBC
The course will provide students with experience in farm animal and companion animal autopsies and biopsies including interpretation of gross and microscopic lesions in the context of clinical history, and proper collection of samples for histology and ancillary diagnostics (e.g. microbiology, parasitology, cytology and toxicology). Students will participate in the diagnostic services provided by the Pennsylvania Animal Diagnostic Laboratory System (PADLS) at New Bolton Center. Multiple species commonly encountered at our diagnostic laboratory (horses, cattle and small ruminants, swine, camelids and cervids, small animals and exotics) will be utilized to illustrate the pathogenesis of infectious and non-infectious disease, and the principles of gross and microscopic description with formulation of morphologic diagnoses. Students will be evaluated based upon enthusiasm, effort, ambition, and advancement in pathology knowledge as evaluated through diagnostic autopsy technique, directed group discussions, microscopy sessions and clinical competency outcomes assessments. A short paper providing a succinct scientific review of a select topic pertaining to large animal pathology is required. Although gross pathology will be emphasized, exposure to histopathology and occasionally cytology will be included. Although there is no lecture component to this course, there is a web-based introduction to VPTH 711 Diagnostic Services and VPTH 770 Small Animal Diagnostic Services Elective, which students must review prior to the start of their rotation. Students may find this introduction by logging in to https://learn.vet.upenn.edu with their Penn Key and Vet Domain password. Please note that it will take approximately 2 to 3 hours to review the video and written materials on the website. Taught by: Dr. C. Bradley and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: 4 students/rotation - This is an elective rotation equivalent to VPTH 710

VPTH 718 Diagnostic Services Elective
This course is designed to provide students with a working knowledge of the management and production of poultry from hatchery to processing. The course will involve multiple field trips to a hatchery, grow out pullet house, layer house, breeder house, processing plant and a feed mill. There will also conduct necropsies on cases submitted to the diagnostic laboratory and learn the diagnostic procedures such as serology, virology and PCR testing. Taught by: Drs. S. Davison and Staff
Prerequisites: Prerequisites: VMED 608 Introduction to Poultry, Swine, and Dairy Medicine
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 1 student/rotation - This is an elective rotation equivalent to VPTH 710

VPTH 770 Small Animal Diagnostic Services
There is a web-based introduction to VPTH 710 SA Diagnostic Services and VPTH770 Small Animal Diagnostic Services Elective, which students must review prior to the start of their rotation. Students may find this introduction by logging in to https://learn.vet.upenn.edu with their Penn Key and Vet Domain password. Please note that it will take approximately 2 to 3 hours to review the video and written materials on the website. Taught by: Drs. S. Davison and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: This is an elective rotation equivalent to VPTH 711

VPTH 771 Farm Animal Pathology-NBC
There is a web-based introduction to VPTH711 Diagnostic Services and VPTH 770 Diagnostic Services Elective, which students must review prior to the start of their rotation. Students may find this introduction by logging in to https://learn.vet.upenn.edu with their Penn Key and Vet Domain password. Taught by: Dr. J. Engiles and Staff
Activity: Clinical Rotation Dental & Vet school
6 Credit Hours
Notes: Limitations: Based on Hospital Needs - This is an elective rotation equivalent to VPTH 711

VPTH 780 Poultry Production Medicine-NBC
Taught by: Drs. S. Davison and Staff
Prerequisites: Prerequisites: VMED 608 Introduction to Poultry, Swine, and Dairy Medicine
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 1 student/rotation - This is an elective rotation equivalent to VPTH 718

