Mary Culver
Department of Surgery

Formal instruction in surgery begins during the third year, with the required 12-week Integrated Surgical Disciplines Clerkship. During this surgical clerkship, students are assigned to clinical rotations, mostly within the Department of Surgery, with some exposure to other surgical-related disciplines outside of the department. The clerkship gives students opportunities to participate in the care of surgical patients (both inpatient and outpatient); to spend time in the operating rooms; and to attend seminars, teaching conferences and didactic sessions on a regular basis. During the fourth year, students may select sub-internship electives within the Division of General Surgery, which include a variety of general surgical specialties. In addition to the general surgery sub-internships, electives are available in several other surgical subspecialties (e.g., pediatric surgery, transplant surgery, vascular surgery, cardiothoracic surgery, urologic surgery, plastic and reconstructive surgery).

Website: http://www.surgery.wustl.edu

Degrees & Requirements

MPHS Program

Within the Department of Surgery, the Division of Public Health Sciences offers a Master of Population Health Sciences (MPHS) program, which prepares students for clinical research careers by accelerating and deepening their expertise in population health and clinical outcomes research. Students gain a strong foundation and hands-on experience in leading, designing, conducting and moving clinical research findings to applications that will improve patient care and treatment.

In the MD/MPHS program, medical students have an opportunity to add clinical research methods training to their medical school experience. Medical students in the program work on a research project and use that project to complete their MPHS course work in 10 months, creating the ideal combination of didactic training and hands-on experience. MPHS program leadership can help students find a research project or lab to work in that would provide a good fit for their goals and interests.

To learn more about the MD/MPHS Program, contact Blanka Hodzic at by phone at 314-286-0881 or by email at bhodzic@wustl.edu.

Other Courses

Some of the Department of Surgery's courses are also 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 (http://bulletin.wustl.edu/medicine/degrees) section of this Bulletin.

Research

M95 Surgery

Section of Minimally Invasive Surgery
660 S. Euclid, Box 8109
Phone: 314-454-8877

Under the direction of L. Michael Brunt, MD, students may investigate minimally invasive gastrointestinal and hernia surgery. The minimum rotation length is four weeks. Under the auspices of the Section of Minimally Invasive Surgery and the Washington University Institute for Minimally Invasive Surgery, a number of surgeons are investigating outcomes of various minimally invasive surgical approaches to abdominal wall hernias, benign foregut disorders, bariatric surgery and cholecystectomy. Dr. Brunt is currently investigating the clinical outcomes and standardization of various minimally invasive surgical procedures, opioid prescribing patterns and opioid use in surgical patients, and education-related research and skills training for medical students planning to enter a surgical internship.

Division of Plastic and Reconstructive Surgery
660 S. Euclid, Box 8238
Phone: 314-747-0541

The Division of Plastic Surgery offers many opportunities for research projects on various topics related to plastic surgery. A project will be designed with students prior to their rotation on plastic surgery so that all of the materials and methods will be available at the beginning of the rotation. The basic science laboratories primarily investigate nerve injury and regeneration, including nerve transplantation. Students will be encouraged to design and complete their own research study during the elective. The minimum rotation length is six weeks.

The research rotation can be conducted in the plastic surgery laboratories under the direction of Drs. Moore, Snyder-Warwick, Wood or Mackinnon.

Ongoing projects include the following:

- The influence of the immune system on nerve regeneration;
- Neural tissue engineering and regenerative medicine therapeutics, such as electrical stimulation to promote tissue regeneration
- The investigation of glial cells at the neuromuscular junction during development, maintenance, aging, and after nerve injury

Additional clinical and educational research opportunities in various fields of plastic surgery are available with Drs. Fox, Myckatyn, Patel, Tung, and Woo.
• These various projects include the following:
  • In vivo tissue generation and tissue differentiation
  • The mechanical, structural and biochemical effects of stress on scar tissue maturation
  • In vivo anatomy of craniofacial deformities
  • Outcome analysis of methods of cleft lip and palate management
  • Breast reconstruction (3D imaging of breasts after cosmetic or reconstructive surgery, interpretation of angiograms of the breast to measure nipple perfusion)
  • The use of nerve transfer to improve hand function in patients with cervical spinal cord injury/quadriplegia
  • Surgical education (specifically web-based multimedia strategies for peripheral nerve surgery education)

The Department of Surgery can host Washington University medical students in any of its labs either to receive credit for a class they are currently enrolled in or to add them into the system as Washington University student employees to be paid for their time worked. Student work may be obtained through the Federal Work-Study program, the Office of Medical Student Research, or direct communication initiated by the student with faculty they wish to work alongside on specific subjects of interest with the goal of furthering their education. This can occur during any year of a medical student's education.

