

## NEUROSCIENCE IN THE COLLEGE OF ARTS AND SCIENCES

<http://www.uvm.edu/~nsmajor/>

Neuroscience is the study of the nervous system and how it regulates behavior. Often described as one of the "last frontiers", neuroscience is an exciting and challenging interdisciplinary field in which scientists share an interest in studying the anatomy, physiology, and function of the nervous system. Psychological science and biology have been traditional disciplines that share this interest, but fields such as communication sciences, physics, computer science and other diverse fields are also intensely interested in neuroscience. The interdisciplinary nature of neuroscience requires an understanding of a broad range of methods of inquiry, ranging from laboratory methods associated with basic "bench" sciences such as cell and molecular biology to clinical methods associated with the study of medical disorders or disease states.

### COLLEGE OF ARTS AND SCIENCES NEUROSCIENCE MAJOR

The neuroscience major at UVM is a cooperative effort by faculty in the Departments of Biology, Psychological Science, Communication Sciences, Neurological Sciences, and a number of other neuroscientists at UVM. The challenging curriculum of the major at UVM is driven by the nature of the field of neuroscience and by the unique opportunities provided by course offerings and by faculty expertise. It features a strong life science foundation, research methods and experiences, and a strong core of neuroscience courses. These include many courses in at multiple levels of neuroscience that are unique to UVM and offered by multiple departments in three different colleges. The curriculum gives students the freedom to select advanced courses that will prepare them for a wide variety of post-graduation career options, including (but certainly not limited to) graduate study, medical school and other health-care career options, laboratory technician positions, and science writing.

### NEUROSCIENCE MINOR

The neuroscience minor was created for students who have a core interest in another major and are interested in neuroscience as either a supplement to their major or as simply a field of inquiry that they enjoy studying. The minor was designed to introduce students from multiple backgrounds to the interdisciplinary field of neuroscience.

### MAJORS

#### NEUROSCIENCE MAJOR

Neuroscience B.S.

### MINORS

#### NEUROSCIENCE MINOR

Neuroscience

## GRADUATE

Neuroscience M.S.

Neuroscience Ph.D.

See the online Graduate Catalogue for more information.

### Courses

#### **NSCI 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **NSCI 096. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **NSCI 097. Readings & Research. 1-6 Credits.**

#### **NSCI 098. Readings & Research. 1-6 Credits.**

#### **NSCI 111. Exploring Neuroscience. 3 Credits.**

In-depth survey of neuroscience topics, including neuron function, the anatomical and functional organization of the nervous system, and diseases of the nervous system. Prerequisites: PSYS 001; CHEM 023 or CHEM 031; and one of the following pairs of courses: BIOL 001 and BIOL 002, BCOR 011 and BCOR 012, or ANPS 019 and ANPS 020.

#### **NSCI 112. Exploring Neurosci Laboratory. 1 Credit.**

Laboratory course in neuroscience designed to provide hands-on experience with methods of inquiry in neuroscience. Goals of this course include the development of problem-solving skills, data analysis, the scientific method, and science communication. Neuroscience majors only. Prerequisites: PSYS 001; CHEM 023 or CHEM 031; and one of the following pairs of courses: BIOL 001 and BIOL 002, BCOR 011 and BCOR 012, or ANPS 019 and ANPS 020.

#### **NSCI 195. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **NSCI 196. Intermediate Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

#### **NSCI 197. Intrmd Readings & Research. 1-6 Credits.**

#### **NSCI 198. Intrmd Readings & Research. 1-6 Credits.**

#### **NSCI 225. Human Neuroanatomy. 0-3 Credits.**

Functional anatomy of the human nervous system and its cells. Focus on both peripheral and central nervous system. Lectures and laboratory (gross and microscopic anatomy). Prerequisite: Instructor permission.

#### **NSCI 255. Neuroregeneration. 3 Credits.**

An analysis of the cellular and molecular processes involved in injury, responses to damage, and differences in the capacity of specific neural tissues to regenerate. Prerequisite: NSCI 111.

#### **NSCI 261. Neurobiology. 3 Credits.**

Focus on molecular and cellular aspects of the nervous system. Electrical signaling, synaptic transmission, signal transduction, neural development, plasticity, and diseases. Prerequisites: BIOL 103 or ANPS 019 & ANPS 020. Cross-listed with: BIOL 261.

**NSCI 270. Diseases of the Nervous System. 3 Credits.**

Senior level, seminar-style capstone course in which students bring together information learned in other courses for an in-depth study of disease states of the nervous system. Pre/co-requisites: NSCI 110 and Senior standing.

**NSCI 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NSCI 296. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**NSCI 297. Advanced Readings & Research. 1-6 Credits.****NSCI 298. Advanced Readings & Research. 1-6 Credits.**