

NEUROSCIENCE

The Neuroscience minor provides students with an introduction to the foundations of neuroscience, a discipline which focuses on the study of the nervous system from a range of levels. Study of the nervous system is a relatively new discipline, and discoveries in this area have great promise to illuminate the roots of our mental experience, and to provide the tools to preserve and reverse the effects of injury and disease.

While only one of several major organ systems in the body, the nervous system is very complicated and critical to our identity. Neuroscience is fundamentally interdisciplinary, and draws on techniques from diverse fields including biology, psychology, chemistry, physics, mathematics, and philosophy. The courses included in the Neuroscience minor focus on the fundamentals of the biology and function of the nervous system.

The minor is open to any major, and should be of interest to students with professional interests in the biomedical or health sciences. The courses included in the minor focus on the organization and function of the nervous system, from the specializations of single neurons and glia to the function of large networks of neurons which support movement, memory, emotion, and more.

Student Learning Goals

Develop students' foundational knowledge of neuroscience through interdisciplinary coursework.

Build critical thinking & analytical skills in students.

Strengthen students' communication skills.

Provide students with a cohesive capstone experience in neuroscience.

Cultivate attitudes and habits of mind in students.

Requirements for the Minor

Code	Title	Credits
Introductory		1
NSC-204	Principles of Neuroscience	
Biology		1
BIO-212	Cell Biology	
300 Level Elective		0.5
Any 300-level course in NSC		
Capstone		0
NSC-400	Senior Capstone	
Electives		2.5
Any additional credits in NSC, or from the following:		
BIO-315	Organismal Physiology	
BIO-371	Special Topics (when in Neuroscience)	
PSY-232	Sensation and Perception	
PSY-233	Behavioral Neuroscience	
PHI-279	Topics Logic & Philosophy of Science	
PSY-235	Cognitive Neuropsychology	

Additional Course Work

It is recommended that students interested in pursuing neuroscience at the graduate level also complete Organic Chemistry I (CHE 221). Additional coursework in physics and math may be considered. Students should consult with an advisor in Neuroscience on their particular paths.

Some special topics courses listed below may have individual offerings that will apply to distribution requirements. See the Curriculum Outline (<http://bulletin.wabash.edu/curriculum/curriculum-outline/>) section of this Bulletin for more information.

NSC-204 Principles of Neuroscience

An introduction to the study of the nervous system, with a focus on basic anatomy and physiology. Students will learn about the basic organization of the nervous system, neurophysiology, sensory processing, movement, development, and neuroplasticity through a systems approach to brain function. Several laboratory experiences will be built into the course to reinforce the principles discussed in class. This course counts toward distribution credit in Natural Science and Mathematics. This course is offered in the spring semester.

Prerequisites: none

Credit: 1

NSC-210 Intermediate Special Topics

Since the content of this course varies from semester to semester, it may be repeated for credit upon the instructor's approval. Refer to the Course Descriptions document on the Registrar's webpage for topics and descriptions of current offerings.

Prerequisites: none

Credits: 0.5-1

NSC-269 Topics in Metaphys and Epistemology

Seminar discussion of a topic or area in metaphysics or the theory of knowledge. Refer to the Course Descriptions document on the Registrar's webpage for topics and descriptions of current offerings.

Prerequisites: none

Credits: 0.5-1

NSC-287 Special Problems

Refer to the Course Descriptions document on the Registrar's webpage for topics and descriptions of current offerings.

Prerequisites: none

Credits: 0.5-1

NSC-310 Special Topics

Refer to the Course Descriptions document on the Registrar's webpage for topics and descriptions of current offerings.

Prerequisites: none

Credits: 0.5-1

NSC-332 Research in Sensation and Perception

In this course, students will conduct experiments involving at least two sensory systems, obtaining experience with psychophysical experimental methods. Students will write complete APA-style scientific papers for each experiment, including a clearly stated hypothesis, a brief literature review, a clear explanation of the methodology, application of the proper statistical techniques, an analysis of how the results supported or failed to support the hypothesis, and an abstract summarizing the experimental findings. This course is offered in the spring semester.

Prerequisites: PSY-232

Credits: 0.5

Distribution: Behavioral Science

Equated Courses: PSY-332

NSC-333 Research in Behavioral Neuroscience

Students in this course will become involved with research in an area of behavioral neuroscience. The topic covered will reflect contemporary research issues in the field and may differ in different years. Major course components will be discussion of primary literature in neuroscience and collaboration with the professor in conducting and writing up an experiment that is directed toward possible publication. Recent topics have focused on memory and drug addiction, and how neural recordings are used to understand how information is encoded by the brain. This course is offered in the fall semester.

Prerequisites: PSY-233 or BIO-112

Credits: 0.5

NSC-400 Senior Capstone

Students will enroll in the fall semester of the senior year and meet with the instructors approximately once every two weeks for journal article discussions focused on seminal publications in neuroscience.

Prerequisites: none

Credits: 0

Neuroscience Committee

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