

OPERATIONS, INFORMATION AND DECISIONS, PHD

Wharton’s program in Operations, Information and Decisions emphasizes research on real management problems and maintains a balance between theory and implementation. The faculty trains scholars in decision making, information systems and operations management.

Our faculty leads in the development and application of an innovative blend of analytical and empirical approaches to important problems facing the private and public sectors, including the design, development, and evaluation of:

- behavioral approaches to individual and managerial decision making;
- information systems as a means of commerce and of decision making; and
- operations for the fulfillment of demand and broader economic and social needs.

Our PhD program provides a unique mix of behavioral, economic, statistical and analytical training to its students, and its strength is reflected in our students’ record of placement and achievement.

Three Areas of Specialization

Decision Making (DM)

What factors influence human judgment and decision-making? Why and when are people prone to judgement errors and biases? What kinds of interventions will help people make better decisions, or improve human welfare? Our interdisciplinary Decision-Making PhD program focuses on training students to conduct and publish academic research that helps to answer these important questions. Along the way, students receive rigorous quantitative/statistical training and acquire a deep understanding of the literature on judgment and decision-making, significant exposure to the fields of psychology, economics, organizational behavior, and marketing.

Information Systems (IS)

The Information Systems PhD Program covers a broad range of research interests, from the development of detailed analytical and information-technology-based methods for managing complex organizations to the broader economic evaluation of the impact of organizational and market-based use of information systems and information-based strategies.

Operations Management (OM)

The Operations Management PhD Program focuses on the processes that define an organization’s outputs, as well as the methods commonly used to analyze these processes. Students specializing in OM are interested in a wide range of functions, including operations strategy, product and process design, technology management, capacity planning, and supply chain management. Their work similarly covers a wide range of organizations and industries, including education, health care, hospitality, manufacturing, distribution, and retailing.

For more information: <https://doctoral.wharton.upenn.edu/operations-information-decisions/>

View the University’s Academic Rules for PhD Programs (<http://catalog.upenn.edu/pennbook/academic-rules-phd/>).

Students must complete 16 course units (CU’s) of classes to graduate. They may earn up to 4 CUs of credit for courses previously completed as a part of a master’s degree or PhD program, with the approval of the PhD Coordinator and the Wharton Doctoral Program Office.

Program Milestones

Code	Title	Course Units
The overall program of study is the same for all students:		
<i>Summer before matriculation</i>		
Preparatory Math and Tech Camps, August before the 1st Year (Optional)		
<i>1st Year Fall</i>		
(Mostly) Required Courses		
<i>1st Year Spring</i>		
(Mostly) Required Courses, Choose Summer Paper Topic and Advisor		
<i>1st Year Summer</i>		
Written Qualifier, 1st Year Summer Paper		
<i>2nd Year Fall</i>		
(Mostly) Elective Courses		
<i>2nd Year Spring</i>		
(Mostly) Electives Courses, Choose Dissertation Advisor, Sketch Area of Research Interest		
<i>2nd Year Summer</i>		
2nd Year Summer Paper		
<i>3rd Year</i>		
Dissertation Research		
<i>4th Year</i>		
Dissertation Proposal in Fall		
<i>5th Year</i>		
Job Market, Dissertation Defense		

Code	Title	Course Units
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Course Requirements

<i>Operations, Information and Decisions</i>		
	Introductory Faculty-Student Seminar	1
OIDD 9010	Introduction to OID Faculty and Their Research	
*This is a 0.5 CU course that must be taken in both the Fall and Spring semesters of the first year.		
	At least one of the following three core disciplinary courses, with the approval of the OID PhD Coordinator	1
OIDD 9000	Foundations of Decision Processes	
OIDD 9400	Operations Management	
OIDD 9550	Research Seminar in Information Systems	
	At least two CU in statistics/econometrics, with the approval of the OID PhD Coordinator and Wharton Statistics Department. The courses include but are not limited to the following.	2
STAT 5000	Applied Regression and Analysis of Variance	
STAT 5010	Introduction to Nonparametric Methods and Log-linear Models	
STAT 5150	Advanced Statistical Inference I	

STAT 5160	Advanced Statistical Inference II	
STAT 5200	Applied Econometrics I	
STAT 5210	Applied Econometrics II	
ECON 7300	Econometrics I: Fundamentals	
ECON 7310	Econometrics II: Methods & Models	

At least two CU in economics, with the approval of OID's PhD Coordinator. These courses include but are not limited to the following.

ECON 6100	Microeconomic Theory	
ECON 6110	Game Theory and Applications.	
ECON 7100 & ECON 7200	Microeconomic Theory I and Macroeconomic Theory I	
ECON 7110	Microeconomic Theory II	
BEPP 9040	Experimental Economics	
BEPP 9150	Behavioral Economics and Policy Analysis	
BEPP 9320	Contract Theory and Applications	

Additional Courses Required of All Operations Management Students

At least one CU of OIDD 9410, Distribution Systems Seminar, the department's advanced seminar in Operations Management. OIDD 9410 is a 0.5 CU course, and students fulfill the requirement by taking it at least twice.

