NEUROSCIENCE, BA

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

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

For more information: https://neuroscience.sas.upenn.edu

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

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<th>Code</th>
<th>Title</th>
<th>Course Units</th>
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<td><strong>College General Education Requirements and Free Electives</strong></td>
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<td>Foundational Approaches + Sectors1 + Free Electives</td>
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**Major Requirements**

**Core Requirements**

Introductory Chemistry:

- CHEM 1011 Introduction to General Chemistry I 1
- or CHEM 1012 General Chemistry I
- CHEM 1021 Introduction to General Chemistry II 1

Introductory Biology:

Select one of the following Options: 3

- Option 1:
  - BIOL 1101 Introduction to Biology A
  - BIOL 1102 Introduction to Biology B

- Option 2:
  - BIOL 1121 Introduction to Biology - The Molecular Biology of Life
  - BIOL 1123 Introductory Molecular Biology Laboratory
  - BIOL 1124 Introductory Organismal Biology Lab

Select 1 CU of a 2000-level BIOL course:

- BIOL 2810 Biochemistry
  - or BIOL 201C Cell Biology
  - or BIOL 2311 Human Physiology
  - or BIOL 331C Principles of Human Physiology
  - or BIOL 221C Molecular Biology and Genetics
  - or BIOL 241C Evolutionary Biology
  - or BIOL 261C Ecology: From individuals to ecosystems

**Introduction to Brain & Behavior:**

- NRSC 1110 Introduction to Brain and Behavior 1

**Neural Systems and Behavior:**

Select one of the following 2000-level NRSC courses: 1

- Systems and Behavior (Attribute ABBS) (http://catalog.upenn.edu/attributes/abbs/)

**Cellular Neuroscience:**

Select one of the following 2000-level NRSC courses: 1

- Cellular Neuroscience (Attribute ABBU) (http://catalog.upenn.edu/attributes/abbu/)
- NRSC 2240 Chronobiology and Sleep
- NRSC 2260 Neuroendocrinology
- NRSC 2350 Developmental Neurobiology
- NRSC 2269 Autonomic Physiology
- NRSC 2270 Drugs, Brain and Mind

**Neurobiology:**

- NRSC 2110 Molecular and Cellular Neurobiology 1

**Statistics:**

Select one of the following: 1

- BIOL 2510 Statistics for Biologists
- STAT 1010 Introductory Business Statistics
- STAT 1110 Introductory Statistics

**Additional NRSC Major Elective Courses**

Students may pick any 8 courses from the approved electives 8 for the NRSC major 2,3

**Major Elective (Attribute ABBM) (http://catalog.upenn.edu/attributes/abbm/)**

**Total Course Units**

36

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

2 See the NRSC web site for approved courses in areas of specialized study. Students are encouraged to take a research course or do sponsored research in their junior or senior year.

3 NRSC 3999 Independent Research, NRSC 4999 Advanced Independent Research or a 4000-level NRSC course are three of the options.

**Honors Option**

Applicants are expected to have a minimum cumulative GPA of 3.5.

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<tr>
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<td><strong>Honors Option Courses</strong></td>
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<td>One advanced course (4000 level or above)</td>
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<tr>
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<td>NRSC 3999 Independent Research</td>
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<tr>
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<td>NRSC 4999 Advanced Independent Research</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2024 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.