Department of Neurology

Neurology concerns itself with the diseases of the brain, spinal cord, peripheral nerves and muscles. An introduction to the anatomy and physiology of the nervous system is presented in the first-year neuroscience course by faculty from the Department of Neuroscience (http://neurosci.wustl.edu), with participation of faculty from the Department of Neurology (http://neuro.wustl.edu). A first-year selective titled Clinical Correlations in Neurosciences (FYSelect 5017) is available, which is an opportunity for interested students to shadow physicians in neuro-related fields and to attend basic science or clinical conferences. During the second year, the Department of Neurology presents the course Diseases of the Nervous System (Neurol 632) in conjunction with the departments of Pathology & Immunology (http://pathology.wustl.edu), Neurosurgery (http://neurosurgery.wustl.edu) and Ophthalmology & Visual Sciences (http://ophthalmology.wustl.edu). The course emphasizes the pathophysiology, pathology, clinical manifestations and treatment of the major neurological and neurosurgical diseases. The department also participates in the Practice of Medicine course, providing lectures, demonstrations and teaching exercises with patients in neurological physical diagnosis.

For more information about the Department of Neurology and its 13 divisions, please visit the department website.

Website: https://neuro.wustl.edu/education

Degrees & Requirements

While the Department of Neurology 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

M35 Neurol 900

During the fourth year, opportunities exist for many varieties of advanced clinical or research experience.

Beau Ances, MD
Taylor Avenue Building Extension, 2nd Floor
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Neuroimaging of neurodegenerative disorders. Students can work in a neuroimaging laboratory that is focused on the translational discovery of neuroimaging biomarkers for neurodegenerative diseases. The laboratory focuses on the pathogenesis of Alzheimer's disease and HIV-associated neurocognitive disorders. We are investigating the effects of neurodegenerative diseases on the brain network level using functional (blood oxygen level dependent imaging, arterial spin labeling), structural (volumetrics, diffusion tensor imaging), and metabolic (PET amyloid and tau) methods. Multiple projects that involve bioengineering, neuroimaging and infectious disease are available, depending on the interest of the student.

Randall Bateman, MD
Biotechnology Center, Room 304
Phone: 314-747-7066

Central nervous system protein metabolism in aging and dementia. This research elective will expose the student to translational research in the study of Alzheimer's disease and other neurodegenerative diseases. The student will participate in multiple areas of the research, including participant recruitment, consent, enrollment and admission to a research hospital unit. Lumbar puncture for cerebrospinal fluid sample collection, blood collection and intravenous labeling methods will be demonstrated and taught. The student will participate in sample analysis, including processing for mass spectrometry quantitation, enzyme-linked immunosorbent assay and Western gel methods. Quantitation, analysis and modeling of the data will be taught in the context of data interpretation and study design.

Anne H. Cross, MD, and Laura Piccio, MD, PhD
McMillan, 3rd Floor
Phone: 314-747-4591 or 314-747-0405

Understanding interactions of the immune system with the central nervous system as it relates to multiple sclerosis and other neuroimmunological disorders. Our goal is to understand how immune cells cross the blood-brain barrier and initiate the cascade of events that leads to the lesions of multiple sclerosis. We are also funded to study the effects of diet and adipokines on neuroinflammation. Depending on the time commitment of the student and their individual interests and goals, they will either assist with ongoing projects or be given a laboratory project on which to work. Projects may involve animal models of multiple sclerosis, cell culture or studies of human samples (cerebrospinal fluid, blood or autopsied specimens). Interested students should contact Dr. Cross (crossa@neuro.wustl.edu) or Dr. Piccio (picciol@neuro.wustl.edu) several weeks in advance before signing up for this research to allow for sufficient planning.

Robert T. Naismith, MD
McMillan, Room 310B
Phone: 314-747-0432

Clinical imaging research in multiple sclerosis. The student will learn about neuroimaging, imaging analyses, data collection, data management and clinical study endpoints in multiple sclerosis. They will observe patient participants undergoing a
detailed evaluation of disability measures, such as ambulation, symptom scales, cognition, vision, upper extremity function, and so on. They will witness the entire process of image acquisition, processing, analysis and data extraction. They will have the opportunity to interact with many people who are vital to the research, including research coordinators, imaging technologists, imaging physicists/chemists and specialized research clinicians (i.e., neurocognitive and physical therapy research specialists).