At least one CU of courses related to stochastic processes, with the approval of OID's PhD Coordinator. These courses include but are not limited to the following.

OIDD 9300	Stochastic Models	
OIDD 9310	Stochastic Processes II	
OIDD 9340	Dynamic Programming and Stochastic Models	
STAT 9310	Stochastic Processes	

At least one CU of courses related to optimization, with the approval of OID's PhD Coordinator. These courses include but are not limited to the following.

OIDD 9100	Intro to Linear, Nonlinear and Integer Optimization	
OIDD 9120	Introduction to Optimization	

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2022 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Typical Course Schedules

As the Requirements Outline suggests there is great flexibility in how students may complete their course requirements. Thus, while the example plans of study, below, provide a sense of common first-year course rosters for the three concentrations, individual students' plans can vary widely.

Decision Making

First Year		Course Units
Fall		
OIDD 9010	Introduction to OID Faculty	0.5-1

	and Their Research	
OIDD 9000	Foundations of Decision Processes	1.0
STAT 5000	Applied Regression and Analysis of Variance	1.0
Elective		0.5
Elective		0.5
Elective		0.5

Course Units 4.00-4.50

Spring		Course Units
OIDD 9010	Introduction to OID Faculty and Their Research	0.5-1
ECON 6110	Game Theory and Applications.	1.0
STAT 5010	Introduction to Nonparamet Methods and Log-linear Models	1.0
Elective		0.5
Elective		0.5
Elective		0.5
		Course Units 4.00-4.50
	Total Course Units	8.00-9.00

Decision Making students then take a second economics course and electives in the second year.

Information Systems

First Year		Course Units
Fall		
OIDD 9010	Introduction to OID Faculty and Their Research	0.5-1
Elective		0.5
Elective		0.5
Elective		0.5
STAT 5200	Applied Econometrics I	1.0
ECON 6100	Microeconon Theory	1.0
		Course Units 4.00-4.50
Spring		Course Units
OIDD 9010	Introduction to OID Faculty and Their Research	0.5-1

OIDD 9550	Research Seminar in Information Systems	1.0
STAT 5210	Applied Econometric II	1.0
ECON 6110	Game Theory and Applications.	1.0
Elective		0.5
Course Units		4.00-4.50
Total Course Units		8.00-9.00

Information Systems students then take electives in the second year.

Operations Management

First Year

Fall		Course Units
OIDD 9010	Introduction to OID Faculty and Their Research	0.5-1
OIDD 9400	Operations Management	1.0
OIDD 9120	Introduction to Optimization	0.5
OIDD 9300	Stochastic Models	0.5
STAT 5200	Applied Econometrics I	1.0
ECON 6100	Microecon Theory	1.0
Course Units		4.50-5.00

Spring

OIDD 9010	Introduction to OID Faculty and Their Research	0.5-1
OIDD 9410	Distribution Systems Seminar	0.5
OIDD 9310	Stochastic Processes II	0.5
STAT 5210	Applied Econometrics II	1.0
ECON 6110	Game Theory and Applications	1.0
Course Units		3.50-4.00
Total Course Units		8.00-9.00

Common Electives

The choice of elective courses can also vary widely, according to each student's interests and focus of research, and valuable electives are offered within OID, as well as by departments throughout the University of Pennsylvania. The following list is a sample of courses, beyond the options listed above, that multiple OID PhD students have taken in the recent past.

Code	Title	Course Units
BEPP 9110	Empirical Public Policy	1
BEPP 9310	Numerical Methods in Economics	1
CIS 5200	Machine Learning	1
CIS 5220	Deep Learning for Data Science	1
CIS 5450	Big Data Analytics	1
ECON 8310	Econometrics III: Advanced Techniques of Cross-Section Econometrics	1
ECON 8450	Empirical Methods for Industrial Organization	1
FNCE 9260	Empirical Methods in Corporate Finance	1
MGMT 9330	Psychological and Sociological Foundations of Research in Management	
MGMT 9530	Seminar in Research Design	0.5
MGMT 9570	Applied Research Methods and Data Analysis in Organizational Behavior	
MGMT 9610	Special Topics in OB: Making a Contribution	
MKTG 9400	Measurement and Data Analysis in Marketing - Part A	
MKTG 9500	Judgment and Decision Making Perspectives on Consumer Behavior - Part A	0.5
MKTG 9510	Judgment and Decision Making Perspectives on Consumer Behavior - Part B	0.5
MKTG 9520	Information Processing Perspectives on Consumer Behavior - Part A	0.5
OIDD 9370	Methods Stumblers: Pragmatic Solutions to Everyday Challenges in Behavioral Research	0.5
OIDD 9530	Explaining Explanation	1
OIDD 9920	Conflict Mgmt Seminar	1
STAT 5710	Modern Data Mining	
STAT 9210	Observational Studies	1
STAT 9270	Bayesian Statistical Theory and Methods	1
STAT 9710	Introduction to Linear Statistical Models	1
STAT 9740	Modern Regression for the Social, Behavioral and Biological Sciences	1