VPTH 781 Poultry Production Medicine-NBC
This course is designed to provide students with a working knowledge of the management and production of poultry from hatchery to processing. The course will involve multiple field trips to a hatchery, grow out pullet house, layer house, breeder house, processing plant and a feed mill. There will also conduct necropsies on cases submitted to the diagnostic laboratory and learn the diagnostic procedures such as serology, virology and PCR testing. Taught by: Drs. S. Davison and Staff
Prerequisites: Prerequisites: VMED 608 Introduction to Poultry, Swine, and Dairy Medicine
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: 1 student/rotation - This is an elective rotation equivalent to VPTH 718
VPTH 789 ULAR-Laboratory Animal Medicine
This rotation will provide an opportunity to work with the wide variety of animal species used in biomedical research at the University of Pennsylvania, including nonhuman primates, small rodents, guinea pigs, rabbits, dogs, cats, pigs, and sheep. The students will participate in all aspects of the care and treatment of these animals across the facilities at the University of Pennsylvania. Participation may include handling, husbandry, diagnosis, treatment, anesthesia, and assistance with surgery. Students will perform daily rounds with the clinical veterinarians and other staff members. The student may have the opportunity to observe on-going interdisciplinary research programs including cardiopulmonary bypass, organ transplantation, gene therapy, device implantations, and metabolic disease progression. Students will participate in clinical rounds, didactic training classes, and related seminars and journal clubs as scheduled. Participation in necropsies of clinical cases, sentinel animals, and study animals is expected. A brief assignment on aspects of lab animal medicine will be required prior to completion of the rotation. Depending upon scheduling, the students will have an opportunity to attend a meeting of the Institutional Animal Care and Use Committee. A recent (within 6 months) negative skin test against tuberculosis is required by the first day of the rotation.
Taught by: Dr. J. Marx and Staff
Prerequisite: Prerequisites: Successful completion of VPTH 641
Laboratory Animal Medicine is encouraged but not required
Activity: Clinical Rotation Dental & Vet school
5 Credit Hours
Notes: Limitations: Maximum 2 students/rotation - Notes: The focus of this rotation is the humane care and use of animals in biomedical research. Students should have interest in the specialty of Laboratory Animal Medicine

VPTH 790 Small Animal Pathology Holiday Rotation
This is an elective rotation similar to the necropsy component of the Diagnostic Services Rotation, VPTH 710,770. The rotation consists of practicum spent in performing necropsies and interpreting findings. Students are required to perform necropsies, write necropsy reports and to familiarize themselves with the pathophysiology, histopathology and the clinical manifestations of various disorders encountered. There will be two one-week rotations over the Holiday period, each for 2 credits. Each rotation will consist of half of the Holiday period and will not meet on either Christmas Day (week one) or New Years Day (week two). There is no clinical pathology, parasitology or microbiology component to this rotation. No paper is required for this rotation.
Activity: Clinical Rotation Dental & Vet school
2 Credit Hours
Notes: Limitations: 2 students/rotation
VIPER (VIPR)

VIPR 120 Vagelos Integrated Program in Energy Research (VIPER)
Seminar, Part I
This is the first part of the two-semester seminar designed to introduce students to the VIPER program and help them prepare for energy-related research. Research articles on various energy-related topics will be discussed, and students will be guided toward their research topic selection. Library research, presentation of data, basic research methods, research ethics, data analysis, advisor identification, and funding options will also be discussed. Sample energy topics discussed will include: Applications of nanostructured materials in solar cells; Solid oxide fuel cells; Global climate modeling: radiant heat transfer; Nanocrystal-based technologies for energy storage; Photo-bioreactor systems for mass production of micro-algae; Advanced rare earths separations chemistry; Modeling of oxides for solar energy applications; and Electronic transport in carbon nanomaterials.
Taught by: John M. Vohs, Andrew M. Rappe and Kristen L. Hughes
Course usually offered in spring term
Prerequisites: Admission to VIPER program.
Activity: Seminar
0.5 Course Units

VIPR 121 Vagelos Integrated Program in Energy Research (VIPER)
Seminar, Part II
This is the second part of the two-semester seminar designed to introduce students to the VIPER program and help them prepare for energy-related research. In this semester we will continue to discuss research articles on various energy-related topics, best practices for library research, presentation of data, basic research methods, research ethics, data analysis, and funding options. A large focus of the course will also be on presenting (in both written and oral form) the work from the students’ summer research internships.
Taught by: Andrew M. Rappe, John M. Vohs, and Kristen L. Hughes
Course usually offered in fall term
Prerequisite: VIPR 120
Activity: Seminar
0.5 Course Units
VISUAL STUDIES (VLST)

VLST 101 Eye, Mind, and Image
Visual Studies 101 provides an introduction to the collaboration of eye, mind, and image that produces our experience of a visual world. How and what do we see? How do we perceive color, space, and motion? What is an image? Does seeing vary across cultures and time? What can art tell us about vision? Is there a 21st-century form of seeing? This course combines different approaches to the study of vision, drawing from psychology, cognitive science, philosophy, history of art, and fine art. Professors representing two or three disciplines present lectures that demonstrate the methods of their disciplines and draw connections across fields. This course combines different approaches to the study of vision, drawing from psychology, cognitive science, philosophy, history of art, and fine art. Professors representing two or three disciplines present lectures that demonstrate the methods of their disciplines and draw connections across fields.

