

# Neuroscience

## Chair

- Daniel T. Tranel (Neurology/Psychological and Brain Sciences)

**Graduate degree:** PhD in neuroscience

**Faculty:** <https://neuroscience.grad.uiowa.edu/people/faculty>

**Website:** <https://neuroscience.grad.uiowa.edu>

## Courses

## Neuroscience Courses

### **NSCI:5212 Foundations in Behavioral and Cognitive Neuroscience** 4 s.h.

Concepts, methods, and findings in behavioral and cognitive neurosciences. Prerequisites: BIOL:3253. Same as PSY:5212.

### **NSCI:5365 Seminar: Neuropsychology and Neuroscience** arr.

Clinical neuropsychology and cognitive neuroscience: cutting-edge research from scientific journals, case presentations in clinical neuropsychology, and current research. Same as NEUR:5365, PSY:5365.

### **NSCI:5653 Fundamental Neurobiology I** 3 s.h.

Neurobiology from molecular/cellular to systems levels, including cell biology of the neuron; membrane electrophysiology; synaptic transmission and plasticity, functional neuroanatomy, sensory, motor and autonomic systems; emotion, memory, sleep, language, attention and cognition, neuronal development; focus on systems and developmental neurobiology; first in a two-semester sequence. Same as BIOL:5653, PSY:5203.

### **NSCI:5654 Fundamental Neurobiology II** 3 s.h.

Neurobiology from molecular/cellular to systems levels, including cell biology of the neuron; membrane electrophysiology; synaptic transmission and plasticity; functional neuroanatomy, sensory, motor and autonomic systems; emotion, memory, sleep, language, attention and cognition, neuronal development; focus on molecular/cellular neurobiology and neurophysiology; second in a two-semester sequence. Prerequisites: BIOL:5653 or NSCI:5653 or PSY:5203. Same as BIOL:5654, PSY:5205.

### **NSCI:5658 Fundamental Neurobiology I Discussion** 2 s.h.

Discussion of selected papers, including classics from neurobiology literature; coordinated with BIOL:5653 lecture material. Same as BIOL:5658, PSY:5204.

### **NSCI:5659 Fundamental Neurobiology II Discussion** 2 s.h.

Discussion of selected papers, including classics from neurobiology literature; coordinated with BIOL:5654 lecture material. Same as BIOL:5659, PSY:5206.

### **NSCI:6050 Advanced Quantitative Training for Neuroscience** 4 s.h.

Review of statistical inference, type-I errors, statistical power, measurement reliability issues in context of between-/within-subjects t-tests, ANOVAs, correlations, and regressions with attention to causality and generalizability; multiple linear regression, model building, model testing, confounding/mediation, interactions; mixed models with nested/crossed, fixed/random factors, and repeated measure designs. Offered spring semesters. Prerequisites: PSY:5050.

### **NSCI:6265 Neuroscience Seminar** 0-1 s.h.

Research presentations. Same as ACB:6265, BIOL:6265, MPB:6265, PSY:6265.

### **NSCI:7235 Neurobiology of Disease** 3 s.h.

Broad, thematic understanding of disease mechanisms in neurobiological disorders. Prerequisites: ACB:6252. Same as NEUR:7235.

### **NSCI:7301 Directed Study in Neuroscience** arr.

### **NSCI:7305 Neuroscience Research** arr.

Requirements: neuroscience graduate standing.