

NEUROSCIENCE (NSCI)

NSCI 0--. NSCI LOWER DIVISION. (0-10 Credits)

Lower Level Coursework in Neuroscience

Level: Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions: None

Primary grade mode: Transfer

Schedule type(s): Lecture

Area(s) of Inquiry: None

NSCI 001. INTRODUCTION TO NEUROSCIENCE. (3 Credits)

This course explores the core concepts of the interdisciplinary field of neuroscience. Emphasis is placed on cellular mechanisms, neurotransmission, human brain anatomy, sensory physiology, the motor system, emotion, sleep, cognitive neuroscience, and psychopathology. Although a comparative perspective is taken, human neuroscience is emphasized. This course serves as preparation for many advanced neuroscience courses.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions: None

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Lecture, Web Instructed

Area(s) of Inquiry: Life Science

NSCI 1--. NSCI UPPER DIVISION. (0-10 Credits)

Upper Level Coursework in Neuroscience

Level: Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions: None

Primary grade mode: Transfer

Schedule type(s): Lecture

Area(s) of Inquiry: None

NSCI 010. RESEARCH METHODS IN NEUROSCIENCE. (3 Credits)

An overview of current methodologies used to study neural processes and behavior. Topics include electrophysiology, neuroanatomy, stereology, cellular and molecular neuroscience, genetic manipulations, and imaging approaches. Prereq: NSCI 001.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): NSCI 001

Corequisite(s): None

Restrictions:

Enrollment is limited to students with an minor in Neuroscience or Neuroscience.

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Lab, Lecture, Web Instructed

Area(s) of Inquiry: None

NSCI 090. INDEPENDENT STUDY. (1-3 Credits)

Directed independent study that introduces students to techniques and skills that are necessary to conduct advanced research (NSCI 190/191).

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions: None

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None

NSCI 91. INDEPENDENT STUDY. (1-3 Credits)

Directed independent study that introduces students to techniques and skills that are necessary to conduct advanced research (NSCI 190/191).

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions: None

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None

NSCI 095. SPECIAL TOPICS IN NEUROSCIENCE. (1-4 Credits)

This is a special topics course in neuroscience designed to introduce students to a specific area of neuroscience. Prerequisites: NSCI 001, NSCI 010, or permission of instructor.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): NSCI 001 and NSCI 010

Corequisite(s): None

Restrictions:

Enrollment is limited to students with an area(s) of study in Biology, Neuroscience, Pharmacy or Psychology.

Students in the Law college may **not** enroll.

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Lecture, Web Instructed

Area(s) of Inquiry: None

NSCI 126. NEUROCHEMISTRY. (3 Credits)

This course focuses on the chemical and molecular basis of neural transmission in the brain. Topics include mechanisms of neurotransmitter synthesis, vesicular packaging and release, signaling through ionotropic and metabotropic receptors, intracellular signaling mechanisms, hormones and growth factors, synaptic plasticity, and the neurochemical underpinnings of selected psychiatric and neurological disease.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): CHEM 097 and CHEM 108 and (BIO 012 or NSCI 001)

Corequisite(s): None

Restrictions:

Students with a classification of Freshman or Sophomore may **not** enroll.

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Lecture, Web Instructed

Area(s) of Inquiry: None

NSCI 127. BEHAVIOR GENETICS. (3 Credits)

This course provides an overview of the field of behavior genetics, with special emphasis given to the use and interpretation of animal models in behavioral genetic research. Prereq: BIO 012 or NSCI 001. Cross listed with PSY 127 and BIO 107.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): BIO 012 or NSCI 001

Corequisite(s): None

Restrictions:

Enrollment limited to students in the Arts & Sciences or Pharmacy & Health Sciences colleges.

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Lecture, Web Instructed

Area(s) of Inquiry: None

NSCI 150. FUNCTIONAL NEUROANATOMY. (3 Credits)

This course provides an overview of central nervous system anatomy, with an emphasis on how localized damage to the brain and spinal cord produce impairments in sensation, movement, emotions, and memory.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): NSCI 001 and (NSCI 010 or BIO 012)

Corequisite(s): None

Restrictions: None

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Lecture, Web Instructed

Area(s) of Inquiry: None

NSCI 151. HISTORY OF NEUROSCIENCE. (3 Credits)

Neuroscience formally emerged from psychology and physiology as a strongly interdisciplinary field in the 1960s. Contemporary neuroscience draws upon the disciplines of neurophysiology, psychology, biochemistry, molecular biology, pharmacology and medicine, and therefore shares much of the history of those fields. This course will examine the roots of neuroscience in pre-Renaissance philosophy and medicine, and trace the origins of neuroscientific thought from the Renaissance through the 20th century. The course will emphasize the inter-connections between physiology, philosophy and ultimately psychology that shared the goals of understanding the mind body problem and the role of nativism and empiricism. This course serves as a capstone course in the neuroscience major and will involve significant discussion requirements as well as written and oral presentation assignments.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): NSCI 001 and NSCI 010

Corequisite(s): None

Restrictions:

Students with a classification of Freshman or Sophomore may **not** enroll.

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Lecture, Web Instructed

Area(s) of Inquiry: None

NSCI 152. NEUROBIOLOGY OF LEARNING & MEMORY. (3 Credits)

This course will provide students with an overview of synaptic and systemic neurobiological changes associated with memory formation and storage, with a particular emphasis placed on the molecular events that underlie short and long term synaptic plasticity.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): NSCI 001 and NSCI 010

Corequisite(s): None

Restrictions:

Enrollment limited to students with a classification of Junior, Sophomore or Senior.

