NEUROSCIENCE MINOR

Neuroscience embodies the liberal arts experience because it draws on techniques and findings from several academic disciplines including biology, chemistry, computer science, exercise and sports science, mathematics, physics, and psychology. The neuroscience minor provides undergraduate students the opportunity to obtain fundamental knowledge and exposure needed to pursue careers and post-graduate studies in fields related to psychology, human development and aging, health and disease, rehabilitation, biomedical research, human-machine interactions, and other emerging disciplines.

The minor is open to all students, including psychology majors. However, students should note that they are limited to no more than 45 credit hours within a specific department. Students must earn a grade of C or better in at least four of the five courses.

Requirements

In addition to the program requirements listed below, students must:

- take at least nine hours of their minor "core" requirements at UNC–Chapel Hill
- earn a minimum cumulative GPA of 2.000 in the minor core requirements. Some programs may require higher standards for minor or specific courses.

For more information, please consult the degree requirements section of the catalog (https://catalog.unc.edu/undergraduate/degree-requirements/).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NSCI 175</td>
<td>Introduction to Neuroscience (with a grade of C or better)</td>
<td>3</td>
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Four courses distributed over at least three academic departments, selected from the following lists:

Psychology and Neuroscience:
- NSCI 221   Neuropsychopharmacology
- NSCI 222   Learning H
- NSCI 225   Sensation and Perception H
- Any NSCI course numbered between 300-699 1
- PSYC 245   Psychopathology H
- PSYC 404   Clinical Psychopharmacology
- PSYC 469   Evolution and Development of Biobehavioral Systems
- PSYC 517   Addiction
- PSYC 533   The General Linear Model in Psychology H
- PSYC 559   Applied Machine Learning in Psychology
- PSYC 602   Evolutionary Psychology

Applied Physical Sciences:
- APPL 101   Exploring Engineering
- APPL 240   Developing Your Sixth Sense: Designing Sensors and Electrical Circuits to Make Measurements
- APPL 350   Data Science for Applied Science and Engineering
- APPL 430   Optical Instrumentation for Scientists and Engineers
- APPL 435   Nanophotonics

Biology:
- BIOL 205   Cellular and Developmental Biology H
- BIOL 224H & BIOL 224L   The Mathematics of Life and The Mathematics of Life Laboratory
- BIOL 425   Human Genetics
- BIOL 431   Biological Physics
- BIOL 450   Neurobiology
- BIOL 451   Comparative Physiology
- BIOL 453   Molecular Control of Metabolism and Metabolic Disease
- BIOL 455   Behavioral Neuroscience
- BIOL 458   Sensory Neurobiology and Behavior
- BIOL 523   Sex Differences in Human Disease
- BIOL 544L   Laboratory in Diseases of the Cytoskeleton
- BIOL 545   Exploring Brain, Gut, and Immunity H
- BIOL 547   Synaptic Plasticity: Analysis of Primary Literature
- BIOL 552   Behavioral Endocrinology
- BIOL 553   Mathematical and Computational Models in Biology
- BIOL 554   Introduction to Computational Neuroscience
- BIOL 542   Light Microscopy for the Biological Sciences

Biomedical Engineering:
- BMME 207   Biomedical Electronics
- BMME 301   Human Physiology: Electrical Analysis
- BMME 445   Systems Neuroscience
- BMME 550   Medical Imaging I: Ultrasonic, Optical, and Magnetic Resonance Systems

Chemistry:
- CHEM 430   Introduction to Biological Chemistry H

Computer Science:
- COMP 110   Introduction to Programming and Data Science H
- COMP 210   Data Structures and Analysis
- COMP 211   Systems Fundamentals
- COMP 301   Foundations of Programming
- COMP 311   Computer Organization
- COMP 283   Discrete Structures H
- COMP 555   Bioalgorithms
- COMP 560   Artificial Intelligence
- COMP 562   Introduction to Machine Learning H
- COMP 576   Mathematics for Image Computing
- COMP 581   Introduction to Robotics H
- COMP 631   Networked and Distributed Systems
- COMP 633   Parallel and Distributed Computing
- COMP 651   Computational Geometry
- COMP 665   Images, Graphics, and Vision

Exercise and Sport Science:
- EXSS 155   Human Anatomy and Physiology I
### Neuroscience Minor

- **EXSS 175**  Human Anatomy
- **EXSS 256**  Human Anatomy and Physiology II
- **EXSS 276**  Human Physiology
- **EXSS 380**  Neuromuscular Control and Learning
- **EXSS 580**  Neuromechanics of Human Movement

**Mathematics:**

- **MATH 210**  Mathematical Tools for Data Science
- **MATH 233**  Calculus of Functions of Several Variables
- **MATH 347**  Linear Algebra for Applications
- **MATH 383**  First Course in Differential Equations
- **MATH 523**  Functions of a Complex Variable with Applications
- **MATH 528**  Mathematical Methods for the Physical Sciences I
- **MATH 529**  Mathematical Methods for the Physical Sciences II
- **MATH 535**  Introduction to Probability
- **MATH 553**  Mathematical and Computational Models in Biology
- **MATH 555**  Introduction to Dynamics
- **MATH 564**  Mathematical Modeling in the Life Sciences
- **MATH 566**  Introduction to Numerical Analysis
- **MATH 577**  Linear Algebra
- **MATH 661**  Scientific Computation I
- **MATH 662**  Scientific Computation II
- **MATH 668**  Methods of Applied Mathematics I
- **MATH 669**  Methods of Applied Mathematics II

**Physics:**

- **PHYS 133**  How Bio Works
- **PHYS 405**  Biological Physics

**Statistics and Operations Research:**

- **STOR 215**  Foundations of Decision Sciences
- **STOR 415**  Introduction to Optimization
- **STOR 435**  Introduction to Probability
- **STOR 445**  Stochastic Modeling
- **STOR 455**  Methods of Data Analysis
- **STOR 535**  Probability for Data Science
- **STOR 555**  Mathematical Statistics
- **STOR 556**  Time Series Data Analysis
- **STOR 565**  Machine Learning

**Total Hours:** 15

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**Department Programs**

### Majors

- Neuroscience Major, B.S. (https://catalog.unc.edu/undergraduate/programs-study/neuroscience-major-bs/)
- Psychology Major, B.A. (https://catalog.unc.edu/undergraduate/programs-study/psychology-major-ba/)
- Psychology Major, B.S. (https://catalog.unc.edu/undergraduate/programs-study/psychology-major-bs/)

### Minors

- Neuroscience Minor (p. 1)

### Graduate Programs

- M.A. in Psychology (https://catalog.unc.edu/graduate/schools-departments/psychology-neuroscience/)
- Ph.D. in Psychology (https://catalog.unc.edu/graduate/schools-departments/psychology-neuroscience/)

### Contact Information

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