Department of Anesthesiology

Anesthesiology is a medical specialty encompassing a broad range of medical and scientific activities. The clinical practice of anesthesiology includes the following:

a. Assessment of, consultation for and preparation of patients for anesthesia and surgery;

b. Provision of insensibility to pain during surgical, obstetric, therapeutic and diagnostic procedures;

c. Monitoring and restoration of physiologic homeostasis during the perioperative period as well as homeostasis in the critically ill or seriously injured patient;

d. Diagnosis and treatment of painful syndromes; and

e. Clinical management and teaching of cardiopulmonary resuscitation.

The realm of scientific investigation in anesthesiology also spans a broad range. Scientific efforts at the cellular and molecular levels are directed toward understanding the molecular mechanisms of anesthesia and analgesia. Clinical research in anesthesia includes broad epidemiological approaches to identifying indicators of outcome as well as prospective clinical studies examining new technologies, anesthetic agents and methods.

The Department of Anesthesiology (http://anest.wustl.edu) presents the student with the opportunity to do the following:

a. Acquire and apply pharmacologic knowledge related to anesthetic agents, opioids, paralytic and sedative drugs, and drugs affecting the autonomic nervous system;

b. Understand and apply the basic principles of airway management and mechanical ventilation;

c. Understand and apply the principles of cardiopulmonary resuscitation;

d. Understand and apply the technical skills and anatomic and pharmacologic knowledge used in performing regional nerve blocks;

e. Learn and apply the fundamental principles of acute and chronic pain management; and

f. Learn and apply the basic principles of critical care medicine.

Anesthesiology bridges the gap between basic science and clinical medicine. It provides experience with the clinical evaluation and management of patients as well as with applied physiology and pharmacology. The Department of Anesthesiology offers student experiences in the operating room, the intensive care unit, the pain management clinic and the laboratory.

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Faculty

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Visit our website for more information about our faculty (http://anest.wustl.edu/about/faculty/) and their appointments.

A

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Master of Arts, Meharry Medical College, 1980
Doctor of Medicine, Meharry Medical College, 1984
Master of Business Administration, John Hopkins University (Duplicate of Johns Hopkins University), 2010

John D McAllister, M.D.
Professor of Anesthesiology (primary appointment)
Professor of Pediatrics
Doctor of Medicine, University of Manitoba, 1980
Bachelor of Science, University of Manitoba, 1982

Jordan Gary McCall, Ph.D.
Assistant Professor of Anesthesiology (primary appointment)
Doctor of Philosophy, Washington University in St Louis, 2014

Molly Ann McCormick, M.D.
Associate Professor of Anesthesiology (primary appointment)
Division Chief - Division of Anesthesiology, General
Doctor of Medicine, University of Missouri Columbia, 1987

Brennan Michael McMillan, M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Arts, University of Colorado Boulder, 2012
Doctor of Medicine, Albany Medical College, 2017

Bhavi Deepak Mehta, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Arts, University of Missouri Kansas City, 2010
Doctor of Medicine, University of Missouri Kansas City, 2010

Gregory Charles Miller, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, University of Missouri Kansas City, 2010
Doctor of Medicine, University of Missouri Kansas City, 2016

Allison Denise Mitchell, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, Howard University, 2008
Doctor of Medicine, University of Texas Health Sciences at San Antonio, 2012

David Thomas Monks, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Doctor of Medicine, University of Birmingham, 2018

John David Moore, M.D.
Instructor in Anesthesiology (Pending Dean’s Approval) (primary appointment)
Doctor of Medicine, Universidad Autónoma de Centro América, 2020

David James Moquin, M.D.
Instructor in Anesthesiology (primary appointment)
Doctor of Medicine, University of Tennessee, 2017

Rachel Willis Moquin, M.Ed., Ph.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Arts, University of Mississippi, 2011
Master of Education, University of Mississippi, 2013
Doctor of Philosophy, Vanderbilt University, 2017

Ehab Samir Muccos, M.D.
Instructor in Clinical Anesthesiology
Instructor in Clinical Anesthesiology
Doctor of Medicine, Cairo University, 1991

Joe Moron-Concepcion, Ph.D.

