NEUROSCIENCES (NEUS)

NEUS 609. Cellular and Molecular Neuroscience. 4 Hours.
Semester course; 4 lecture hours. 4 credits. Recommended preparation:
BIOC 503-504 or equivalent. Designed as an interdisciplinary introduction
to the cellular and molecular aspects of central nervous system function.
The basic principles of neuroscience including neuronal structure,
electrical properties of single neurons, cell biology of neurotransmitter
release and postsynaptic function will be discussed, followed by
intracellular signaling in neurons, gene regulation, transgenic model
systems, glia, neuronal development, basic neurochemistry, and
molecular and cellular aspects of motor, sensory and integrative function.
The course will conclude with lectures on various aspects of neural injury
and disease, including traumatic brain injury, Parkinson's and Alzheimer's
diseases.

NEUS 619. Synaptic Organization of the Brain. 3 Hours.
Semester course; 4 lecture and laboratory hours. 3 credits. Prerequisite:
ANAT 610 or equivalent and permission of instructor. Designed to provide
an in-depth integrative examination of the neural circuitry underlying the
functions of selected regions of the brain and spinal cord. During each
class meeting, faculty present lectures followed by an oral presentation
by a student. Lecturers will highlight principles that are common to
all regions of the central nervous system as well as adaptations that
are unique to each. Student also complete weekly take-home essay
assignments.

NEUS 640. Neurobiology of CNS Diseases. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: Background in
cellular and systems neuroscience similar to NEUS 609 and ANAT 610
or consent of course director. The course explores the cellular and
molecular basis of major diseases and conditions affecting the central
nervous system as well as current and developing treatment strategies
and translational approaches. Topics include stroke and cerebrovascular
disease, neurotrauma and regeneration, epilepsy, neurodevelopmental
disorders, neurodegenerative disease and dementia, demyelinating
diseases, neuropsychiatric disorders and autism, neurooncology, and
neuroAIDS.

NEUS 690. Neuroscience Research Seminar. 1 Hour.
Semester course; 1 lecture hour. 1 credit. Consists of faculty and visiting
lecturers presenting current research in neuroscience. Students attend
one seminar per week and submit a one-page summary description of the
seminar. Graded as S/U/F.

NEUS 697. Directed Research. 1-15 Hours.
Semester course; variable hours. 1-15 credits. Research leading to the
Ph.D. degree and elective research for other students. Graded as S/U/F.