Department of Neuroscience

The structure of the human body is presented in two courses: Human Body: Anatomy, Embryology, Imaging (Neurosci 501B), offered in the first semester, and Histology and Cell Biology (Neurosci 502A), which extends over the first and second semesters. A third course, Neural Science (Neurol 554), is taught at the end of the second semester.

The Human Body: Anatomy, Embryology, Imaging is largely a laboratory course, and lectures deal with anatomical principles and human growth and development. Histology and Cell Biology focuses on cell and tissue biology, with laboratory sessions paralleling the lectures in these areas. Neural Science is an integrated course that deals with the structure, function and development of the nervous system from molecular, cellular and systems perspectives. Throughout all three courses, attention is paid to the results of recent investigations and to major developments in each field. In addition, the departmental faculty have a lead role in many graduate courses that may be taken as electives by students in any of the four years.

The department is well-equipped for specialized work in several areas, including gross anatomy, tissue culture and all aspects of neurobiology.

Website: http://neurosci.wustl.edu

Degrees & Requirements

While the Department of Neuroscience does not offer its own degree, some of the department's courses are open to students in the MD and MSTP (MD/PhD) programs. Further information about the MD and MSTP degrees can be found in the Degrees & Programs Offered (http://bulletin.wustl.edu/medicine/degrees) section of this Bulletin.

Research

M05 Neurosci 900
Cross-listed with L41 Biol 590

Kari Allen, PhD
North Building, 3rd Floor
Phone: 314-747-6572

Martha Bagnall, PhD
McDonnell Medical Sciences Building, 4th Floor
Phone: 314-362-9695
Molecular, electrophysiological, and behavioral analyses of neural circuits for vestibular control of spinal function.

Amy Bauernfeind, PhD
North Building, 3rd Floor
Phone: 314-747-6566
Biological bases of human cognition; comparative neurobiology of primates.

Azad Bonni, MD, PhD
McDonnell Medical Sciences Building, 8th Floor
Phone: 314-362-3033
Principles & mechanisms governing assembly & function of neural circuits, deregulation of mechanisms in neurological diseases.

Paul Bridgman, PhD
McDonnell Medical Sciences Building, 8th Floor
Phone: 314-362-3449
Cell biology of the developing nervous system.

Andreas Burkhalter, PhD
North Building, 4th Floor
Phone: 314-362-4068
Organization and function of neuronal circuits in mouse visual cortex.

Harold Burton, PhD
East McDonnell Building, 3rd Floor
Phone: 314-362-3556
Cortical functional reorganization in response to sensory changes due to unilateral deafness or strabismus.

Valeria Cavalli, PhD
McDonnell Medical Sciences Building, 9th Floor
Phone: 314-362-3540
Cellular, molecular and epigentic mechanisms controlling axon regeneration.

Krikor Dikranian, MD, PhD
North Building, 3rd Floor
Phone: 314-362-3548
Development and morphology of the amyloid plaques in experimental animals, neuropathological changes after head trauma.

James Fitzpatrick, PhD
McKinley Research Building, Basement
Phone: 314-747-0838
Optical and charged particle multiscale microscopy application method development.

Harrison Gabel, PhD
McDonnell Medical Sciences Building, 8th Floor
Phone: 314-362-3531
Gene regulation in the developing nervous system; molecular mechanisms of neurodevelopmental disorders.

Edward Han, PhD
McDonnell Medical Sciences Building, 9th Floor
Phone: 314-747-2505
Learning-related hippocampal network activation.
Timothy E. Holy, PhD  
North Building, 4th Floor  
Phone: 314-362-0086  
Mammalian pheromones: neural mechanisms of action.

Ilya Monosov, MS, PhD  
East McDonnell Building, 2nd Floor  
Phone: 314-362-3740  
Neuronal mechanisms of voluntary behavior.

Ashley Morhardt, PhD  
North Building, 3rd Floor  
Phone: 314-273-1859  
Evolution of neural diversity within and across non-mammalian vertebrate clades, especially dinosaurs.

Michael L. Nonet, PhD  
McDonnell Medical Sciences Building, 9th Floor  
Phone: 314-747-1176  
Molecular genetic analysis of synaptic development and function.