Professor of Anesthesiology (primary appointment)
Professor of Neuroscience
Professor of Psychiatry
Division Chief - Division of Anesthesiology, Research Unit
Henry Elliot Mallinckrodt Professorship in Anesthesiology
Doctor of Philosophy, University of Barcelona, 1998

Jeremiah J Morrissey, Ph.D.
Professor of Anesthesiology (primary appointment)
Bachelor of Arts, MacMurray College, 1969
Doctor of Philosophy, Saint Louis University, 1974

Jimmy Lewis Moss, M.D.
Instructor in Anesthesiology (Pending Dean’s Approval) (primary appointment)
Bachelor of Science, Florida State University, 2010
Doctor of Medicine, Florida State University, 2015

Christopher Marlowe Murphy, M.A., M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, University of Arkansas Main Campus, 2010
Master of Arts, University of Arkansas Main Campus, 2012
Doctor of Medicine, University of Arkansas Main Campus, 2016

Amjad Issam Musleh, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Assistant Professor of Emergency Medicine
Main Campus, 2008
Main Campus, 2013

Hadas Nahman-Averbuch, M.S., Ph.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, Haifa University, 2005
Master of Science, Israel Institute of Technology, 2009
Doctor of Philosophy, Israel Institute of Technology, 2015

Jessica Lauren Nelson, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Assistant Professor of Emergency Medicine
Doctor of Medicine, University of Michigan Ann Arbor, 2012
Bachelor of Science, University of Wisconsin, 2018

Joan M Niehoff, M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Arts, University of Missouri Kansas City, 1982
Doctor of Medicine, University of Missouri Columbia, 1982

Daniel C Nieva, M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Science, University of Iowa, 1998
Doctor of Medicine, University of Iowa, 2003

Dolores Benedicta Njoku, M.D.
Professor of Anesthesiology (primary appointment)
Division Chief of Pediatric Anesthesiology
Rudolph L. and Mary Frances Wise Endowed Chair in Pediatric Anesthesiology
Doctor of Medicine, University of Mississippi, 1987

Aaron John Norris, Ph.D., M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, Colorado State University, 2001
Doctor of Philosophy, Washington University in St Louis, 2012
Doctor of Medicine, Washington University in St Louis, 2012

Sydney Marie Nykiel-Bailey, M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Science, Saint Louis University, 2001
Doctor of Medicine, University of Missouri Kansas City, 2005

Uchenna Ofoma, M.S., M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Science, Saint Louis University, 1998
Doctor of Medicine, University of Missouri Kansas City, 2008

Folasade Oladapo, M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Science, Kwame Nkrumah University of Science & Technology, 1994
Master of Science, Kwame Nkrumah University of Science & Technology, 1996
Doctor of Medicine, Kwame Nkrumah University of Science & Technology, 1996

Lawrence Osei, M.S., M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Science, Kwame Nkrumah University of Science & Technology, 1994
Master of Science, Kwame Nkrumah University of Science & Technology, 1996
Doctor of Medicine, Kwame Nkrumah University of Science & Technology, 1996

William D Owens, M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Arts, Westminster College, 1961
Doctor of Medicine, Davenport University, 1965

Ben Julian Palanca, M.D.
Associate Professor of Anesthesiology (primary appointment)
Associate Professor of Psychiatry
Bachelor of Science, University of Washington, 1997
Doctor of Medicine, University of Washington, 2005

Arvind Palanisamy, Ph.D., M.D.
Associate Professor of Anesthesiology (primary appointment)
Associate Professor of Obstetrics and Gynecology
Division Chief - Division of Obstetrical Anesthesia
Doctor of Medicine, Tamilnadu Medical University, 2000
Doctor of Philosophy, All India Institute of Medical Sciences, 2003

Chris M Palmer, M.D.
Associate Professor of Anesthesiology (primary appointment)
Associate Professor of Emergency Medicine
Bachelor of Science, Virginia Polytechnic Institute and State University, 2004
Doctor of Medicine, SUNY Empire State College, 2008

Hess Amir Panjeton, M.D.
Assistant Professor of Anesthesiology (Pending Executive Faculty Approval) (primary appointment)
Bachelor of Science, University of Miami, 2003
Doctor of Medicine, University of Miami, 2007

Kyle Edward Parker, Ph.D.
Instructor in Anesthesiology (primary appointment)
Doctor of Philosophy, University of Missouri Columbia, 2013

Jesus Ceferino Patino, M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Science, University of the Philippines, 1997
Doctor of Medicine, University of the Philippines, 2002

Giovanni Pauletti, M.S., Ph.D.
Adjunct Professor of Anesthesiology
Master of Science, Swiss Fed Inst Tech (EPFL), 1987
Doctor of Philosophy, Swiss Fed Inst Tech (EPFL), 1994

