

Neuroscience (CLA) (NSCI)

Course information contained within the Bulletin is accurate at the time of publication in July 2024 but is subject to change. For the most up-to-date course information, please refer to the Course Catalog.

NSCI 5001. Systems and Behavioral Neuroscience. 3 Credit Hours.

The goals of this class are to expose Master's degree students to topics in systems and behavioral neuroscience. In addition, students will also be introduced to methods and techniques used for the analysis of neural and behavioral data. Through intensive instruction of systems underpinning sensory, motor, and integrative functions, as well as motivation, students will gain a thorough understanding of brain function/behavior and its neuronal correlates.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

NSCI 5002. Neurochemistry. 3 Credit Hours.

This course explores the major areas of cellular and molecular neurobiology, including cellular and subcellular components of the nervous system, neuronal excitability and molecular properties of ion channels, biochemistry of synaptic transmission, intracellular signaling, neurochemistry of learning and memory, cell injury and inflammation and psychiatric/neurodegenerative disorders. Material includes lectures, presentations and discussion of primary literature and journal articles that cover recent advances in the field. Additionally, students will get the opportunity to gain hands-on experience with some of the research methodologies used to study neurochemical processes.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

NSCI 5016. Professional Development in Neuroscience. 3 Credit Hours.

This course will help prepare you for the remainder of your master's degree by providing the required laboratory and animal training, laboratory technique training, research and presentation skills training, and discussion of ethical issues in the field. The first module of this course will cover all the necessary laboratory and animal training and the second module will expose students to contemporary neuroscience techniques. The third module will provide training in research and presentation skills including how to design a research study, write a research paper and presenting your results. In the fourth module, we will discuss the ethical issues in neuroscience and consider the future challenges that may arise from the evolving study of the genetic and neurobiological determinants of behavior.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

NSCI 8007. Neuroendocrinology. 3 Credit Hours.

This course will provide an in-depth exploration of the interactions between the endocrine system and the nervous system. The role of hormones in modulating behaviors and mental processes will be covered with the following topics: sex determination and differentiation, reproduction, parental behavior, social behavior, homeostasis, biological rhythms, stress, learning and memory, and affect. Multidisciplinary approaches to understand neuroendocrine function and dysfunction from the molecular to systems level will be covered.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

NSCI 8008. Neuropsychopathology. 3 Credit Hours.

This course will provide an in-depth exploration of neuropsychopathology. Students will learn about recent advances in the understanding of the neurobiology mechanisms that underlie psychiatric disease, neurodegenerative, and neurological disorders. How available and experimental treatments for these disorders work also will be covered.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

NSCI 8009. Neuroscience Drug Discovery. 3 Credit Hours.

This course will consist of a series of didactic sessions and seminar-style discussions on topics that cover major aspects of the drug discovery process including lead/target identification, validation, preclinical pharmacology, toxicity and clinical trials. The course will also address unique challenges of research translation from preclinical to early and late phases of clinical development. Additionally, the technical and clinical aspects of biomarker validation needed to be applied to the different aspects of drug development process will be discussed.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

NSCI 8010. Topical Seminar in Neuroscience. 3 Credit Hours.

This seminar course will expose graduate students to contemporary issues in a specific area of neuroscience. Students will examine different topics through interactive lectures, discussion of research papers in a seminar-like format, and critical analysis of research studies. Importantly, this course will allow students to develop perspectives on recent advances in diverse areas including cellular and molecular neuroscience, systems and behavioral neuroscience, developmental neuroscience, social neuroscience, cognitive neuroscience, and overlapping cross-cutting themes across these areas. The course topics/themes will vary from semester to semester.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

NSCI 9381. Readings in Neuroscience. 1 Credit Hour.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

NSCI 9991. Directed Research. 1 to 6 Credit Hour.

This course is intended to meet the needs of students who desire to carry on an individual investigation while working towards the Master's degree in Neuroscience.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.