NEUROSCIENCE (NEU)

NEU 201 | INTRODUCTION TO NEUROSCIENCE | 4 quarter hours
(Undergraduate)
This class will introduce the structure and function of the nervous system as well as approaches to study and model it. Anatomical, cellular, and molecular foundations will be covered and these will be related to behavior and cognition. Computational approaches will also be presented. A historical review will place neuroscience within its contemporary context and current approaches will be presented, discussed, and critiqued.

A grade of C- or better in BIO 191 or instructor consent is a prerequisite for this course.

NEU 228 | NEUROETHICS | 4 quarter hours
(Undergraduate)
This course examines moral standards and issues as these arise in the practice of neuroscience. Advances in this field have developed unprecedented ways of understanding, predicting, and even, influencing and controlling the human mind and, through this, human behavior. Neuroethics considers the ethical dilemmas that emerge in such research and the technologies that it fosters as well as the challenges these advances pose to some of the fundamental underlying concepts of moral theory: human nature, personal identity, and moral responsibility itself. Cross listed as PHL 228.

NEU 256 | INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE | 4 quarter hours
(Undergraduate)
Provides an introduction to basic computational methods for understanding what nervous systems do and how they function. The course covers the structure of the brain, from neurons to circuits to regions, and also the computational and theoretical approaches to model the brain. The course will introduce students to the physiology of individual neurons, how they communicate through synapses and firing, and how they work together to create systems that control, learn and memorize. The course will include the application of mathematical and computational models to neural systems.

CSC 241 and NEU 201 (or consent of instructor) are prerequisites for this class.

NEU 301 | RESEARCH METHODS IN NEUROSCIENCE | 4 quarter hours
(Undergraduate)
This course is designed to provide students an understanding of how questions are answered in neuroscience by exploring experimental designs used in neuroscience research and individual techniques used by neuroscientists. In addition to reading about these methods, students will have hands on opportunities to conduct some of the methods discussed. Lastly, students will formulate their own research question and develop a proposal to answer their question.

NEU 201 or PSY 377 or BIO 339 or NEU 339 or BIO 340 or instructor consent is a prerequisite for this class.

NEU 339 | CELLULAR NEUROBIOLOGY | 4 quarter hours
(Undergraduate)
This course examines the cellular and molecular mechanisms of neuronal function and the changes that occur in processes such as learning and memory. Emphasis on electrophysiology, synaptic communication, and cellular signaling. Cross-listed as BIO339/439.

BIO 250 (or PSY 377 or HLTH 301) is a prerequisite for this class.

NEU 380 | SPECIAL TOPIC IN NEUROSCIENCE | 4 quarter hours
(Undergraduate)
A lecture and discussion based course focused on a particular topic in neuroscience. Topics may vary depending on the expertise of the instructor.

NEU 201 and Junior Standing are prerequisites for this class.

NEU 390 | NEUROSCIENCE CAPSTONE | 4 quarter hours
(Undergraduate)
This is a liberal studies course for seniors concluding their neuroscience major. The course will examine one topic in neuroscience from multiple viewpoints in the field of neuroscience as well as relate it to fields outside of science such as history, philosophy, religion, sociology, etc. Senior standing and major in Neuroscience (or consent of instructor) are prerequisites for this class.

NEU 399 | INDEPENDENT STUDY IN NEUROSCIENCE | 2-4.5 quarter hours
(Undergraduate)
Experimental and/or library independent study of a topic in neuroscience. Can be repeated if the content of the independent study changes.

Status as a neuroscience major is a prerequisite for this course.