Patricia A. Penkoske, M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Science, Lindenwood University, 1969
Doctor of Medicine, Washington University in St Louis, 1974

Bethany Pennington, Pharm.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Science, University of Colorado Boulder, 1974
Doctor of Medicine, State University of New York at Buffalo, 1979

Mitchell R Platin, M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Science, University of Miami, 1987
Doctor of Medicine, Saint Louis University, 1987

Amynah Pradhan, Ph.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Science, University of Georgia, 1987
Doctor of Medicine, Kent State University, 1987

Lesley Kathryn Rao, M.D.
Associate Professor of Anesthesiology (primary appointment)
Division Chief (Interim) - Division of Pain Management
Doctor of Medicine, Saint Louis University, 2006

Rashmi R Rathor, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Champaign, 2007

Satish Reddy, M.D.
Assistant Professor of Anesthesiology (Pending Executive Faculty Approval) (primary appointment)
Bachelor of Science, University of Georgia, 2006
Andrea Bulkley Reidy, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, Illinois Wesleyan University, 2005
Doctor of Medicine, Illinois Wesleyan University, 2010

Eduardo Reina, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Doctor of Medicine, University of Illinois at Chicago, 2011

Clare H Ridley, M.D.
Associate Professor of Anesthesiology (primary appointment)
Associate Professor of Surgery (Cardiothoracic Surgery)
Bachelor of Arts, Columbia College of Physicians and Surgeons, 2002
Doctor of Medicine, Washington University in St Louis, 2008

Isabella Rossi Riordan, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Interim Division Chief for the Progress West Division
Doctor of Medicine, Loyola University Chicago, 2014

Stephen L. Ristvedt, M.A., Ph.D.
Associate Professor of Anesthesiology (primary appointment)
Associate Professor of Psychiatry
Bachelor of Arts, University of Minnesota, 1981
Master of Arts, University of Pennsylvania, 1983
Doctor of Philosophy, University of Pennsylvania, 1989

Charles M Robertson, M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Arts, University of Virginia, 1997
Doctor of Medicine, University of Virginia, 2003

Evan Ward Roller, M.D.
Associate Professor of Anesthesiology (primary appointment)
Main Campus, 2010

Angela K Saettele, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, Simpson College, 2004
Doctor of Medicine, University of Missouri Columbia, 2008

Emine Aysu Salviz, M.D.
Instructor in Anesthesiology (primary appointment)
Doctor of Medicine, Baskent University, 2004

Vijaya K Samineni, Ph.D.
Assistant Professor of Anesthesiology (primary appointment)
Doctor of Philosophy, Southern Illinois University Carbondale, 2013

Jessica Lauren Sanford, M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Arts, Emory University, 2009
Doctor of Medicine, University of Missouri Columbia, 2014

Benjamin Sanofsky, M.Ed., M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Arts, Colgate University, 2008
Master of Education, CUNY Hunter College, 2012

Matthew Stringfellow Sanzalone, M.D.
Instructor in Anesthesiology (Pending Dean’s Approval) (primary appointment)
Doctor of Medicine, University of Missouri Columbia, 2016

Charles R Schrock, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, University of Notre Dame, 1986
Doctor of Medicine, University of Missouri Columbia, 1991

Rajiv K Shah, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Doctor of Medicine, University of Rochester, 2010

Nicole Jimin Shin, M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Science, Washington University in St Louis, 2010
Doctor of Medicine, Washington University in St Louis, 2015

Preet Mohinder Singh, M.D., MBBS
Assistant Professor of Anesthesiology (primary appointment)
Foreign MD equivalent, Dayanand Medical College, 2007
Doctor of Medicine, All India Institute of Medical Sciences, 2010

Pratik Sinha, Ph.D., M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, University of Manchester, 2001
Doctor of Medicine, University of Manchester, 2002
Doctor of Philosophy, Imperial College, 2013

Sarah Kendall Smith, Ph.D., M.D.
Assistant Professor of Anesthesiology (Pending Executive Faculty Approval) (primary appointment)
Bachelor of Science, University of Kansas, 2004
Doctor of Philosophy, University of Kansas Medical Center, 2011
Doctor of Medicine, University of Kansas Medical Center, 2013

Joshua Spiro, M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Science, University of New York University, 2013
Doctor of Medicine, University of Arizona, 2017