For BA Students: Hum/Soc Sci or Nat Sci/Math Sector
Taught by: Hatfield/Leja
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Fulfills General Education in Sectors IV (Humanities and Social Sciences) and VII (Natural Science and Mathematics). This course is required of all Visual Studies Majors (stage 1).

VLST 102 Form and Meaning
This course will introduce students to the theory and practice of image making, focusing on the development of observational skills and analytical thinking. We will look at conventions of artistic representation across time and cultures; discuss types of visual information and modes of formal language; explore visual narrative techniques; and seek to expand our understanding of the role images play in our culture. We will look at conventions of pictorial representation across time and cultures; discuss types of visual information and modes of formal language; explore visual narrative techniques; and seek to expand our understanding of the roll images play in our culture.

Taught by: Bendtsen/Hyland
One-term course offered either term
Activity: Studio
1 Course Unit
Notes: This course is required of all Visual Studies Majors (stage 1 or 2).

VLST 211 Perception
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: Topics for this course vary each semester. Dept permission required. This course can count toward Sector A, (Stage 2 or 3) of the Visual Studies Major.

VLST 212 Research Experience in Perception
In this research course, students will begin by first replicating earlier experiments to measure human visual memory capacity. After several class discussions to discuss ideas, each student will design and conduct their own experiment to further investigate visual and/or familiarity memory.

Taught by: Rust
One-term course offered either term
Prerequisites: One semester of statistics, and one of the following: PSYC 111, 149, 151, 217, or permission of instructor.
Activity: Seminar
1 Course Unit
Notes: Dept permission required. Undergraduates only. This course can count toward Sector A, (Stage 2 or 3) of the Visual Studies Major.

VLST 217 Visual Neuroscience
An introduction to the scientific study of vision, with an emphasis on the biological substrate and its relation to behavior. Topics will typically include physiological optics, transduction of light, visual thresholds, color vision, anatomy and physiology of the visual pathways, and the cognitive neuroscience of vision.

Taught by: Stocker
Course usually offered in spring term
Prerequisites: PSYC 001, COGS 001, or VLST 101
Activity: Lecture
1 Course Unit
Notes: This course can count toward Sector A, (Stage 2 or 3) of the Visual Studies Major.
VLST 221 Introduction to Philosophy of Mind
In this course, we will explore philosophical questions concerning the nature of minds. In seeking to understand the nature of minds, philosophers and psychologists have often used metaphors drawn from the forms of technology available to them. Leibniz once described the mind as a mill, while Freud compared the mind to a hydrolytic and electromagnetic system. In our own time, many have followed Alan Turing’s proposal and have viewed the mind as a special kind of computer; indeed, this "Computational Theory of Mind" forms the foundation for much work in contemporary cognitive science. In this class, we will explore the extent to which the computational theory of mind can adequately characterize the distinctive capacities involved in representing an external environment and having conscious experiences that is displayed by minds in general and human minds in particular. Although an introductory class in philosophy or logic will aid students’ understanding, no prior familiarity with the philosophy of mind or cognitive science will be presumed.

Taught by: Domotor, Miracchi
Also Offered As: PPE 244
Activity: Seminar
1 Course Unit
Notes: This course can count toward Sector A, (Stage 2 or 3) of the Visual Studies Major.

VLST 222 Philosophy of Perception
Taking our perceptual experience as a given, what causes it? In a realistic mood, we accept that objects in the environment, or in the "external world," cause us to have the perceptual experiences that we do (as of a table with food, or as of a garden with flowers in it). Yet on this realistic view, our perception is the result of a causal chain that leads from object to eye to brain to experiences, and we are only given the last element: the experience. So how do we really know how our experiences are caused, and where do we get the idea that they are caused by an external world of physical objects? The seminar will focus on the problem of the external world as examined by David Hume, Thomas Reid, G. E. Moore, and Bertrand Russell, along with recent authors.

