

# NEUROSCIENCE (NEUR)

## NEUR 10100 SEMINAR IN NEUROSCIENCE 1 Credit Hour

Course provides an overview of the neuroscience field, including areas of neuroscience research, foundational principles in neuroscience, current questions and techniques, career possibilities and examples of research being conducted by neuroscience faculty.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 1 lecture

**Grade Mode:** Satisfactory/Unsatisfactory

## NEUR 30100 NEUROSCIENCE I 3 Credit Hours

(Crosslisted with BSCI 30100) Course covers basic principles in neuroscience, from the cellular to systems levels. Provides students a basic understanding of how the nervous system is organized, electrophysiology properties of neurons, sensory systems and motor pathways.

**Prerequisite:** BSCI 30140.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## NEUR 30200 NEUROSCIENCE II 3 Credit Hours

(Cross-listed with BSCI 30200) Course builds off of the principles taught in Neuroscience I by providing more depth and breadth to the functioning of the nervous system. Course provides students a more complete understanding of the neuroanatomy, neurophysiology and neural circuitry involved in sensory processing, motor control and higher order cognitive functioning.

**Prerequisite:** NEUR 30100 or BSCI 30100.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## NEUR 30300 EXPERIMENTAL METHODS IN NEUROSCIENCE 1 Credit Hour

(Cross-listed with BSCI 30300) Accompanying laboratory for NEUR 30200 or BSCI 30200. Course provides a greater depth of understanding into and hand-on experience with the principles discussed in NEUR 30200 or BSCI 30200. Course provides students a full understanding in the major research techniques used in neuroscience. The major topics covered include: electrophysiology, neuroanatomy, learning and memory, the neuromuscular junction and sensory perception. .

**Prerequisite:** NEUR 30100 or BSCI 30100 with minimum C grade.

**Pre/corequisite:** NEUR 30200 or BSCI 30200.

**Schedule Type:** Laboratory

**Contact Hours:** 3 lab

**Grade Mode:** Standard Letter

## NEUR 30889 BEAUTY AND THE BRAIN: EXPLORING FLORENCE THROUGH THE SENSES (DIVG) (ELR) 3 Credit Hours

(Cross-listed with BSCI 30889) This is an introductory sensory neuroscience course for undergraduate students. By exploring the sensory richness of Florence, Italy, students delve into the biology of their sensory systems. Through a combination of field trips, laboratory exercises, lectures and presentations, students learn how our sensory systems function to change diverse environmental signals into information that can be interpreted by the brain. Site visits are used to highlight specific sensory systems and laboratories/lectures provide the conceptual framework. Together, these experiences lay the foundation for students' understanding of vision, taste, smell, touch and hearing in the unique environment of Florence, Italy.

**Prerequisite:** Special approval.

**Schedule Type:** International Experience, Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**Attributes:** Diversity Global, Experiential Learning Requirement

## NEUR 40192 INTERNSHIP IN NEUROSCIENCE (ELR) 3-12 Credit Hours

Work experience and training in neuroscience under the supervision of appropriate personnel in a government agency, nonprofit organization or business.

**Prerequisite:** NEUR 30200; and special approval.

**Schedule Type:** Practical Experience

**Contact Hours:** 9-36 other

**Grade Mode:** Standard Letter

**Attributes:** Experiential Learning Requirement

## NEUR 40195 SPECIAL TOPICS IN NEUROSCIENCE 1-3 Credit Hours

Topics in neuroscience vary per course offering.

**Prerequisite:** NEUR 30200.

**Schedule Type:** Laboratory, Lecture, Combined Lecture and Lab

**Contact Hours:** 1-3 lecture, 2-6 lab

**Grade Mode:** Standard Letter

## NEUR 40196 INDIVIDUAL INVESTIGATION IN NEUROSCIENCE 1-3 Credit Hours

(Repeatable for credit) Research study under the guidance of a neuroscience faculty member and under the direction of a Biological Sciences faculty mentor.

**Prerequisite:** NEUR 30200; and special approval.

**Schedule Type:** Individual Investigation

**Contact Hours:** 3-9 other

**Grade Mode:** Standard Letter

## NEUR 40385 CURRENT TOPICS IN NEUROSCIENCE 3 Credit Hours

(Cross-listed with BSCI 40385)(Slashed with BSCI 50385 and BSCI 70385) This is a discussion- and readings-based course that focuses on cellular and molecular mechanisms underpinning functions of the central nervous system. Topics covered include synaptic plasticity; neuron-glia interactions; gene-environment interactions involved in learning, memory and disease; big data in neuroscience; and more. During this course, students develop knowledge and understanding of communication between brain cells; how gene-environment interactions impact learning and memory, behavior and disease; and modern techniques used in neuroscience research. Students read, summarize and discuss primary research papers in the context of neuroscience-related topics.

**Prerequisite:** BSCI 30140.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**NEUR 40429 NEURAL CONTROL OF REPRODUCTIVE FUNCTION 2****Credit Hours**

(Cross-listed with BSCI 40429) (Slashed with BSCI 50429 and BSCI 70429) Course explores the role of the brain in regulating functions that are essential to ensure successful reproduction. Topics covered include an overview of the endocrine and neuroendocrine systems involved in reproduction, as well as regulation of puberty, fertility, pregnancy and lactation. The course also explores disorders, such as polycystic ovary syndrome, affecting the central regulation of reproduction.

**Prerequisite:** BSCI 30130 or BSCI 40430 or NEUR 30100.

**Schedule Type:** Lecture

**Contact Hours:** 2 lecture

**Grade Mode:** Standard Letter

**NEUR 47387 NEUROPSYCHOPHARMACOLOGY 3 Credit Hours**

(Cross-listed with PSYC 47387) Neuropsychopharmacology is the study of how drugs and other chemicals affect brain and behavior. This course introduces students to the behavioral effects of psychoactive therapeutic drugs and neurotoxic chemicals in relation to their neural and molecular mechanisms of action. Covers general principles of neuropsychopharmacology; nervous system structure in relation to behavior and mind, brain and behavioral systems that are affected by different classes of drugs and toxic chemicals; and methods employed in neuropsychopharmacology research.

**Prerequisite:** PSYC 11762.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter