

# NEUROSCIENCE

# NEU

## Program in Neuroscience College of Natural Science

### 800 Neuroscience Research Forum

Fall, Spring, Summer. 1(1-0) A student may earn a maximum of 8 credits in all enrollments for this course. RB: Bachelor's degree in neuroscience, biological or psychological science, or related area.

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 Neuroscience 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: PHM 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 Psychology 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 chemo-regulatory systems in vertebrate brains.

### 885 Vertebrate Neural Systems

Spring of odd years. 3(2-2) Interdepartmental with Human Anatomy and Physiology. Administered by Neuroscience. 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 Bachelors degree in neuroscience, biology, psychology or related area.

Readings, presentations and discussion 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.