The student will assist with hands-on clinical investigative research. They will gain an excellent appreciation of multiple sclerosis, from its pathophysiology within the central nervous system to how it affects the neurological function of individuals. Through detailed and quantitative imaging analysis, the student will become very adept at analyzing brain MRI scans. They will mark and track lesions to determine their effects on clinical function and learn to identify normal-appearing white matter, cortex and gray-matter structures. They will become familiar with Amira Imaging Analysis Software, SPSS Statistical Analysis Software, SIENA Volume Analysis Software and Matlab Imaging Analysis Software.

Steven E. Petersen, PhD
East Building, Room 2108
Phone: 314-362-3319

This lab is interested in brain organization and function, particularly for language, attention and memory. Our main approach to these issues is through functional MRI and large-scale network analysis.

Joel S. Perlmutter, MD
East Building, 2nd Floor
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Pathophysiology of movement disorders. The lab is primarily interested in the etiology, pathophysiology and treatment of basal ganglia disorders. We have several studies of Parkinson disease (PD). We investigate mechanisms of action of deep brain stimulation, which is a dramatic new treatment. These studies combine PET, cognitive testing and quantified measures of movement. We also test new drugs that might rescue injured nigrostriatal neurons (a model of PD). For these, we use PET to measure dopamine pathways and also to quantify motor behavior. We also have an active program developing and validating neuroimaging biomarkers for PD and for determining the integrity of the nigrostriatal pathway that includes studies in human and animal models of PD. We have an active program that combines a variety of approaches to developing biomarkers and investigating the pathophysiology of dementia associated with PD. We use PET to measure radioligand binding and sensorimotor processing in dystonia. We developed a new animal model of dystonia to investigate pharmacologic and physiologic changes. We use PET to investigate drug-mediated pathways in the brain and to parse out the effects of selective dopaminergic agonists. We are also working to develop MR-based methods including diffusion tensor imaging and resting-state functional connectivity to investigate the brain mechanisms underlying PD and dystonia.

Brad A. Racette, MD
McMillan, 9th Floor
Phone: 314-362-5291

Our lab is primarily interested in environmental risk factors associated with Parkinson's disease. We use a variety of techniques to study these risk factors, including traditional field epidemiology, in which we evaluate workers exposed to metals in the United States and residents living near a smelter in South Africa; neuroimaging, in which we study the pathophysiology of toxin-mediated parkinsonism; geographic information systems research, in which we associate environmental toxin exposures with the incidence and prevalence of Parkinson's disease in the United States and Finland; and neuropathologic studies, in which we evaluate manganese-exposed workers from South Africa. There are numerous opportunities available for students to be involved with any of these projects. Students will receive some clinical exposure as well to familiarize them with pertinent clinical syndromes.

Marcus E. Raichle, MD
East Building, 2nd Floor
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This lab investigates in vivo brain hemodynamic, metabolic and functional studies of human cognition and emotion using cyclotron-produced isotopes and PET as well as fMRI in humans. Refer also to the listing on this page for Steven E. Petersen, PhD.

Gregory Wu, MD, PhD
McMillan, 3rd Floor
Phone: 314-362-3293

Understanding how immune responses are generated that target the central nervous system. Specifically, this lab studies antigen-presenting cell contributions to autoimmune animal models of multiple sclerosis. Our goal is to understand what cellular interactions are critical to the development of immune-mediated demyelination.

Faculty
Department Chair

David Holtzman, MD

Visit our website for more information about our faculty (https://neuro.wustl.edu/Faculty) and their appointments.
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M  

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BS University of Texas Austin 2004

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Adjunct Assistant Professor of Neurology (primary appointment)
PHD Oklahoma St University 1998
MS Oklahoma St University 1995
BS California State Long Beach 1993

Toni Shih Pearson, B MUS, MD
Associate Professor of Neurology (primary appointment)
B MUS University of Adelaide 2000
MD University of Adelaide 1998

David M Peeples, MD
Instructor in Clinical Neurology (primary appointment)
BA Vanderbilt University 1982
MD University of Chicago 1986

Lindsay M Peglar
Assistant Professor of Neurology (primary appointment)
Assistant Professor of Pediatrics

