Neuroscience

Neuroscience is the scientific study of the brain and the nervous system. Neuroscientists investigate the organization, development and function of the nervous systems and their relationship to behavior, cognition and disorders. It combines diverse subjects such as psychology, biology, genetics, chemistry, biochemistry, physics and computer science. Neuroscience is an ideal field to develop interests in many scientific disciplines.

The interdisciplinary major in neuroscience at The Ohio State University was created by a joint venture between the College of Arts and Sciences and the College of Medicine. The major offers a comprehensive exploration of the foundational knowledge of neuroscience while fostering an understanding of critical issues and skill development related to the sciences. Graduates from the major will obtain many of the necessary skills for employment as well as for further educational training in this and related fields.

Students majoring in this degree program will develop the following capabilities:

- Understand and explain the structure and function of the brain and nervous system.
- Gain analytical and critical thinking skills.
- Acquire statistical skills to critically evaluate data and research findings.
- Obtain experiences needed in order to be a competitive applicant for training in health and science related fields such as medicine, psychology, dentistry and many other careers.

Pursuing Neuroscience at Ohio State

All freshman applicants are considered within a competitive admission process for the Columbus campus; find admissions criteria at go.osu.edu/admissions. High school students planning to major in neuroscience should acquire a strong background in math and science (calculus, biology and chemistry) along with good written and oral communication skills. Upon admission to the university, students can declare a pre-major in neuroscience.

The following criteria are required to complete the pre-major and become a full neuroscience major:

- At least 12 credits of graded Ohio State course work
- Earn a B or higher in two core courses: Introduction to Behavioral Neuroscience and Introduction to Molecular/Cellular Neuroscience
- Earn a cumulative GPA of 3.0 or better

Neuroscience Requirements

Students majoring in neuroscience take a set of foundational courses that serve as prerequisites for many of the advanced offerings. Upon completion of these core courses, students then declare a specialization in one of three areas: Molecular/Cellular, Systems/Behavioral, or Cognitive/Computational. Students are also required to take two additional courses in either or both of the other specializations to gain broad familiarity with neuroscience. The neuroscience major requires successful completion of 36 degree hours.

Co-Curricular Opportunities

Ohio State offers many opportunities for students to learn and grow outside of the classroom. These include conducting research directly with faculty, internships, study abroad programs, and student organizations. These experiences place students in professional environments while pursuing their undergraduate degree. This allows students to explore career possibilities, develop relevant professional skills, and acquire valuable experience before entering the workforce or applying to graduate/professional schools.

Participating in undergraduate research is highly advised, particularly for students aspiring to attend graduate or professional school. Students have various opportunities to work directly with faculty members on ground-breaking and substantive research throughout multiple departments and colleges. Students may also complete an independent research thesis which will allow them to graduate with research distinction or honors research distinction in neuroscience.

Interested majors should consult with a neuroscience academic advisor in order to explore these and other prospects.

For more information, check these websites:

Neuroscience: neurosciencemajor.osu.edu
Arts and Sciences: artsandsciences.osu.edu
Ohio State: osu.edu
Admissions: undergrad.osu.edu
Multicultural Center: multiculturalcenter.osu.edu
First Year Experience: fye.osu.edu
Honors & Scholars Programs
Ohio State offers the Honors and Scholars Programs to create an environment of intellectual support and stimulation within a close-knit community of high-ability undergraduate students. Through these programs, students have access to smaller classes, undergraduate research opportunities, close working relationships with faculty, priority scheduling and unique housing options.

The Honors and Scholars Programs represent great opportunities to be part of a smaller community within a large university. For more information about these opportunities, visit honors-scholars.osu.edu.

Honors students with strong research interests have the opportunity to pursue honors research distinction in neuroscience. Research distinction recognizes those students who demonstrate excellence in the study of neuroscience both through major course work and by completing an independent research project culminating in an Honors thesis.

The Ohio State Scholars Program offers academically motivated students the chance to meet and live with other students who share similar interests and career goals. Students involved in any of the Ohio State University’s Scholars programs are free to declare neuroscience as their major. Students majoring in neuroscience may find a good fit within the Health Sciences Scholars Program, Mount Leadership Society, Biological Sciences Scholars Program, Sport and Wellness Scholars Program or the Tomorrow’s Teachers Scholars Program.

Career Prospects in Neuroscience
A strong scientific education with a bachelor’s degree in Neuroscience will prepare students for entry into many career fields and graduate/professional programs. The following are some of the fields that graduates with bachelor’s degrees in Neuroscience can enter: biomedical research, pharmaceutical sales, hospital administration, laboratory technician/management, public service, psychiatric assistance, teaching and technical writing.

Many of our graduates pursue advanced education in medicine, dentistry, neurology, clinical psychology, law, neurochemistry, neuropsychology, and occupational and physical therapy.

Revised 2014. Information is subject to change. For the most up-to-date information on the neuroscience program, visit neurosciencemajor.osu.edu.

Curriculum Sample
This is a sample list of classes a student will take to pursue a degree in Neuroscience. Since university students need more than specific education in a narrow field, they also will take classes to complete General Education (GE) requirements. Because GE courses come from a variety of academic areas of study, this course work helps students develop fundamental skills essential to collegiate success and allows them to tailor these courses toward their interests. Note: This sample represents one of several possible paths to a degree in Neuroscience. Visit neurosciencemajor.osu.edu for details.

Freshman Year:
- Survey course 1
- Introduction to Psychology 3
- Introduction to Behavioral Neuroscience 3
- Energy Transfer and Development 4
- General Chemistry 10
- Math 10
Total hours 31

Sophomore Year:
- Introduction to Molecular/Cellular Neuroscience 3
- Introduction to Cognitive Neuroscience 3
- Data Analysis 3
- Organic Chemistry I 4
- Biochemistry 4
- GE courses 15
Total hours 32

Junior Year:
- Introduction to Psychopharmacology 3
- Structure and Function of the Nervous System 3
- General Genetics 3
- Advanced Behavioral Neuroscience 3
- Neuroscience Research 2
- GE courses 15
Total hours 29

Senior Year:
- Basic and Clinical Foundations of Neurological Disease 3
- Cognitive Neuroscience 3
- Neuroscience Research 3
- GE courses and electives 18
Total hours 27