Taught by: Hatfield
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: Department Majors Only. This course can count toward Sector A, (Stage 2 or 3) of the Visual Studies Major.

VLST 223 Philosophy and Visual Perception
Central issues in the philosophy of perception from the modern period, including: what we perceive, the meaning of content of perception, and its relation to a mind-independent external world. Additional topics may include: (1) color perception and color metaphysics; (2) object perception in its interplay between Gestalt organizational factors and background knowledge; (3) the role of ecological regularities in the formation of our visual system and in the ongoing tuning of the system to the environment; (4) the geometry of visual space and the phenomenology of visual appearances of size and shape; (5) the problem of how visual scenes are experienced by means of images. Readings from authors such as Bertrand Russell, R. W. Sellars, Tim Crane, Evan Thompson, Robert Swartz, Wolfgang Metzger, Nelson Goodman, Richard Wollheim, and William Hopp, among others.

Taught by: Hatfield, Connolly
One-term course offered either term
Activity: Seminar
1 Course Unit
Notes: This course can count toward Sector A, (Stage 2 or 3) of the Visual Studies Major.

VLST 224 Renaissance to Contemporary: Introduction to Western Art, 1400 to the Present
This course is an introduction to the visual arts including painting, sculpture, print culture, and new media such as photography, film, performance and installation art-in Europe and the United States from 1400 to the present. It offers a broad historical overview of the key movements and the artists of the period, as well as an investigation into the crucial themes and contexts that mark visual art production after the middle ages. Such themes include the secularization of art; the (gendered) role of the artist in society; the sites of art production and consumption such as the artist’s studio, the royal courts and the art exhibition; the materials of art, the import of technology and science to art’s making, content and distribution; the rise of art criticism; and the socio-political contexts of patronage and audience; among others.

For BA Students: Arts and Letters Sector
Taught by: Dombrowski, Kim, Shaw
Course usually offered in spring term
Activity: Lecture
1 Course Unit
Notes: This course can count toward Sector B, (Stage 2 or 3) of the Visual Studies Major.

VLST 230 Art and Civilization in East Asia
Introduction to major artistic traditions of China and Japan and to the methodological practices of art history. Attention given to key cultural concepts and ways of looking, in such topics as: concepts of the afterlife and its representation; Buddhist arts and iconography; painting styles and subjects; and more broadly at the transmission of styles and cultural practices across East Asia. Serves as an introduction to upper level lecture courses in East Asian art history cultures. If size of class permits, certain sessions will be held in the University Museum or the Philadelphia Museum of Art.

For BA Students: Arts and Letters Sector
Taught by: Davis/Steinhardt
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This course can count toward Sector B, (Stage 2 or 3) of the Visual Studies Major.

VLST 231 Introduction to Art in South Asia
This course is a survey of sculpture, painting and architecture in the Indian sub-continent from 2300 B.C., touching on the present. It attempts to explore the role of tradition in the broader history of art in India, but not to see India as 'traditional' or unchanging. The Indian sub-continent is the source for multi-cultural civilizations that have lasted and evolved for several thousand years. Its art is as rich and complex as that of Europe and diverse. This course introduces the full range of artistic production in India in relation to the multiple strands that have made the cultural fabric of the sub-continent so rich and long lasting.

For BA Students: Arts and Letters Sector
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: This course can count toward Sector B, (Stage 2 or 3) of the Visual Studies Major.
VLST 235 Introduction to Visual Culture of the Islamic World
A one-semester survey of Islamic art and architecture which examines visual culture as it functions within the larger sphere of Islamic culture in general. Particular attention will be given to relationships between visual culture and literature, using specific case studies, sites or objects which may be related to various branches of Islamic literature, including historical, didactic, philosophical writings, poetry and religious texts. All primary sources are available in English translation.
For BA Students: Humanities and Social Science S
Taught by: Holod
One-term course offered either term
Activity: Lecture
1 Course Unit
Notes: This course can count toward Sector B, (Stage 2 or 3) of the Visual Studies Major.