Karen J Pentella, MD
Assistant Professor of Clinical Neurology (primary appointment)
MD Ohio State University 1979
BS Ohio State University 1975

Joel S Perlmutter, MD
Professor of Neurology (primary appointment)
Professor of Neurosience
Professor of Occupational Therapy
Professor of Physical Therapy
Professor of Radiology
MD University of MO Columbia 1979
BA Princeton University 1975

Alan Pestronk, MD
Professor of Neurology (primary appointment)
Professor of Pathology and Immunology
MD Johns Hopkins University Medic 1970
BA Princeton University 1966

Steven E Petersen, PHD
James S McDonnell Professor of Cognitive Neuroscience in Neurology (primary appointment)
Associate Professor of Neurological Surgery (Neuropsychology)
Professor of Biomedical Engineering
Professor of Neurosience
Professor of Psychological & Brain Sciences
Professor of Radiology
PHD California Institute Technolo 1982
BA University of Montana Missoula 1974

Daniel Phillips, MD, BE
Assistant Professor of Clinical Neurology (primary appointment)
MD Washington Univ in St. Louis 1980
BE Northwestern University 1982
BS Northwestern University 1976

Chia Ling Phuah, MD, MS1, MS
Assistant Professor of Neurology (primary appointment)
MD Cambridge University 2006
MS1 Cambridge University 2007
MS Harvard University 2016
BS Cambridge University 2003

Laura Piccio, MD
Associate Professor of Neurology (primary appointment)
MD University of Milan 1997

Stephanie K Powell, PHD, MS
Instructor in Clinical Neurology (primary appointment)
PHD Univ of Wisconsin Milwaukee 2004
MS Univ of Wisconsin Milwaukee 2000
BS University of Notre Dame 1994

William John Powers, MD
Adjunct Professor of Neurology (primary appointment)
MD Cornell University 1975
BA Dartmouth College 1971

Brad Alan Racette, MD
Robert Allan Finke Professor of Neurology (primary appointment)

Executive Vice Chair of Clinical Affairs, Department of Neurology
BA Princeton University 1988
MD Northwestern University 1992

David Martin Reisler, M PH, MD
Assistant Professor of Clinical Neurology (primary appointment)
M PH Johns Hopkns University Medic 1971
BA Harvard University 1957
MD Washington Univ in St. Louis 1961

Dave A Rengachary, MD
Instructor in Clinical Neurology (primary appointment)
BA Northwestern University 1996
MD Northwestern University 2000

Terri L Riutcel, MD
Associate Professor of Neurology (primary appointment)
BS University of MO Columbia 1991
MD Vanderbilt University 1995

Catherine M Roe, MA, PHD
Associate Professor of Neurology (primary appointment)
MA Southern Illinois University 1990
BA Purdue University 1986
PHD Southern Illinois University 1992

James R Rohrbaugh, MD
Associate Professor of Clinical Neurology (primary appointment)
Associate Professor of Clinical Pediatrics
MD Ohio State University 1974
BA Yale University 1971

Robert John Rudock, MBA1, MD
Assistant Professor of Neurology (primary appointment)
Assistant Professor of Pediatrics
MBA1 University of Miami 2011
BS John Hopkins University 2006
MD University of Miami 2012

Rimma Ruvinskaya, MD
Associate Professor of Neurology (primary appointment)
BA School Not Listed 1979
MD Leningrad Inst of Peds Med 1985

Robin C Ryther, MD, PHD
Assistant Professor of Neurology (primary appointment)
MD Vanderbilt University 2006
PHD Vanderbilt University 2004
BS University of MO Columbia 1998

Chihiro Sato, MS, PHD
Instructor in Neurology (primary appointment)
BS University of Tokyo 2003
MS University of Tokyo 2005
PHD University of Tokyo 2008

Andrew David Sauerbeck, PHD
Instructor in Neurology (primary appointment)
BS University of Kentucky 2005  
PHD University of Kentucky 2011

Anneliese M Schaefer, JD, PHD, BBA  
Professor of Neurology (primary appointment)  
JD Washington Univ in St. Louis 1988  
PHD Washington Univ in St. Louis 2001  
BBA Washington Univ in St. Louis 1985

Suzanne E. Schindler, PHD, MD  
Assistant Professor of Neurology (primary appointment)  
PHD Washington Univ in St. Louis 2008  
BS Millsaps College 1999  
MD Washington Univ in St. Louis 2008

Bradley L Schlaggar, MD, PHD  
Adjunct Professor of Neurology (primary appointment)  
MD Washington Univ in St. Louis 1994  
PHD Washington Univ in St. Louis 1994  
BS Brown University 1986

Kathleen Marie Schoch, PHD  
Instructor in Neurology (primary appointment)  
PHD University of Kentucky 2013  
BS Bradley University 2007

Earl R Schultz, MD  
Professor of Clinical Neurology (primary appointment)  
Associate Professor of Clinical Psychiatry  
BA Southeast Missouri St Univers 1952  
BS University of Missouri 1953  
MD Washington Univ in St. Louis 1955

Christian T Sheline, PHD  
Adjunct Research Associate Professor of Neurology (primary appointment)  
BA Dartmouth College 1983  
PHD University of California 1989

Gordon L Shulman, MS, PHD  
Professor of Neurology (primary appointment)  
Professor of Radiology  
BA Yale University 1975  
MS University of Oregon 1977  
PHD University of Oregon 1979

Todd B Silverman  
Instructor in Clinical Neurology (primary appointment)

Barry A. Singer  
Associate Professor of Clinical Neurology (primary appointment)

Christopher D Smyser, MD  
Associate Professor of Neurology (primary appointment)  
Associate Professor of Pediatrics  
Associate Professor of Radiology  
BS University of Iowa 1998  
MD University of Iowa 2004

Barbara Joy Snider, MD, PHD  
Professor of Neurology (primary appointment)  
BA Northwestern University 1979  
MD University of Texas Southwest 1989  
PHD University of Texas Southwest 1989

Richard Brian Sommerville, MD  
Associate Professor of Neurology (primary appointment)  
MD Columbia University 2005  
BS Harvard University 1999

Tara V. Spevack, MS, PHD  
Instructor in Clinical Neurology (primary appointment)  
BS McGill University 1987  
MS University of Florida 1994  
PHD University of Florida 1997

Katherine Caroline White Stenson, MD  
Associate Professor of Clinical Neurology (primary appointment)  
BA Washington Univ in St. Louis 1994  
MD Northwestern University Med 2018

Jeremy Fuller Strain, PHD  
Instructor in Neurology (Pending Dean's Approval) (primary appointment)  
BS University of Texas Arlington 2009  
PHD University of Texas Arlington 2015

Sandra L Tate, MD  
Instructor in Clinical Neurology (primary appointment)  
MD Southern Illinois University 1987

Mengesha A Teshome, MD  
Instructor in Neurology (primary appointment)  
MD Addis Ababa University 1989

Kwee L Thio, PHD, MD  
Professor of Neurology (primary appointment)  
Professor of Neuroscience  
Professor of Pediatrics  
PHD Washington Univ in St. Louis 1992  
MD Washington Univ in St. Louis 1992  
BS Brown University 1984

Jeffrey B. Titus, MA, PHD  
Assistant Professor of Clinical Neurology (primary appointment)  
MA University of Northern Corola 1999  
BS Evangel College 1997  
PHD Ball State University 2002

Stuart Ramm Tomko, MD  
Assistant Professor of Neurology (primary appointment)  
MD Baylor College of Medicine 2010  
BS Davidsonson College 2005

Norman Edwin Trevathan III, MD, MS  
Adjunct Professor of Neurology (primary appointment)  
BS David Lipscomb University 1977  
MD Emory University 1982
MS Emory University 1982
Angela M Tripp
Assistant Professor of Clinical Neurology (primary appointment)

U
Keisuke Ueda, MD
Assistant Professor of Neurology (primary appointment)
Assistant Professor of Pediatrics
MD Keio University 2006
Jason Daniel Ulrich, PHD
Assistant Professor of Neurology (primary appointment)
BS Quincy College 2004
PHD University of Iowa 2011
Mwiza Ushe, MD, MS
Assistant Professor of Neurology (primary appointment)
MD Washington Univ in St. Louis 2007
BS University of Pittsburgh 2000
MS Washington Univ in St. Louis 2007

