

# Neuroscience

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## Overview

Website: [sewanee.edu/academics/neuroscience/](http://sewanee.edu/academics/neuroscience/)

A minor in neuroscience allows students to consider how brain-function relates to behavior, and to explore one of the most compelling scientific frontiers in understanding ourselves and our actions. The minor examines the nervous system and its contribution to our experiences through a truly interdisciplinary approach. Students are required to take courses in both psychology and biology, and are highly encouraged to explore related courses within chemistry, computer science, and philosophy.

The goal of the neuroscience minor is to encourage students to critically evaluate how the brain functions from the molecular and cellular level, and how these processes affect behavior. The neuroscience minor is ideal for students with an interest in any neuroscience-related field. The minor prepares students for graduate study in neuroscience or related fields, and is also a good preparation for those planning to pursue a career in medicine and related disciplines.

## Faculty

Professors: Bachman, Berner, Miles, Peterman, Yu, Zigler

Associate Professors: Bateman, Pongdee, B. Seballos, Shibata, A. Summers

Assistant Professors: Cammack, Kikis, Tiernan

## Minor

### Requirements for the Minor in Neuroscience

The minor requires successful completion of the following:

Code	Title	Semester Hours
<b>Course Requirements</b>		
BIOL 233	Molecular Cell Biology	4
NEUR 225	Cognitive Neuroscience	4
or NEUR 254	Introduction to Behavioral Neuroscience	
Select at least three of the following:		12
PSYC 349	Drugs and Behavior	
NEUR 355	Affective Neuroscience (Lab)	
NEUR 359	Advanced Behavioral Neuroscience (Lab)	
PSYC 414	The Social Brain	
PSYC 419	Addiction	
PSYC 421	Sex, Brain, and Behavior	
Select one approved elective with the NSEL (Neuroscience Electives) attribute. ( <a href="http://e-catalog.sewanee.edu/arts-sciences/departments-interdisciplinary-programs/neuroscience/%20arts-sciences/departments-interdisciplinary-programs/neuroscience/approved_electives">http://e-catalog.sewanee.edu/arts-sciences/departments-interdisciplinary-programs/neuroscience/%20arts-sciences/departments-interdisciplinary-programs/neuroscience/approved_electives</a> )		4
Total Semester Hours		24

## Courses

### NEUR 101 Introduction to Neuroscience (4)

This course provides an introduction to the mammalian nervous system. Content focuses on the structure and function of the brain, and explores methods used by neuroscientists. Sensory systems, control of movement, learning and memory, and diseases of the brain may be discussed.

### NEUR 225 Cognitive Neuroscience (4)

An introductory course on the neural bases of higher cognitive processes including perception, action, attention, memory, language, socio-emotional functions, executive functions and consciousness. Also discussed are the mind-body problem and other current theories and conceptual approaches. *Prerequisite: PSYC 100 or PSYC 101 or NEUR 101.*

**NEUR 254 Introduction to Behavioral Neuroscience (4)**

An introduction to the field of behavioral neuroscience. The course begins with an overview of the basics of brain anatomy, brain organization, and neuronal signaling. The remainder of the course focuses on specific topics that are commonly studied by neuroscientists. Such topics include the brain basis of memory, emotion, aging, and sleep. *Prerequisite: PSYC 100 or PSYC 101 or NEUR 101.*

**NEUR 355 Affective Neuroscience (Lab) (4)**

This course covers the systems-level neural and behavioral bases of human and animal emotion. Students discuss readings paramount to understanding how we perceive motivationally significant information and stimuli and experience, express, and regulate our emotions. The course explores basic theories of emotion, automatic processes, emotion regulation, rewards, social relationships, decision-making, learning and memory, stress, and psychopathology (e.g., depression, anxiety, and personality disorders). Students design and conduct experiments using cognitive neuroscience methodology related to affective processing or emotion regulation, analyze the data, and write detailed laboratory reports. *Prerequisite: PSYC 251 and (NEUR 225 or NEUR 254 or PSYC 225 or PSYC 254).*

**NEUR 359 Advanced Behavioral Neuroscience (Lab) (4)**

An examination of how brain function affects behavior. The course is an extension of NEUR 254 and includes an advanced examination of brain organization, neuronal signaling, and specific topics that are studied by neuroscientists. Such topics include the brain bases of fear, pain, eating, sexuality, and stress. This class also examines methods used to study behavioral neuroscience in humans and animals. The course includes a laboratory with a brain dissection and focus on designing and conducting studies to answer empirical questions about behavioral neuroscience. *Prerequisite: PSYC 251 and (NEUR 254 or PSYC 254).*