VLST 236 Art Now
One of the most striking features of today’s art world is the conspicuous place occupied in it by the photographic image. Large-scale color photographs and time-based installations in projections are everywhere. Looking back, we can see that much of the art making of the past 60 years has also been defined by this medium, regardless of the form it takes. Photographic images have inspired countless paintings, appeared in combines and installations, morphed into sculptures, drawings and performances, and served both as the object and the vehicle of institutional critique. They are also an increasingly important exhibition site: where most of us go to see earthworks, happenings and body-art. This course is a three-part exploration of our photographic present.
Taught by: Silverman
Course not offered every year
Activity: Lecture
1 Course Unit
Notes: This course can count toward Sector B, (Stage 2 or 3) of the Visual Studies Major.

VLST 250 Introduction to Printmaking
The course offers an introduction to several forms of printmaking including: intaglio, screen printing, relief, and monoprinting. Through in-class demonstrations students are introduced to various approaches to making and printing in each medium. The course enhances a student’s capacity for developing images through two-dimensional design and conceptual processes. Technical and conceptual skills are developed through discussions and critiques.
Course usually offered in spring term
Activity: Studio
1 Course Unit

VLST 251 Introduction to Photography
This course is an introduction to the basic processes and techniques of black & white photography. Students will learn how to expose and process 35mm film, SLR camera operation, darkroom procedures & printing, basic lighting and controlled applications. It begins with an emphasis on understanding and mastering technical procedures and evolves into an investigation of the creative and expressive possibilities of making images. This is a project-based course, where students will begin to develop their personal vision, their understanding of aesthetic issues and photographic history. Assignments, ideas and important examples of contemporary art will be presented via a series of slide lectures, critiques and discussion. No previous experience necessary.
35mm SLR cameras will be available throughout the semester for reservation and checkout from the photography equipment room.
One-term course offered either term
Activity: Studio
1 Course Unit
VLST 260 Photography Practices
This course is an introduction to the basic principles, strategies and processes of photographic practice. It is designed to broaden the student’s aesthetic explorations and to help the student develop a visual language based on cross-disciplinary artistic practice. Through a series of projects and exercises students will be exposed to a range of camera formats, techniques and encouraged to experiment with the multiple modes and roles of photography - both analogue and digital. Attention will also be given to developing an understanding of critical aesthetic and historical issues in photography. Students will examine a range of historical and contemporary photowork as an essential part of understanding the possibilities of image making.
1 Course Unit
Activity: Studio
VLST 261 Video I
This course provides students with the introductory skills and concepts related to producing short works that explore the language of the moving image. Students will learn the basics of cinematography and editing through a series of assignments designed to facilitate the use of the medium for artistic inquiry, cultural expression and narrative storytelling, through both individual and group projects.
For BA Students: Humanities and Social Science S
1 Course Unit
Activity: Seminar
VLST 264 Art, Design and Digital Culture
This course is an introduction to the fundamental perception, representation, aesthetics, and design that shape today’s visual culture. It addresses the way artists and designers create images; design with analog and digital tools; communicate, exchange, and express meaning over broad range of media; and find their voices within the fabric of contemporary art, design, and visual culture. Emphasis is placed on building an extended form of visual literacy by studying and making images using a variety of representation techniques; learning to organize and structure two-dimensional and three-dimensional space, and designing with time-based and procedural media. Students learn to develop an individual style of idea-generation, experimentation, iteration, and critique as part of their creative and critical responses to visual culture
For BA Students: Humanities and Social Science S
1 Course Unit
Activity: Studio
VLST 265 Digital Photography
This class offers an in-depth technical and conceptual foundation in digital imagery and the opportunity to explore the creative, expressive possibilities of photography. Students will become proficient with the basic use of the camera, techniques of digital capture, color management and color correction. They will also develop competency in scanning, retouching, printing and a variety of manipulation techniques in Photoshop. Through weekly lectures and critiques, students will become familiar with some of the most critical issues of representation, consider examples from photo history, analyze the impact of new technologies and social media. With an emphasis on structured shooting assignments, students are encouraged to experiment, expand their visual vocabulary while refining their technical skills. No previous experience is necessary. Although it is beneficial for students to have their own Digital SLR camera, registered students may reserve and checkout Digital SLR cameras and other high-end equipment from the department.
1 Course Unit
Activity: Studio
VLST 301 What is Visual Studies?
Visual Studies 301 is a seminar-format course that challenges students to develop independent ideas about how the eye, the mind and the image that is created therein, all work together to inform our conception of the world at large. Rather than present a unified viewpoint, the course asks the question, “What is visual studies?” by examining parallel and sometimes antagonistic approaches to the ways that human beings understand sight and the concept of visuality. Over the course of the semester, students will discuss and write about various approaches to vision, examining this contested field through the lenses of several disciplines -- including psychology, philosophy, and art history. By parsing and assimilating diverse ideas, students will decide for themselves what are the most pertinent and relevant approaches to the various avenues of research that present themselves in the emerging interdisciplinary field of Visual Studies.
1 Course Unit
Activity: Seminar
Prerequisite: VLST 101 or Instructor Permission
Notes: This course is required of all Visual Studies Majors (Stage 2).
VLST 303 The Rise of Image Culture: History and Theories
Images are ubiquitous in the cultural life of the 21st century, yet only two centuries ago they were rare. When and how did pictures come to permeate daily life? How has ordinary experience—psychological, social, cultural, intellectual—changed as a result? This seminar addresses these questions through close reading of influential historical and theoretical writings about the rise of image culture and its effects, including Benjamin, Debord, McLuhan, Mitchell.
Taught by: Leja
Activity: Seminar
1 Course Unit
Notes: This course can count toward Sector B, (Stage 2 or 3) of the Visual Studies Major.
VLST 305 What is an Image?
The course explores various concepts of images. It considers natural images (as in optics), images as artifacts, virtual images, images as representations, and works of art as images. Themes to include: the image controversy in cognitive science, which asks whether some cognitive representations are irreducibly imagistic; the question of whether some images resemble what they represent; the development of the concept of the virtual image and of three-dimensional images; the notions of pictorial representation and non-representational images in art. Readings from C. S. Peirce, Nelson Goodman, Robert Hopkins, Dominic Lopes, W. J. T. Mitchell, John Kulvicki, and Mark Rollins, among others.