V
Renee Bailey Van Stavern, MD
Professor of Neurology (primary appointment)
BA Texas A&M University 1991
MD Univ Texas Health Science Ctr 1997
Arun S. Varadachary, PHD, MD
Associate Professor of Neurology (primary appointment)
PHD Temple University 2001
MD Temple University 2004
Amy Robichaux Viehoever, BE, PHD, MD
Assistant Professor of Neurology (primary appointment)
Assistant Professor of Pediatrics
BE Catholic University America 1998
PHD Vanderbilt University 2004
MD Vanderbilt University 2006
Oksana Volshetyn, MD
Professor of Neurology (primary appointment)
Professor of Medicine
MD Minsk State Medical Institute 1976

W
Andrew M. Wayne, MD
Instructor in Clinical Neurology (primary appointment)
BS University of CA Riverside 1989
MD University of Missouri 1993
Ling Wei, MD
Adjunct Research Assistant Professor of Neurology (primary appointment)
MD Beijing Medical University 1977
Conrad Christian Weihl, MD, PHD
Professor of Neurology (primary appointment)
MD University of Chicago 2001
Professor of Pediatrics  
PHD Washington Univ in St. Louis 1995  
MD Washington Univ in St. Louis 1995  
BS Univ of Wisconsin Madison 1985  

Lirong Zhu, PHD, MD  
Assistant Professor of Clinical Neurology (primary appointment)  
PHD Baylor College of Medicine 2006  
MD Fudan University 2000  

Courses  

M35 Neurol 632 Diseases of the Nervous System  
The goal of this course is to provide an introduction to the diseases of the central and peripheral nervous systems, including their clinical manifestations, pathophysiology and pharmacotherapy. The course includes reading assignments, lectures, laboratories, team activities, and clinical presentations.  
Credit 53 units.

M35 Neurol 720 Neurology Clerkship  
During the four-week Neurology clerkship, students will gain proficiency in understanding diseases of the nervous system, the neurologic work-up, localization and differential diagnosis generation, and devising a treatment plan. A variety of settings are available, which could include adult or pediatric services, with both inpatient and outpatient experiences. Students will provide care for patients with neurologic problems under the supervision of residents, fellows, and attendings.  
Credit 154 units.

M35 Neurol 828 Neurology Subinternship for Visiting Medical Students  
This four-week elective for fourth-year visiting students from a U.S. medical school provides the option (space permitting) of four weeks of Adult Inpatient Service (Stroke for two weeks, General Neurology for two weeks) or two weeks on an Adult Inpatient Service and two weeks on the Adult Consult Service. Students on the inpatient service will function as subinterns under the supervision of their junior resident, chief resident, and attending physician. Students will also attend weekly clinical conferences and a weekly outpatient clinic experience. This elective is suitable for visiting fourth-year students interested in neurology who wish to improve their neurology knowledge and skills.

M35 Neurol 830 Neuro-Oncology  
This elective provides an outpatient-oriented pediatric and adult neuro-oncology experience for fourth-year medical students. Students will attend multidisciplinary adult and pediatric neuro-oncology clinics and case conferences (tumor boards), attend adult and pediatric radiation oncology clinics, attend neuropathology brain tumor review, participate in subspecialty brain tumor clinics, and attend monthly brain tumor research conferences.

M35 Neurol 851 Clinical Aspects of Aging and Dementia  
This elective provides the opportunity to learn about clinical research and clinical care in health brain aging and dementia. Students should contact the course directors to discuss this, as the elective is customized based on student interests. This can be a two-week or four-week elective. Students can gain proficiency in interviewing techniques and in the neurologic examination of the geriatric patient, and be introduced to neuropsychology, neuropathology, biomarkers, neuroimaging, genetics, and other biomedical procedures important in the diagnosis and evaluation of older adults. The Knight ADRC is an interdisciplinary group, so students have the opportunity to interact with physicians, nurse clinicians, psychologists and social workers, and to explore the neuropsychology, neuropathology, biomarkers, neuroimaging, genetics, and other biomedical procedures used in the diagnosis and management of disorders such as Alzheimer's disease, dementia with Lewy bodies, frontotemporal dementias, cerebrovascular disorders, and affective disorders.

