Program in Neuroscience
College of Natural Science

301  Introduction to Neuroscience I
Fall, 3(3-0) P: (BS 161 or BS 181H or LB 145) and (BS 162 or BS 191H or LB 145)
RB: PSY 101 R: Open to undergraduate students in the Program in Neuroscience.
Survey of the field of neuroscience, including molecular, cellular, and autonomic sensory and motor systems.

302  Introduction to Neuroscience II
Spring, 3(3-0) P: NEU 301 RB: PSY 101 R: Open to undergraduate students in the Program in Neuroscience.
Survey of brain-based behavioral and cognitive systems and related human diseases.

311L  Neuroscience Laboratory (W)
Fall, Spring, 2(1-3) P: (NEU 301 or concurrently) and completion of Tier I writing requirement and (STT 201 or STT 231 or STT 421) and (BS 171 or BS 191H or LB 145) RB: PSY 101 R: Open to undergraduate students in the Program in Neuroscience.
Overview of neuroscience research methodology, including experimental design, data analysis, and presentation of results.

420  Neurobiology of Disease
Spring, 3(3-0) P: NEU 301 and NEU 302 R: Open to undergraduate students in the Program in Neuroscience.
Genetic, molecular, cellular, systems, and behavioral abnormalities that contribute to the manifestation of neurologic and psychiatric diseases and disorders that affect the nervous system.

800  Neuroscience Research Forum
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 99 credits in all enrollments for this course.
Readings, presentations, and discussions of research literature in neuroscience. Professional development.

804  Molecular and Developmental Neurobiology
Fall, 3(3-0) Interdepartmental with Pathobiology and Diagnostic Investigation and Pharmacology and Toxicology and Psychology and Zoology. Administered by Neuroscience. RB: Bachelor's degree in a Biological Science or Psychology. R: Open to graduate students in Neurosciece major.
Nervous system specific gene transcription and translation. Maturation, degeneration, plasticity, and repair in the nervous system.

806  Advanced Neuroscience Techniques Laboratory
Spring, 3(0-9) Interdepartmental with Pharmacology and Toxicology and Physical Medicine and Rehabilitation and Psychology and Radiology. Administered by Neuroscience. RB: PHTM 827 R: Open only to doctoral students in the Neuroscience major.
Methods and underlying principles of neuroscience research.

811  Advanced Behavioral Neuroscience
Spring, 3(3-0) Interdepartmental with Psychology. Administered by Psychology. RB: (PSY 411) or approval of department. R: Open only to graduate students in the Psychology major or Neuroscience major.
Biological mechanisms involved in learning and memory, motivated behaviors, biological rhythms, and psychopathologies.

820  Advanced Neuroanatomy
Summer of odd years. 1 to 5 credits. A student may earn a maximum of 12 credits in all enrollments for this course. Interdepartmental with Human Anatomy. Administered by Neuroscience. R: Approval of department.
Current topics in anatomy and physiology processes of central nervous system cells.

827  Physiology and Pharmacology of Excitable Cells
Fall, 4(4-0) Interdepartmental with Pharmacology and Toxicology and Physiology and Zoology. Administered by Pharmacology and Toxicology. RB: PSL 431 or PSL 432 or BMB 401 or BMB 461 or ZOL 402
Function of neurons and muscle at the cellular level: membrane biophysics and potentials, synaptic transmission, sensory nervous system function.

839  Systems Neuroscience
Spring, 4(4-0) Interdepartmental with Human Anatomy and Pharmacology and Toxicology and Physiology and Zoology. Administered by Neuroscience. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Agriculture and Natural Resources, Natural Science, Social Science, and Veterinary Medicine. SA: ANT 839
Anatomy, pharmacology, and physiology of multicellular neural systems. Sensory, motor, autonomic, and chemoregulatory systems in vertebrate brains.

885  Vertebrate Neural Systems
Fall of odd years. 3(2-2) Interdepartmental with Human Anatomy and Physiology. Administered by Neuroscience. RB: ZOL 402 or NOP 552 or NEU 839 SA: ANT 885
Comparative analysis of major component systems of vertebrate brains. Evolution, ontogeny, structure, and function in fish, amphibians, reptiles, birds and mammals.

890  Independent Study in Neuroscience
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. RB: Bachelor's degree in neuroscience, biology, psychology, or related area.
Supervised student research on a specialized research topic in basic or clinical neuroscience.

899  Master's Thesis Research
Fall, Spring, Summer. 1 to 36 credits. A student may earn a maximum of 99 credits in all enrollments for this course.
Master's thesis research.

992  Advanced Topics in Neuroscience
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. RB: (NEU 804 and NEU 811 and NEU 827 and ANT 839) and Bachelor's degree in neuroscience, biology, psychology or related area.
Readings, presentations and discussions of specialized topics in neuroscience.

999  Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 120 credits in all enrollments for this course.
Doctoral dissertation research.