

NEUROSCIENCE (NCIS)

NSCI 1000 The Neuropsychiatric Patient

[1 credit hour]

Introduction to the diagnosis, disease and pathophysiology of the nervous system, with an emphasis on live patient interviews, didactic Q and A sessions with patients, and integration of basic disease pathophysiology with neuroanatomy and neurophysiology.

Term Offered: Spring, Fall

NSCI 2050 Fundamentals of Neuroscience I

[3 credit hours]

Introduction to the structure and function of the nervous system at cellular and anatomical levels, with an emphasis on neuronal communication, information flow, and integration among major nervous system components

Prerequisites: BIOL 2170 with a minimum grade of C and CHEM 1230 with a minimum grade of C

Term Offered: Spring, Fall

NSCI 3050 Fundamentals of Neuroscience II

[3 credit hours]

Exploration of the major neural mechanisms that generate, transform, integrate, and store information, drive behavior, maintain physiological homeostasis, and cause neurological disease when compromised.

Prerequisites: (BIOL 2050 with a minimum grade of C or NSCI 2050 with a minimum grade of C) and CHEM 1240 with a minimum grade of C

Term Offered: Fall

NSCI 3060 Neuroscience Laboratory

[2 credit hours]

A practical course providing training in foundational laboratory techniques in the neurosciences.

Prerequisites: NSCI 3050 with a minimum grade of C and BIOL 2180 with a minimum grade of C

Term Offered: Spring

NSCI 4010 Functional Neuroanatomy

[3 credit hours]

The goal of this course is to provide the student with a detailed understanding of multiple aspects of functional neuroanatomy. The course will cover basic knowledge supported by case studies or relevant current research. Each topic will cover both gross and microscopic structure with an emphasis on understanding how the structure underlies the function.

Prerequisites: NSCI 3050 (may be taken concurrently) with a minimum grade of D-

Term Offered: Spring

NSCI 4020 Neuropharmacology

[3 credit hours]

This course covers the neuropharmacotherapy of the movement disorders, epilepsy and anticonvulsant drugs, migraine and anti-migraine drugs, sleep disorders, anxiety disorders, depression, bipolar disorders, stimulants, schizophrenia and antipsychotics.

Prerequisites: NSCI 3050 with a minimum grade of D-

Term Offered: Fall

NSCI 4030 Cell Biology of Neurons and Glia

[3 credit hours]

An advanced course examining the cell biology of neurons and glia in normal nervous system function and disease.

Prerequisites: NSCI 3050 with a minimum grade of C and BIOL 3030 with a minimum grade of C

Term Offered: Fall

NSCI 4050 Cognitive Neuroscience

[3 credit hours]

This course will examine the core cognitive processes underlying human behavior and relate them to underlying cellular, physiological and anatomical substrates. The methods, techniques and approaches used to study these processes in humans, as well as in model organisms, will be explored.

Prerequisites: NSCI 3050 with a minimum grade of D-

Term Offered: Spring

NSCI 4100 Neuroinformatics

[3 credit hours]

Introduction to computational techniques as they relate to the field of neuroscience, with an emphasis on hands-on training and understanding of the processes involved.

Prerequisites: BIOL 3010 with a minimum grade of D-

Term Offered: Fall

NSCI 4510 Medical Neuroanatomy I - Topographic

[3 credit hours]

This course is designed for Neuroscience undergraduate students to study the anatomy of the central and peripheral nervous systems. The student will have a solid working knowledge of both the external and internal structure of the nervous system as well as neurological pathways, systems, and circuits.

Prerequisites: NSCI 4010 with a minimum grade of D-

Term Offered: Fall

NSCI 4520 Medical Neuroanatomy II - Systems

[3 credit hours]

This course is designed for Neuroscience undergraduate students to study the functional aspects of the neurological pathways and circuits of the central nervous system. The student will have a solid working knowledge of both the external and internal structure of the nervous system as well as neurological pathways, systems, and circuits.

Prerequisites: NSCI 4510 with a minimum grade of D-

Term Offered: Spring

NSCI 4710 Biophysics of Excitable Membranes

[3 credit hours]

Overview of major components and physical principles that define function of cell membranes including the structure of cell membrane, presence of pumps, channels and transporters.

Prerequisites: NSCI 3050 (may be taken concurrently) with a minimum grade of D- and PHYS 2080 (may be taken concurrently) with a minimum grade of D- and MATH 1760 (may be taken concurrently) with a minimum grade of D-

Term Offered: Spring

NSCI 4910 Biomedical Publishing

[1 credit hour]

Academic and student development course offering an introduction to an open access peer reviewed journal. Offers strategies to gain a better understanding of this example of journal system by examining and eventually assisting with The University of Toledo Journal of Medical Sciences (Translation) through process, procedures, and application.

Term Offered: Spring, Summer, Fall