The KU-L/KUMC bicampus Neuroscience Graduate Program (http://www.neuroscience.ku.edu) is designed to prepare the student for a research and/or teaching career with concentrations in neuroscience. The program emphasizes research and the skills and knowledge required to perform and communicate the results of research. Modern neuroscience researchers/educators must be versed in a number of areas of neural research, spanning from molecular neuroscience to systems neuroscience. As such, the course of study in the program is broadly based; you are encouraged to enroll in courses offered by other programs or departments. The research opportunities in the program are widely varied and will accommodate many interests.

Nearly all Ph.D. students in the Neuroscience Graduate Program at the KU School of Medicine are admitted into the Interdisciplinary Graduate Program in the Biomedical Sciences (IGPBS). After the initial year of course work, students choose a neuroscience research mentor and then join the laboratory of the mentor. Coursework for the Neuroscience Graduate Program is offered at the KU Medical Center campus in Kansas City, Kansas as well as the University of Kansas in Lawrence. Several courses are taught on both campuses via videoconferencing. Comprehensive Exams for all students must be completed by the fall of the 3rd year in Graduate School. The program on the KUMC campus is directed by the KUMC Neuroscience Graduate Studies Committee consisting of the following faculty:

**KUMC Graduate Studies Committee Members:**

Douglas Wright, PhD  
Dianne Durham, PhD  
John Stanford, PhD  

Applications may be made online at: Interdisciplinary Graduate Program in Biomedical Sciences (IGPBS) (http://www.kumc.edu/igpbs.html). Inquiries related to the KUMC portion of the program may be directed to the Program Director:

Douglas Wright, Ph.D.  
Professor  
Director, Neuroscience Graduate Program, KUMC Campus  
Department of Anatomy & Cell Biology  
University of Kansas Medical Center  
Kansas City, KS 66160  
913-588-2713 (office)  
913-588-2710 (fax)  
dwright@kumc.edu (mpetroff@kumc.edu)

**Courses**

**NURO 710. Advanced Neurobiology. 3 Hours.**  
The course will build an in depth knowledge about basic mechanisms of synaptic communication among nerve cells and their targets, and the structure and function of nervous systems. Topics will include nervous system development and synapse formation, structure and function of neurons, physiological and molecular basis of synaptic communication between neurons, mechanisms of synaptic plasticity involved in learning and memory, sensory systems (vision, auditory, vestibular, motor reflexes and pain), processing of neural information at cellular and system levels, synapse regeneration and diseases of the nervous system. Prerequisite: BIOL 435 (Introduction to Neurobiology), or consent of instructor. LEC.

**NURO 775. Chemistry of the Nervous System. 3 Hours.**  
A detailed study of the molecular aspects of nerve transmission will be covered with special emphasis on the uptake, storage, release, biosynthesis, and metabolism of specific neurotransmitters. Drugs affecting these processes and current research on receptor isolation and receptor mechanisms will be discussed from a chemical viewpoint. (Same as BIOL 775, CHEM 775, MDCM 775, PTX 775, and PHCH 775.) Prerequisite: BIOL 600 or equivalent. LEC.

**NURO 799. Neuroscience Seminar Series. 2 Hours.**  
Presentations of research papers by faculty, post-doctoral research associates, and graduate students. All graduate students in the Neuroscience program participate in this seminar series throughout their period of training. Each student has to present a seminar once every semester. Presentations by students are evaluated by other graduate students and faculty at the end of each seminar. Prerequisite: Graduate standing in the Neuroscience program. LEC.

**NURO 800. Neuroscience Teaching Principles. 2 Hours.**  
This course is to be used by graduate students fulfilling the teaching requirements for the Ph.D. in Neuroscience. The student will function as a discussion leader and lecturer in a limited number of class sessions. Each student will meet with faculty whom he or she is assisting in preparation of presentation materials and tests. Each student will be evaluated by the faculty mentor and by the students in the class taught. Prerequisite: Graduate standing in Neuroscience. LEC.

**NURO 801. Issues in Scientific Integrity. 1 Hour.**  
Lectures and discussion on ethical issues in the conduct of a scientific career, with emphasis on practical topics of special importance in molecular-level research in the chemical, biological, and pharmaceutical sciences. Topics will include the nature of ethics, the scientist in the laboratory, the scientist as author, grantee, reviewer, employer/employee, teacher, student, and citizen. Discussions will focus on case histories. Graded on a satisfactory/unsatisfactory basis. (Same as MDCM 801, PTX 801, PHCH 801 and PHCH 802.) Prerequisite: Graduate standing in the Neuroscience program. LEC.

**NURO 825. Research in Neuroscience. 1-10 Hours.**  
Original investigations at an advanced level in the areas of neuroscience. The research by each student will be performed in the laboratory of one of the faculty mentors of the graduate program in Neuroscience. Prerequisite: Graduate standing in the Neuroscience program. LEC.

**NURO 844. Neurophysiology. 3 Hours.**  
Somatosensory, motor and cognitive function of the brain will be discussed using a combination of lecture and student presentation formats. Current issues and evidence underlying accepted concepts and mechanisms will be emphasized. (Same as PHSL 844.) Prerequisite: PHSL 846 or equivalent and consent of instructor. LEC.

**NURO 846. Advanced Neuroscience. 5 Hours.**  
Team-taught, in-depth neuroscience course focusing on normal and diseased brain function at the molecular, cellular and systems levels. Lectures and discussions will emphasize current issues in neuroscience research. (Same as ANAT 846, PHCL 846, and PHSL 846.) Prerequisite: Permission of the course instructor. LEC.
NURO 847. Developmental Neurobiology. 2 Hours.
Development of the nervous system from early induction to the development of learning and memory. Topics include: Induction; Cellular Differentiation; Axon Growth and Guidance; Target Selection; Cell Survival and Growth; Synapse Formation; Synapse Elimination; and Development of Behavior. (Same as ANAT 847 and PHSL 847.) Prerequisite: Advanced Neuroscience (ANAT 846; NURO 846; PHSL 846) or consent of instructor. LEC.

NURO 848. Molecular Mechanisms of Neurological Disorders. 3 Hours.
An in-depth coverage of pathogenic mechanisms in neurological diseases; cellular and molecular responses to brain injury and disease, neuroinflammatory diseases (e.g., multiple sclerosis), neurodegenerative diseases (e.g., Alzheimer's, Parkinson's, Huntington's, amyotrophic lateral sclerosis, and prion diseases), neurogenetic diseases (e.g., lysosomal and peroxisomal disorders, Down's syndrome and fragile X), trauma, stroke, and viral diseases (e.g., HIV encephalitis). (Same as ANAT 848, PHCL 848, and PHSL 848.) Prerequisite: Advanced Neuroscience (ANAT 846, PHCL 846 or PHSL 846) or an equivalent course and consent of instructor. LEC.

Hours and credit for this course to be arranged with the mentor. Independent investigation of a research problem in neuroscience, but of limited scope. Prerequisite: Graduate standing in the Neuroscience program and consent of mentor/instructor. THE.

Hours and credit for this course to be arranged with the mentor. Conduct of original investigation in neurosciences. Prerequisite: Graduate standing in the Neuroscience program post-oral comprehensive examination and consent of mentor/instructor. THE.