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Lecture

Area(s) of Inquiry: None

NSCI 190. INDEPENDENT STUDY IN NEUROSCIENCE. (1-3 Credits)

Students actively participate in the design, execution, analysis, or interpretation of research relevant to neuroscience. The specific content of the course varies with the student and instructor. The workload depends on the number of credit hours for which the student has enrolled, but corresponds to the University guideline of approximately 3 hours per week per credit hour enrolled. Prereq: Nine hours of psychology, biology, neuroscience, or any combination of these, and written consent of instructor.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions:

Enrollment limited to students with a classification of Junior, Sophomore or Senior.

Enrollment is limited to students with an major in Biology, Neuroscience, Pharmacy or Psychology.

Students in the Law college may **not** enroll.

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None

NSCI 190C. INDEPENDENT STUDY CAPSTONE. (3 Credits)

An independent neuroscience research project that culminates in a formal research paper or presentation. Prereq: junior standing as a neuroscience major, 22 credit hours in neuroscience major coursework including preparatory courses, and approval of the faculty supervisor and department chair.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions:

Enrollment limited to students with a classification of Junior or Senior.

Enrollment is limited to students with an major in Neuroscience.

Enrollment limited to students in a Bachelor of Science degree.

Enrollment limited to students in the following colleges:

- Arts & Sciences
- Education
- Journalism & Mass Comm
- Pharmacy & Health Sciences
- Zimpleman College of Business

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None

NSCI 191. INDEPENDENT STUDY IN NEUROSCIENCE. (1-3 Credits)

Students actively participate in the design, execution, analysis, or interpretation of research relevant to neuroscience. The specific content of the course varies with the student and instructor. The workload depends on the number of credit hours for which the student has enrolled, but corresponds to the University guideline of approximately 3 hours per week per credit hour enrolled. Prerequisites: Nine hours of psychology, biology, neuroscience, or any combination of these, and written consent of instructor.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions:

Enrollment limited to students with a classification of Junior, Sophomore or Senior.

Enrollment is limited to students with an major in Biology, Neuroscience, Pharmacy or Psychology.

Students in the Law college may **not** enroll.

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None

NSCI 191C. INDEPENDENT STUDY CAPSTONE. (0-3 Credits)

An independent neuroscience research project that culminates in a formal research paper or presentation. Prereq: Junior standing as a neuroscience major, 22 credit hours in neuroscience coursework including preparatory courses, and approval of the faculty supervisor and department chair.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions:

Enrollment limited to students with a classification of Junior or Senior.

Students cannot enroll who have a major in Neuroscience.

Enrollment limited to students in a Bachelor of Science degree.

Enrollment limited to students in the following colleges:

- Arts & Sciences
- Education
- Journalism & Mass Comm
- Pharmacy & Health Sciences
- Zimpleman College of Business

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None

NSCI 192. INTERNSHIP. (1-3 Credits)

Students work in an applied setting where they develop skills learned in neuroscience. Prereq: Junior standing as a neuroscience major or minor, 12 credit hours in neuroscience major courses including preparatory courses, 2.80 grade point average, and approval of the faculty internship supervisor and department chair.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions:

Enrollment limited to students with a classification of Junior or Senior.

Enrollment is limited to students with an major in Neuroscience.

Enrollment limited to students in a Bachelor of Science degree.

Enrollment limited to students in the following colleges:

- Arts & Sciences
- Education
- Journalism & Mass Comm
- Pharmacy & Health Sciences
- Zimpleman College of Business

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None

NSCI 192C. INTERNSHIP CAPSTONE. (3 Credits)

Students work in an applied setting where they develop skills learned in neuroscience and complete a comprehensive research project relating the internship activity to an area of knowledge in neuroscience. Prereq: Junior standing as a neuroscience major, 22 credit hours in neuroscience major courses including preparatory courses, 2.80 grade point average, and approval of the faculty internship supervisor and department chair.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions:

Enrollment limited to students with a classification of Junior or Senior.

Enrollment is limited to students with an major in Neuroscience.

Enrollment limited to students in a Bachelor of Science degree.

Enrollment limited to students in the following colleges:

- Arts & Sciences
- Education
- Journalism & Mass Comm
- Pharmacy & Health Sciences
- Zimpleman College of Business

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None

NSCI 195. SPECIAL TOPICS SEMINAR. (1-4 Credits)

A variable topics course designed to introduce students to advanced topics of contemporary significance in neuroscience. Course credit varies with extensiveness of topic. Prereq: NSCI 001, NSCI 010, or permission of instructor.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): NSCI 001 or NSCI 010 or PSY 011 or (STAT 071 and

STAT 072) or BIO 099

Corequisite(s): None

Restrictions: None

Schedule type(s): Independent Study, Lab, Lecture, Web Instructed

Area(s) of Inquiry: None

NSCI 198. RESEARCH SEMINAR. (3 Credits)

This course is a research seminar in which students will actively participate in a research project relevant to neuroscience. Instructor approval is required.

Level: Non Degree Coursework, Professional Health Care, Undergraduate

Prerequisite(s): None

Corequisite(s): None

Restrictions: None

Primary grade mode: Standard Letter

Schedule type(s): Independent Study, Web Instructed

Area(s) of Inquiry: None