Karen L. O’Malley, PhD  
McDonnell Medical Sciences Building, 9th Floor  
Phone: 314-362-7087  
Molecular mechanisms underlying neurodegenerative processes. Signaling mechanisms associated with intracellular receptors.

Camillo Padoa Schioppa, PhD  
East McDonnell Building, 3rd Floor  
Phone: 314-362-3530  
Neuronal bases of economic choice and decision making.

Terry Ritzman, PhD  
North Building, 3rd Floor  
Phone: 314-273-1861  
Comparative anatomy of the skull in primates as it relates to human evolution.

Lawrence B. Salkoff, PhD  
McDonnell Medical Sciences Building, 9th Floor  
Phone: 314-362-3644  
The roles of ion channels in neuronal long-term excitability changes.

Paul J. Shaw, PhD  
McDonnell Medical Sciences Building, 9th Floor  
Phone: 314-362-2703  
Molecular genetics of sleep and circadian rhythms.

Lawrence H. Snyder, MD, PhD  
East McDonnell Building, 3rd Floor  
Phone: 314-747-3530  
Computational and cognitive issues in cortical control of eye and arm movement: electrophysiology and imaging.

Paul H. Taghert, PhD  
McDonnell Medical Sciences Building, 9th Floor  
Phone: 314-362-3641  
Neurobiology of circadian rhythms and neurobiology of peptidergic neurotransmission.

David C. Van Essen, PhD  
East McDonnell Building, 2nd Floor  
Phone: 314-362-7043  
Organization, function, and development of primate cerebral cortex, especially in humans; generation and utilization of neuroinformatics tools for data mining.

Jason Yi, PhD  
McDonnell Medical Sciences Building, 8th Floor  
Phone: 314-273-1664  
Molecular pathways shaping nervous system development and function.

Faculty

Department Chair

Azad Bonni, PhD, MD  
Visit our website for more information about our faculty (http://neurosci.wustl.edu/People/Faculty) and their appointments.

A

Kari Leigh Allen, PHD, MA  
Assistant Professor of Anatomy (primary appointment)  
Assistant Professor of Anthropology (Courtesy)  
PHD Duke University 2014  
BA State Univ of NY Potsdam 2005  
MA New Mexico St University 2008

B

Amy Lynn Bauernfeind, M PHIL, PHD  
Assistant Professor of Anatomy (primary appointment)  
Assistant Professor of Anthropology (Courtesy)  
M PHIL George Washington University 2011  
PHD George Washington University 2014  
BS Vanderbilt University 2004

Azad Bonni, MD, PHD  
Edison Professor of Neurobiology (primary appointment)  
Head of the Department of Neuroscience  
MD Queen’s University 1986  
PHD Harvard University 1996

Paul C Bridgman, PHD, MS  
Professor of Neuroscience (primary appointment)  
Associate Professor of Biomedical Engineering  
BA University of San Diego 1974  
PHD Purdue University 1980  
MS University of CA San Diego 1976

Andreas H Burkhalter, MS, PHD  
Professor of Neuroscience (primary appointment)
Associate Professor of Biomedical Engineering  
Associate Professor of Neurobiobility in Neurological Surgery  
MS University of Zurich 1973  
PHD University of Zurich 1977  

**Harold Burton, PHD**  
Professor of Neuroscience (primary appointment)  
Professor of Biomedical Engineering  
Professor of Cell Biology and Physiology  
Professor of Radiology  
BA University of Michigan 1964  
PHD Univ Wisconsin Madison 1968  

**Valeria Cavalli, MS, PHD**  
Associate Professor of Neuroscience (primary appointment)  
BS University of Geneva 1991  
MS University of Geneva 1992  
PHD University of Geneva 2000  

**Yao Chen, PHD, MS**  
Assistant Professor of Neuroscience (Pending Executive Faculty Approval) (primary appointment)  
BS Cambridge University 2002  
PHD Harvard University 2009  
MS Cambridge University 2006  

**Krikor T Dikranian, MD, PHD**  
Professor of Anatomy (primary appointment)  
Professor of Physical Therapy  
MD Medical University - Varna 1978  
PHD Medical University - Sofia 1992  