John Charles Spitler, M.D.
Instructor in Anesthesiology (primary appointment)
Bachelor of Science, University of Missouri Columbia, 1998
Doctor of Medicine, University of Missouri Columbia, 2003

Joseph H Steinbach, Ph.D.
Professor Emeritus of Anesthesiology
Bachelor of Arts, Reed College, 1968
Doctor of Philosophy, University of California San Diego, 1973

Tracey Wagner Stevens, M.D.
Associate Professor of Anesthesiology (primary appointment)
Doctor of Medicine, Washington University in St Louis, 2008

Sanjay Subramanian, M.D.
Associate Professor of Anesthesiology (primary appointment)
Associate Professor of Medicine
Doctor of Medicine, Christian Medical College, 1994
Robert A Swarm, M.D.
Professor of Anesthesiology (primary appointment)
Bachelor of Arts, Oberlin College, 1978
Doctor of Medicine, Washington University in St Louis, 1983

Rene Tempelhoff
Professor Emeritus of Anesthesiology

Raghu P Terkonda, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, Missouri University of Science and Technology (Formerly University of Missouri at Rolla), 1983
Doctor of Medicine, University of Missouri Columbia, 1987

Loc Vinh Thang, Ph.D., M.D.
Assistant Professor of Anesthesiology (primary appointment)
Doctor of Medicine, Michigan State University, 2015
Doctor of Philosophy, Michigan State University, 2103

Douglas Royce Thompson, M.D.
Professor of Anesthesiology (primary appointment)
Vice Chair - Education
Bachelor of Science, University of California San Diego, 1998
Doctor of Medicine, University of California San Diego, 2003

Silvestre A Tomeldan, M.D.
Instructor Emeritus in Anesthesiology
Doctor of Medicine, School Not Found, 1970

Swarup Varaday, MBBS
Associate Professor of Anesthesiology (primary appointment)
Foreign MD equivalent, Andhra University, 1989

Anandhalakshmi Varadarajan, M.D., MBBS
Voluntary Clinical Instructor in Anesthesiology
Foreign MD equivalent, Sri Ramachandra Institute of Higher Education and Research, 2000
Doctor of Medicine, St. Lukes, 2007

Gershon Ram Volotzky, M.D.
Associate Professor of Anesthesiology (primary appointment)
Doctor of Medicine, Tel Aviv University, 1979

Brian Louis Weber, J.D., M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, University of Missouri in St Louis, 2005
Juris Doctor, Washington University in St Louis, 2008
Doctor of Medicine, University of Missouri Kansas City, 2015

Ashley Brooke Weinhold, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Doctor of Medicine, University of Arkansas Main Campus, 2011

Brian T Wessman, M.D.
Associate Professor of Anesthesiology (primary appointment)
Division Chief - Division of Critical Care Medicine

Troy S Wildes, M.D.
Division Chief - Division of Perioperative Medicine
Bachelor of Science, Illinois Wesleyan University, 1998
Doctor of Medicine, Washington University in St Louis, 2002

James Douglas Wirthlin, M.D.
Instructor in Anesthesiology (Pending Dean’s Approval) (primary appointment)
Bachelor of Science, Brigham Young University, 2006
Doctor of Medicine, Uniformed Services University of the Health Sciences, 2012

Maxim Wolfson, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Doctor of Medicine, Washington University in St Louis, 2015

Xiaoming Xia, M.S., Ph.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, Fudan University (####), 1984
Master of Science, Shanghai Jiao Tong University (######), 1987
Doctor of Philosophy, Vollum Institute of Oregon Health and Science University, 1998

Zili Xie, Ph.D.
Instructor in Anesthesiology (primary appointment)
Doctor of Philosophy, Wuhan University (####), 2017

Branden Edward Yee, M.P.H., M.D.
Associate Professor of Anesthesiology (primary appointment)
Bachelor of Science, Tufts University, 2004
Master of Public Health, Tufts University, 2008
Doctor of Medicine, Tufts University, 2008

Xiaobin Yi, M.D.
Professor of Anesthesiology (primary appointment)
Doctor of Medicine, Hunan Medical University, 1985

Alexander H Young, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Arts, University of Mississippi, 1986
Doctor of Medicine, University of Arkansas Main Campus, 1990

Anna Rebecca Young, M.D.
Assistant Professor of Anesthesiology (primary appointment)
Bachelor of Science, Asbury College, 2004
Doctor of Medicine, University of Kentucky, 2008

Paul Battista Zanaboni, Ph.D., M.D.
Professor of Anesthesiology (primary appointment)
Doctor of Philosophy, Saint Louis University, 1990
Research Electives

Anesthesiology Research Electives

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

Special electives in basic science research as it applies to anesthesiology can be arranged with the principal investigators in the Department of Anesthesiology (http://anest.wustl.edu); in the Division of Basic Research under the direction of Jose Moron-Concepcion, PhD; in the Washington University Pain Center under the direction of Rob Gereau, PhD; and in the Division of Clinical and Translational Research under the direction of Simon Haroutounian, PhD.