M35 Neurol 859 Neonatal Neurology  
The Neonatal Neurology elective will consist of a combination of inpatient and outpatient experiences designed to provide medical students with comprehensive exposure to the field. Through the rotation, students will actively participate in all aspects of patient care, acquiring the knowledge and skill necessary to effectively evaluate infants with neurological disorders, including encephalopathy, stroke, seizures, hypotonia, intraventricular hemorrhage, and periventricular leukomalacia, among others. Clinical activities will be tailored to fit the interests and goals of the individual student and include a combination of inpatient and outpatient exposures. Inpatient activities will occur in the St. Louis Children's Hospital Neonatal Intensive Unit as part of the Neonatal Neurology Consultation service. Outpatient activities will occur in the St. Louis Children's Hospital Outpatient Clinics. Students will also attend educational conferences specific to the field during the rotation, including the Neonatal Neurology Clinical Conference and the Neonatal Neuroradiology Conference.

M35 Neurol 860 Pediatric Neurology  
The senior elective experience in child neurology is designed to adapt to the individual goals and objectives of students. The elective takes place in one or two 2-week blocks that occur among five possible venues as chosen by the student: 1. Outpatient clinics, 2. Inpatient ward service, 3. Inpatient general consult service, 4. NICU consult service, and 5. Video EEG (VEEG) monitoring service. The combination of services and experiences will be arranged directly between the student and the course director prior to beginning the rotation. In the outpatient clinics, students will rotate between a variety of subspecialty clinics and work with a variety of attendings in order to experience the breadth of outpatient pediatric neurology. Students rotating on the inpatient ward service will have a different role than the third-year student on pediatrics. The fourth-year student will have the option to participate in the pediatric neurology resident to develop and apply neurology-specific care plans. No call or weekend duties will be expected on this rotation. On the general consult services, students will work with the consult attending and pediatric neurology residents on that team to see consults in the PICU, CICU, ER, and other hospital floors. The NICU consult team focuses on infants in the NICU. Student rotating on the VEEG monitoring service will focus on learning the indications and uses of VEEG and basic EEG reading skills.
M35 Neurol 861 Neurol 861 Neurointensive Care Unit
The student will be integrated into the Critical Care Team that provides care in the Neurology/Neurosurgery ICU. Diseases frequently encountered include intracerebral hemorrhage, head trauma, subarachnoid hemorrhage, and stroke. The student will follow patients, participate in rounds and perform some procedures under supervision. Didactic sessions will be provided as conferences or lectures from the ICU attending and fellow.

M35 Neurol 865 Adult and Pediatric Epilepsy
Students will learn how epileptologists diagnose and manage epilepsy in adults and children. They will learn how to use the history and physical exam and laboratory studies such as EEG, MRI, PET, and SPECT to diagnose and manage patients with new onset epilepsy, established epilepsy, and medically intractable epilepsy. They will become familiar with the medical management of epilepsy as well as the treatment options for medically intractable epilepsy including surgery, the vagus nerve stimulator, and the ketogenic diet. They will also learn how to manage the co-morbid conditions that accompany epilepsy such as depression, behavioral problems, cognitive impairment, sleep disturbance, and non-epileptic events. Students will accomplish these goals by attending epilepsy clinics and rounding on the inpatient epilepsy service with the epilepsy team at Barnes-Jewish Hospital and St. Louis Children's Hospital. They will attend the Adult Epilepsy Conference, the Pediatric Epilepsy Conference, and Neurology Grand Rounds. Students will also have the opportunity to observe epilepsy surgery if they wish. They will have the option to present one 15-30 minute talk on a topic relevant to epilepsy.

M35 Neurol 872 MS Center/Outpatient — Missouri Baptist
Students will develop their skills in taking histories and performing neurological examinations on patients with multiple sclerosis under direct supervision of multiple sclerosis specialists. Localization of neurological findings and symptoms to the neuro-axis will be emphasized. A major goal for the students will be to increase the understanding of comprehensive patient management including disease treatment, symptom management, adjunctive therapy services, and psychosocial issues. The outpatient rotation will be four weeks at The MS Center for Innovations in Care at Missouri Baptist Medical Center with Dr. Barry Singer and Dr. Mark Tullman. An additional goal for students will be to understand process of clinical research and translation into approved therapies. The center has been a leader in clinical trial development of therapeutics that have been or will soon be FDA-approved as new medications for multiple sclerosis.

M35 Neurol 900 Research Elective — Neurology
Research opportunities may be available. If interested, please contact the Department of Neurology.