**Susan M Fitzpatrick, PHD**  
Adjunct Associate Professor of Neuroscience (primary appointment)  
Adjunct Associate Professor of Occupational Therapy  
PHD Cornell University 1984  
BS St Johns University 1978  

**James Alexander John Fitzpatrick, PHD**  
Associate Professor of Neuroscience (primary appointment)  
Associate Professor of Cell Biology and Physiology  
BS King's College London 2000  
PHD University of Bristol 2003  

**Harrison W. Gabel, AB, PHD**  
Assistant Professor of Neuroscience (primary appointment)  
AB Princeton University 2001  
PHD Harvard University 2008  

**Edward B. Han, PHD**  
Assistant Professor of Neuroscience (primary appointment)  
Assistant Professor of Anesthesiology  
PHD University of CA San Diego 2004  
BS Cornell University 1995  

**Martha B. Han, PHD**  
Assistant Professor of Neuroscience (primary appointment)  
PHD University of CA San Diego 2008  
BS Yale University 2000  

**Timothy E. Holy, PHD, MA**  
Professor of Neuroscience (primary appointment)  
Alan A and Edith L Wolf Professor of Neuroscience  
PHD Princeton University 1997  
MA Princeton University 1992  
BA Rice University 1991  

**Ilya E. Monosov, PHD, MS**  
Assistant Professor of Neuroscience (primary appointment)  
PHD Brown University 2009  
MS NewSchool Architecture Design 2005  
BS University of CA San Diego 2004  

**Ashley C. Morhardt, MS, PHD**  
Assistant Professor of Anatomy (primary appointment)  
BS Illinois College, Jacksonville 2006  
MS Western Illinois University 2009  
PHD Ohio University 2016  

**Michael L Nonet, PHD**  
Associate Professor of Neuroscience (primary appointment)  
BS University of CA Davis 1984  
PHD Mass Inst of Technology (MIT) 1989  

**Karen Laurel O'Malley, MS, PHD**  
Professor of Neuroscience (primary appointment)  
MS Portland St University 1973  
BA Sonoma State University 1971  
PHD University of Texas Austin 1980  

**Camillo Padoa-Schioppa, PHD, MS**  
Associate Professor of Neuroscience (primary appointment)  
Associate Professor of Economics (Courtesy)  
PHD Mass Inst of Technology (MIT) 2002  
MS La Sapienza University 1996  

**Thomas J Papouin, MS, PHD**  
Assistant Professor of Neuroscience (primary appointment)  
MS Ecole Normale Superieure Lyon 2007  
PHD University of Bordeaux 2 2011  
BS Ecole Normale Superieure Lyon 2005  

**Carlos Ramon Ponce, PHD, MD**
Courses

Visit online course listings to view offerings for M05 Neurosci (https://courses.wustl.edu/CourseInfo.aspx?sch=M&dept=M05).

M05 Neurosci 501B Human Body: Anatomy, Embryology, Imaging
The course is primarily lab-based, focusing on dissection of the human body. Lectures on functional and topographic anatomy emphasize the principles of organization of the various systems of the body. Lectures on developmental anatomy stress organogenesis as an adjunct to understanding the normal and abnormal anatomy. Small group discussions emphasize radiological anatomy and clinical correlations. Frequent use of CT, MRI, and X-ray images aid in the synthesis of knowledge gained through dissection. Cross-listed with L41 (Biol) 501. Credit 140 units.

M05 Neurosci 502A Histology and Cell Biology
The structures of cells, tissues, and major organ systems are studied in relationship to their functions. Lectures integrate histology with cell biology and physiology. The laboratories consist of the study of prepared slides and electron micrographs using an iBook or eBook (ePub) guide. An extensive online digital annotated atlas (slide-atlas.org) and a video library are used to supplement the slides and electron micrographs. Presentations of case studies provide examples of clinical relevance. A dual-view microscope and slide set will be issued for each pair of students. Limited space is available for non-medical students, who must have permission from the course director to enroll. The topics in this course are timed to integrate with the physiology course and span the fall and winter semesters. Credit 66 units.

M05 Neurosci 810 Advanced Dissection
Different regions of the body will be dissected in detail. A period of four weeks should be allowed for each region: head and neck, thorax and abdomen, and superior and inferior limbs. Surgical approaches, cross-sections, X-rays, and CT scans can be studied.