The basic science laboratories focus on various topics related to ion channel structure and function, molecular mechanisms of anesthetic action, sepsis, cellular and molecular mechanisms of reward and addiction, and the cellular and genetic basis of acute and chronic pain and itch. Arrangements for these special electives are made through the specific investigators: Zhou-Feng Chen, PhD; Meaghan Creed, PhD; Alex S. Evers, MD; Narasimhan Gautam, PhD; Robert W. Gereau, PhD; Richard S. Hatchkiss, MD; Hongzhen Hu, PhD; Christopher J. Lingle, PhD; Qin Liu, PhD; Jose Moron-Concepcion, PhD; or Arvind Palanisamy, MD. In addition, opportunities exist for clinical research under the direction of Joanna Abraham, PhD; Michael Avidan, MBBCh; Anne Drewry, MD; Brian Fuller, MD; Simon Haroutounian, PhD; Thomas Kannanapalli, PhD; Michael Montana, MD; PhD; Ben Palanca, MD, PhD; or Troy Wildes, MD.

Courses


M10 Anesth 811 Cardiothoracic Anesthesiology (Clinical Elective)

This clinical elective offers practical experience in the peripерpetual assessment and management of surgical patients undergoing cardiothoracic procedures. The student, as an integral part of the cardiothoracic anesthesia team that is composed of faculty members, fellows and residents, will learn basic principles of airway management and lung ventilation, essential aspects of pharmacologic treatment of hemodynamic abnormalities and cardiac dysrythmias, and management of intraoperative coagulation disturbances. Emphasis will be placed on the interpretation of intraoperative hemodynamic data, echocardiographic finding (TEE), and laboratory results. During this rotation, the student will also gain practical experience in endotracheal intubation as well as the placement of intravenous lines and invasive monitoring lines, including radial artery and pulmonary artery catheters. Students will learn how to use these parameters in clinical decision making during anesthesia. At the conclusion of the rotation, the student will have a better understanding of invasive monitoring and data interpretation, as well as a more systematic approach to the management of intra- and post-operative hemodynamic, pulmonary and coagulation abnormalities. The students are expected to attend the didactic sessions of CTA and the Department of Anesthesiology. A presentation will be assigned.

M10 Anesth 812 Pediatric Anesthesiology (Clinical Elective)

This clinical elective is designed to teach the theory and practice of pediatric anesthesiology and pain management. It features individualized instruction with faculty who specialize in the peripерpetual care of pediatric patients. The elective consists of active participation with pediatric anesthesiologists at St. Louis Children's Hospital where you will have the opportunity to learn about pre-anesthetic assessment, the performance of routine anesthetics (which includes instruction and practice in pediatric airway skills), other technical skills such as intravenous line placement, and the management of patients in the post-anesthesia care unit (PACU). The final week may be tailored to meet the student’s individual interests, needs and career goals. Possibilities include exposure to sedation and anesthesia for procedures outside of the operating rooms, and to subspecialties including cardiovascular anesthesia, neurosurgical anesthesia, and acute and chronic pediatric pain management.

M10 Anesth 819 CTICU: Cardiothoracic Intensive Care Unit (Clinical Elective)