Taught by: Verstegen
Activity: Seminar
1 Course Unit
Notes: This course can count toward Sector A, (Stage 2 or 3) of the Visual Studies Major.

VLST 395 Senior Project
Permission of Instructor Required.
Two terms. Student must enter first term.
Activity: Seminar
0.5 Course Units
Notes: This course is required of all Visual Studies Majors. (Stage 4) Seniors only.

VLST 399 Independent Study
Activity: Independent Study
1 Course Unit
Notes: See department for appropriate section numbers
WHARTON UNDERGRADUATE (WH)

WH 101 Business and You
WH 101 is the first step of the Leadership Journey at Wharton. The course is designed to fuel students’ unique interests in academic, research, and professional pursuits; to raise awareness of the complexity of business; and to increase understanding of the interrelatedness of business disciplines. Students will also acquire greater awareness of their strengths and leadership potential as members of the Wharton community and as future professionals. Students will come to appreciate that leadership is an act and best developed through study, feedback from trusted colleagues and peers, and stretch experiences that stimulate growth and development. Students will also begin to hone skills essential to the pursuit of personal, academic, and professional goals: thinking creatively, analyzing problems, applying what you have learned, and reflecting on learnings. A case-analysis project will engage students with the community through helping local agencies examine business challenges that they face.
Taught by: Rosenkopf; Greenhalgh; Romeika
Course usually offered in fall term
Activity: Recitation
0.5 Course Units

WH 150 Evaluating Evidence
WH 150 provides an introduction to all stages of the research process for business topics. In the first third of the course, we discuss theory building, hypothesis development, and research design choices particularly in casual research. In the second third, we discuss data collection methods (e.g., surveys, experiments, case studies and fieldwork) and the use of archival databases. This part of the course emphasizes the interplay between research design and sampling/data collection methods. In the final third of the course, we introduce data analysis and interpretation, including methods for converting raw data into measurable constructs suited to statistical analysis.
One-term course offered either term
Activity: Seminar
1 Course Unit

