Department of Neuroscience

The structure of the human body is presented in two courses: Human Body: Anatomy, Embryology, Imaging (AnatNeuro 501B), offered in the first semester, and Microscopic Anatomy, 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 (AnatNeuro 502A) 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 AnatNeuro 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 epigenetic 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
Timothy E. Holy, PhD  
North Building, 4th Floor  
Phone: 314-362-0086  
Learning-related hippocampal network activation.

Arthur D. Loewy, PhD  
McDonnell Medical Sciences Building, 9th Floor  
Phone: 314-362-3930  
Mammalian pheromones: neural mechanisms of action.

Ilya Monosov, MS, PhD  
East McDonnell Building, 2nd Floor  
Phone: 314-362-3740  
Analysis of brain circuits controlling cardiovascular functions.

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.

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  
Dr. Azad Bonni  
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  
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Assistant Professor of Anthropology (Courtesy)  
BS Vanderbilt University 2004  
M PHIL George Washington University 2011  
PHD George Washington University 2014

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

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

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Associate Professor of Neurobiology in Neurological Surgery  
MS University of Zurich 1973  
PHD University of Zurich 1977

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Professor of Cell Biology and Physiology
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D
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G
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H
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BS University of CA San Diego 2004

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BS Illinois College, Jacksonville 2006
PHD Ohio University 2016

N
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O
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MS Portland St University 1973
PHD University of Texas Austin 1980

P
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Associate Professor of Economics (Courtesy)
PHD Mass Inst of Technology (MIT) 2002
MS La Sapienza University 1996

R
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Assistant Professor of Anatomy (primary appointment)
Assistant Professor of Anthropology
PHD Arizona State University 2014
BA University of Illinois 1999
MA Colorado St University 2005

S
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Professor of Genetics
BA University of CA Los Angeles 1967
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BA Niagara University 1985
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MS University of Rochester 1992  
MD University of Rochester 1992  
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Paul H Taghert, PHD  
Professor of Neuroscience (primary appointment)  
BA Reed College 1975  
PHD University of Washington 1981

David C Van Essen, PHD  
Alumni Endowed Professor of Neurobiology (primary appointment)  
Professor of Biomedical Engineering  
BS California Institute Technolo 1967  
PHD Harvard University 1971

Jason Yi, PHD  
Assistant Professor of Neuroscience (primary appointment)  
PHD Duke University 2009  
BS Dickinson College 2001

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

M05 AnatNeuro 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 AnatNeuro 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 (https://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 AnatNeuro 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.

M05 AnatNeuro 900 Research Elective - Anatomy and Neuroscience
Research opportunities may be available. If interested, please contact the Neuroscience Program.