

Neuroscience Program

Neuroscience Degree Programs:

- **Bachelor of Arts in Neuroscience**
- **Bachelor of Science in Neuroscience**
- **Bachelor of Science in Computational Neuroscience**
- **Minor in Neuroscience**

Neuroscience Program Learning Objectives:

- General Skills and Breadth:** Develop the ability to manage one's time, work independently, take initiative, and collaborate. Develop the ability to think critically, analyze, synthesize, and use information to solve problems. Acquire broad knowledge in the humanities, social sciences, mathematics, and physical sciences, and understand the relevance of these disciplines to the life sciences. Develop the ability to communicate scientific ideas, orally and in writing. Develop facility in the use of computer applications and the internet.
- Scientific and Experimental Skills:** Understand and apply scientific methods, including forming hypotheses, designing experiments to test hypotheses, and collecting, analyzing, interpreting, and reporting data. Develop the ability to use appropriate laboratory or field procedures, methods, and instrumentation for neuroscience studies.
- Neuroscience Skills:** Develop an appreciation for and breadth of knowledge that spans the full range of neuroscience sub disciplines, including developmental, molecular, cellular, systems, behavioral, cognitive, and computational neuroscience. Understand evolution as the central unifying concept in neuroscience.
- Ethics & Society:** Be able to place neuroscience into an ethical context, especially how studying the brain and behavior can contribute to the resolution of ethical, social, and environmental issues.
- After Graduation:** Prepare students with a sufficient depth of knowledge and abilities to prepare them for entry-level employment in a wide variety of fields, or for graduate study in neuroscience or health-related professions.

Neuroscience Contacts:

Program Director: David McKemy, Ph.D., Professor, Department of Neurobiology

Academic Advising:

- Dornsife First-Year Advising - fya@dornsife.usc.edu
- Dornsife Undergraduate Cluster Advising - advising@dornsife.usc.edu

Curriculum Information:

AP Credit for GEs: Students earning a 4 or 5 on the following subjects will fulfill the following GEs:

- GE-A: Art History
- GE-D: Biology
- GE-E: Chemistry, Physics 1, Physics 2, Physics B, Physics C (Electricity/Magnetism or Mechanics)
- GE-F: Calculus AB, Calculus BC, Macroeconomics, Microeconomics, Statistics
- GE-H: European History, US History, World History
- 3rd Level Foreign Language: AP Foreign Language

AP Credit for Neuroscience: Students earning a 4 or 5 on the following subjects can use that credit to fulfill the Neuroscience major requirements listed below:

- AP Biology: BISC 220L
- AP Chemistry: CHEM 105aL
- AP Statistics: Statistics Requirement (QBIO/BISC 305, HP 340, PSYC 274L, etc)
- AP Psychology: PSYC 100L
- AP Calculus AB: MATH 125
- AP Calculus BC: MATH 125 if you score a 4; MATH 125 or 126 if you score a 5

IB Exam Credit: Students earning a 5, 6, or 7 on the IB Higher Level Exam can use that credit to waive the following Neuroscience major requirements listed below:

- IB Biology: BISC 220L
- IB Psychology: PSYC 100L
- IB Mathematics: MATH 125
- IB Chemistry: CHEM 103 or CHEM 105aL

*****PLEASE NOTE: Many medical schools do not accept exam credit in lieu of college-level course credit to fulfill admissions requirements. If you are pre-med, please discuss this issue with an advisor in the [Pre-Health Advising Office](#).***

Neuroscience Classes Fulfilling GEs

- GE-C: SOCI 200, 210 & 242 (for Pre-Med students)
- GE-D: PSYC 100L, BISC 120L, BISC 220L
- GE-E: CHEM 103L, CHEM 105aL, PHYS 135aL, PHYS 151L
- GE-F: MATH 125, QBIO/BISC 305, HP 340, PSYC 274L

Research for Unit Credit: NEUR 490

Students with junior or senior standing interested in earning credit for research may apply for **NEUR 490: Directed Research**. NEUR 490 research projects require a neuroscience focus, minimum 3.0 GPA (science and cumulative) and approval by the Neuroscience Program Director.

Students may choose to earn 2 or 4 units of credit in NEUR 490, the units awarded being dependent on hours per week spent in the lab; student are required to spend 4 hours/week in the lab for each unit of credit. Students who earn 4 units in NEUR 490 may apply this

coursework to the Neuroscience major as an Upper-Division Elective with lab (CPNS BS Students can take 4 units to cover the additional course requirement). No more than 4 units of NEUR 490 can be used as Upper-Division Elective for the major. NEUR 490 coursework receives a letter grade.

Neuroscience Honors

An Honors program is available to outstanding students with a minimum GPA of 3.5 (major and cumulative) who are pursuing a B.A. or B.S. in Neuroscience or a B.S. in Computational Neuroscience. Here are the requirements to graduate with Neuroscience Honors:

- **NEUR 490: Directed Research** (4 total units; can be 2 units over 2 semesters)
- **NEUR 493: Honors Seminar** (1 unit over 2 semesters; for 2 total units)
 - *Small group discussion of recent experimental findings in Neuroscience, and student research*
- **NEUR 494: Honors Thesis** (2 units in one semester)
 - *Students write an Honors Thesis regarding their Directed Research findings*
- **Students must have completed BISC 421 at the start of NEUR 493**
- **Students must graduate with a 3.50 major and cumulative GPA to receive the Honors designation on their diploma (no exceptions)**

All NEUR 493 and NEUR 494 courses must be taken separately (over 3 semesters). NEUR 490 may be taken at the same time with NEUR 493 or NEUR 494.

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