WH 201 Management Communication: Persuasive Speaking and Writing for Business
WH 201 is the second step of the Leadership Journey at Wharton. The objective of the course is to ensure that students become more confident and effective speakers and writers. Students will learn the fundamentals of persuasion and apply those concepts to increasingly challenging business contexts. Students will present in-class speeches and submit writing assignments that are evaluated by instructors. The speaking component of the course will begin with the fundamentals of public speaking and persuasion, and then move to settings in which managers face higher stakes with less time to respond. For the writing component, students will write on various topics for the first few weeks of the course.
For the last half of the course, speaking and writing assignments will be integrated, allowing students to offer in-depth analysis through their written recommendations. All assignments will reinforce the overarching theme of clear, concise, persuasive communications.
One-term course offered either term
Activity: Lecture
0.5 Course Units

WH 298 Wharton International Program
This short-term international business course gives undergraduate students an amazing global opportunity featuring business-site visits, lectures at partner schools, cultural excursions, and networking opportunities with undergraduate students and business contacts from the destination countries. In addition to learning about another country’s business environment and culture, students earn 0.5 course units that can be used towards business-breadth or elective credits.
Activity: Seminar
0.5 Course Units

WH 299 Honors Thesis
This seminar takes place over two semesters and provides students with the skills to perform their own research under the guidance of a Wharton faculty member. At the conclusion of the fall semester, students will produce a thesis proposal including literature review, significance of the research, methodology, and exploratory data if relevant. Throughout the fall semester faculty guests from a range of disciplines will present on their research in class, highlighting aspects that are relevant to the work students are engaging in at that point. During the second semester, students will collect and analyze data and write up the results in close collaboration with their faculty mentor. At the end of the spring semester, each student will present their research in a video presentation. Throughout the course, students will work individually, in small groups, and under the mentorship of a Wharton faculty member. The goal is to become capable independent researchers who incorporate feedback and critical (self-) analysis to take their research to the next level.
Two terms. student must enter first term.
Also Offered As: WH 399
Activity: Seminar
0.5 Course Units

WH 301 Teamwork and Interpersonal Influence
This course develops students abilities to work productively in diverse teams and includes discussion and application of research-based best practices for maximizing team performance.
One-term course offered either term
Activity: Lecture
0.5 Course Units

WH 398 Senior Capstone
Wharton 398 is a for-credit, interactive business simulation that provides Wharton seniors with the opportunity to draw on their business knowledge - finance, management, marketing, leadership, and social responsibility - while formulating and executing business strategy in a competitive, team-based environment. Utilizing real-time problem solving within a dynamic simulation environment, teams design and implement strategic plans, integrate feedback from the consequences of those decisions, and interact with other teams to create shareholder and social value. Students must apply to participate in this course.
Activity: Seminar
0.5 Course Units
WH 399 Honors Thesis
This seminar takes place over two semesters and provides students with the skills to perform their own research under the guidance of a Wharton faculty member. At the conclusion of the fall semester, students will produce a thesis proposal including literature review, significance of the research, methodology, and exploratory data if relevant. Throughout the fall semester faculty guests from a range of disciplines will present on their research in class, highlighting aspects that are relevant to the work students are engaging in at that point. During the second semester, students will collect and analyze data and write up the results in close collaboration with their faculty mentor. At the end of the spring semester, each student will present their research in a video presentation. Throughout the course, students will work individually, in small groups, and under the mentorship of a Wharton faculty member. The goal is to become capable independent researchers who incorporate feedback and critical (self-) analysis to take their research to the next level.
Two terms. student must enter first term.
Also Offered As: WH 299
Activity: Seminar
0.5 Course Units
YIDDISH (YDSH)

YDSH 101 Beginning Yiddish I
The goal of this course is to help beginning students develop skills in Yiddish conversation, reading and writing. Yiddish is the medium of a millennium of Jewish life. We will frequently have reason to refer to the history and culture of Ashkenazie Jewry in studying the language.
For BA Students: Language Course
Course usually offered in fall term
Activity: Lecture
1 Course Unit

YDSH 102 Beginning Yiddish II
In this course, you can continue to develop basic reading, writing and speaking skills. Discover treasures of Yiddish culture: songs, literature, folklore, and films.
For BA Students: Language Course
Course usually offered in spring term
Prerequisite: YDSH 101 or permission of the instructor
Activity: Lecture
1 Course Unit