This clinical elective offers practical experience in the postoperative management of cardiothoracic patients. The student will be fully integrated into one of the intensive care teams and have the opportunity to contribute to the management of critically ill patients. Students will have the opportunity to follow specific patients over the course of their stay in the ICU, during which time they will gain insight into holistic management of patients with multi-organ dysfunction. The CTICU environment is both challenging and exciting. Students will gain unique insight into cardiorespiratory physiology and pharmacology which will be demonstrated at the patients’ bedside, an invaluable and unforgettable learning experience. Students will have opportunities to learn and sometimes assist with procedures, such as central lines, chest tubes, bronchoscopy and pulmonary artery catheter insertion as well as bedside ultrasound including TTE and TEE. Principles of management and resuscitation of hemodynamically unstable patients following surgery will be emphasized as well as ventilator management. Students will also see and help manage patients with unique physiology such as those patients on ventilator assist devices, and on ECMO. We also have a very busy and heart and lung transplantation program at the hospital - all of these patients are cared for in the CTICU. At the conclusion of the rotation, the student will have a better understanding of shock, sepsis, multi-organ failure, organ system support and compassionate withdrawal of life support. In addition to bedside teaching, there will be informal teaching sessions on a wide variety of topics as well as teaching on interpreting hemodynamic data and waveforms, and cardiac echo exams. Students
will be encouraged to present on their patient at morning rounds, during which constructive feedback and interactive teaching will occur. Medical students will be asked to present a short discussion on a topic of their choice. This should be a short 20 - 30 minute presentation followed by a discussion on the topic which will be moderated by the attending. Discuss the time and topic of choice with the attending of service.

M10 Anesth 821 Pain Management (Clinical Elective)
Acute pain is the most common symptom of medical illness and is ubiquitous after major surgery. Chronic pain is the leading cause of worker disability. Severe pain afflicts most people with advanced cancer. Learning the fundamentals of pharmacologic, interventional, and multidisciplinary pain management is important for all areas of clinical medicine.

M10 Anesth 822 Anesthesiology for Neurosurgery (Clinical Elective)
Students will help care for patients having challenging neurosurgical procedures. Students will become familiar with complex procedures, brain monitoring, cardiovascular support and airway management and will be exposed to all kinds of neurosurgical pathology. Student must be prepared to participate in the intricate anesthetic management of patients undergoing surgery in our novel intraoperative MRI rooms. For those interested, clinical research projects are ongoing and student participation is encouraged.

M10 Anesth 823 Obstetrical Anesthesiology (Clinical Elective)
The medical students will learn the different analgesia/anesthetic options for the labor patient. They will also learn how the physiological adaptations of pregnancy influence anesthetic management. They will be actively involved in the parturient’s management, i.e., starting an IV, placement of spinal, epidural or CSE (combined spinal epidural) anesthetics. They will also attend the OB anesthesia conferences and interview patients in labor (with an OB anesthesia attending).

M10 Anesth 910 Anesthesiology Advanced Clinical Rotation (ACR)
This advanced clinical rotation is designed to familiarize the student with basic aspects of anesthesiology practice. The primary teaching method is patient care in a clinical setting (one-on-one). The student will learn the basics of preoperative evaluation of surgical patients, the use of intraoperative monitoring in patient management, and postoperative care. In addition to perioperative care, the student will be exposed to other clinical areas which include regional anesthesia / acute pain management, labor and delivery, pediatric anesthesia, and the Center for Preoperative Assessment and Planning. The student will interact with patients across all age ranges and demographics. During the four-week rotation, the student will learn airway management skills, practical perioperative fluid and electrolyte therapy, along with general and regional anesthetic techniques. As an integral part of the anesthesia care team, the student will participate actively in the anesthetic management of surgical patients. The student’s specific requests to be assigned to certain types of cases will be honored as time and availability dictate. The rotation will include clinical simulator sessions using a simulator mannequin for practical management of airway problems, resuscitation, and trauma emergencies as well as supplemental educational sessions covering relevant topics in anesthesiology. By the end of the rotation, the student should be able to independently (under supervision) provide anesthesia for uncomplicated surgical procedures. Credit 140 units.

M10 Anesth 915 Surgical Critical Care Advanced Clinical Rotation (ACR)
The 4400 Surgical ICU provides an exciting and challenging opportunity to care for some of the sickest patients in the hospital. From acute trauma to complex organ transplants, the SICU offers incredible teaching and education about a variety of medical topics and conditions. The ACR SICU rotation integrates medical students into one of the two SICU teams, and each medical student, in conjunction with a resident, will care for 3-5 patients on the service. This entails, at minimum, examining the patient, gathering pertinent information (lab results, significant events, etc.), and presenting the patient on rounds. Working with the resident, medical students will develop a problem list, as well as an organized plan for their patients. They will then need to follow up on the execution of all determined labs/interventions/consults, closely communicating with the residents, fellow, and attending throughout the shift, as well as presence for sign-outs each morning/ evening at shift change. In addition, medical students will be expected to attend and participate in multiple educational conferences throughout the week/rotation, as well as sessions for skills such as line placement and ultrasound. Credit 140 units.