YDSH 103 Intermediate Yiddish I
The course will continue the first year’s survey of Yiddish grammar with an additional emphasis on reading Yiddish texts. The course will also develop conversational skills in Yiddish.
For BA Students: Language Course
Course not offered every year
Prerequisite: YDSH 102 or permission of the instructor
Activity: Lecture
1 Course Unit

YDSH 104 Intermediate Yiddish II
Continuation of YDSH 103. Emphasis on reading texts and conversation.
For BA Students: Last Language Course
Course not offered every year
Prerequisite: YDSH 103 or permission of the instructor
Activity: Lecture
1 Course Unit

YDSH 108 Readings in Modern Yiddish Literature
This course will survey modern Yiddish literature through readings of Yiddish prose and poetry from the end of the 19th century through the late 20th century. The class will be conducted in both Yiddish and English. Reading knowledge of Yiddish is required, although some texts will be available in English translation. Authors include I.L. Peretz, Isaac Bashevis Singer, Moyshe-Leyb Halpern, and Kadya Molodowsky.
Taught by: Hellerstein
Course not offered every year
Prerequisite: Reading knowledge of Yiddish
Activity: Lecture
1 Course Unit

YDSH 502 Beginning Yiddish II
For BA Students: Language Course
Course usually offered in spring term
Prerequisite: YDSH 101 or permission of the instructor
Activity: Lecture
1 Course Unit

YDSH 503 Intermediate Yiddish I
The course will continue the first year’s survey of Yiddish grammar with an additional emphasis on reading Yiddish texts. The course will also develop conversational skills in Yiddish.
For BA Students: Language Course
Course not offered every year
Prerequisite: YDSH 503 or permission of the instructor
Activity: Lecture
1 Course Unit

YDSH 504 Intermediate Yiddish II
Continuation of YDSH 503. Emphasis on reading texts and conversation.
For BA Students: Last Language Course
Course not offered every year
Prerequisite: YDSH 503 or permission of the instructor
Activity: Lecture
1 Course Unit

YDSH 508 Readings in Modern Yiddish Literature
This course will survey modern Yiddish literature through readings of Yiddish prose and poetry from the end of the 19th century through the late 20th century. The class will be conducted in both Yiddish and English. Reading knowledge of Yiddish is required, although some texts will be available in English translation. Authors include I.L. Peretz, Isaac Bashevis Singer, Moyshe-Leyb Halpern, and Kadya Molodowsky.
Taught by: Hellerstein
Course not offered every year
Prerequisite: Reading knowledge of Yiddish
Activity: Lecture
1 Course Unit
YDSH 509 Topics in Yiddish Literature.

One version of this seminar considers works by Jewish women who wrote in Yiddish, Hebrew, English, and other languages in the late 19th through the 20th century. The texts, poetry and prose, will include both belles lettres and popular writings, such as journalism, as well as private works (letters and diaries) and devotional works. The course will attempt to define “Jewish writing,” in terms of language and gender, and will consider each writer in the context of the aesthetic, religious, and national ideologies that prevailed in this period. Because students will come with proficiency in various languages, all primary texts and critical and theoretical materials will be taught in English translation. However, those students who can, will work on the original texts and share with the class their expertise to foster a comparative perspective. Because we will be discussing translated works, a secondary focus of the course will, in fact, be on literary translation’s process and products. Another version of this seminar presents Jewish modernism as an international phenomenon of the early 20th century. The course will attempt to define “Jewish modernism” through the prism of poetry, which inevitably, given the historical events in Europe and America during this time, grapples with aesthetic, religious, and national ideologies and methods. The syllabus will focus mainly on poetry written in Yiddish and English, and will also include German, Russian, and Hebrew verse. All poetry, critical, and theoretical materials will be taught in English translation, although students who know the languages will work on the original texts and will bring to the table a comparative perspective. Because we will be discussing translated poems, a secondary focus of the course will, in fact, be on literary translation’s process and products.

Taught by: Hellerstein
Course not offered every year
Activity: Seminar
1 Course Unit
Notes: “Jewish Women Writers” is a graduate seminar also be open to advanced undergraduates. Based in the Department of Germanic Languages and Literatures, this course will be cross-listed with Comparative Literature, English, Gender, Sexuality Women’s Studies, and Jewish Studies. Topics vary annually.
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