Faculty

Clerkship Director

Michael M. Awad, MD, PHD

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

A

Aaron Michael Abarbanell, MD, MS
Assistant Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
MD University of Michigan 2005
BA Cornell University 1993
MS Indiana University Indianapolis 2010

Rebecca L Aft, MD, PHD
Professor of Surgery (General Surgery) (primary appointment)
MD Washington Univ in St. Louis 1992
BS Univ of Wisconsin Madison 1978
PHD Univ of Wisconsin Madison 1983

Dorothy A Andriole, MD
Associate Professor of Surgery (General Surgery) (primary appointment)
Assistant Dean for Student Affairs and Medical Education
MD New York University 1980
BA New York University 1976

Gerald L Andriole, MD
Robert Killian Royce, M.D. Distinguished Professor of Urologic Surgery (primary appointment)
BS Pennsylvania State University 1976
MD Jefferson Medical College 1978

Christopher Thomas Arett, MD
Assistant Professor of Surgery (Urologic Surgery) (primary appointment)
BS Washington Univ in St. Louis 1999
MD Washington Univ in St. Louis 2003

Bracken Abram Armstrong
Assistant Adjunct Professor of Surgery (General Surgery) (primary appointment)

Kenneth J Arnold, MD
Assistant Professor of Clinical Surgery (General Surgery) (primary appointment)
BA University of Notre Dame 1964
MD Washington Univ in St. Louis 1968

Michael Magdi Awad, PHD, MD
Associate Professor of Surgery (General Surgery) (primary appointment)
BS Brown University 1994
PHD Brown University 2001
MD Brown University 2001

B

Cody Barnes, MD
Instructor in Surgery (General Surgery) (primary appointment)
MD University of Oklahoma 2013
BS Oklahoma City University 2008

Kenneth J Bennett, MD
Associate Professor of Clinical Surgery (General Surgery) (primary appointment)
MD Tulane University 1965

Sam B Bhayani, MD
Professor of Surgery (Urologic Surgery) (primary appointment)
MD Washington Univ in St. Louis 1996
BS Cornell University 1992

Lawrence J Billy, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
MD Saint Louis University 1966
BA Youngstown St University 1962

Jeffrey Alan Blatnik, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD Case Western Reserve Univ 2007
BA Miami University 2003

Grant Bochicchio, M PH, MD
Professor of Surgery (General Surgery) (primary appointment)
M PH University of Pittsburgh 1989
MD Pennsylvania State University 1993

Keith E Brandt, MD
William G. Hamm Professor of Surgery (Plastic and
Reconstructive Surgery) (primary appointment)
MD Univ Texas Health Science Ctr 1983
BS Texas A&M University 1979

Anoop k Brar, PHD
Instructor in Surgery (Cardiothoracic Surgery)(Pending Dean’s
Approval) (primary appointment)
PHD University of Edinburgh 1983
BS University of Edinburgh 1979

L. Michael Brunt, MD
Professor of Surgery (General Surgery) (primary appointment)
MD Johns Hopkins University Medic 1980
BA University of Mississippi 1976

Donald William Buck, MD
Assistant Professor of Surgery (Plastic and Reconstructive
Surgery) (primary appointment)
BS Indiana University Bloomington 2002
MD Johns Hopkins University 2006

Sara Anne Buckman, MD, PHARMD
Assistant Professor of Surgery (General Surgery) (primary
appointment)
MD Univ of Wisconsin Madison 2008
PHARMD Univ of Wisconsin Madison 1999

John B Buettner, MD
Instructor in Clinical Surgery (General Surgery) (primary
appointment)
BA Dartmouth College 1963
MD Washington Univ in St. Louis 1967

Arnold D Bullock, MD
Professor of Surgery (Urologic Surgery) (primary appointment)
Alan A and Edith L Wolff Distinguished Professor
BS Xavier University Louisiana 1983
MD Johns Hopkins University 1987

Yin Cao, PHS, M PH
Assistant Professor of Surgery (Public Health Sciences) (primary
appointment)
Assistant Professor of Medicine
PHS Harvard University 2013
M PH Columbia University 2009

David Anthony Caplin, MD
Instructor in Clinical Surgery (Plastic and Reconstructive
Surgery) (primary appointment)
BA Kenyon College 1971
MD University of Cincinnati 1975

Diego Casali, MD
Assistant Professor of Surgery (Cardiothoracic Surgery) (primary
appointment)
Assistant Professor of Anesthesiology
MD University of Brescia 2007

Su-Hsin Chang, PHD, MA
Assistant Professor of Surgery (Public Health Sciences) (primary
appointment)
PHD Johns Hopkins University 2010
BA National Chengchi University 1995
MA Mass Inst of Technology (MIT) 2004

Will C Chapman, MD
Eugene M. Bricker Professor of Surgery (General Surgery)
( primary appointment)
BA University of North Carolina 1980
MD University of South Carolina 1984

John E. Codd, MD
Professor of Clinical Surgery (Cardiothoracic Surgery) (primary
appointment)
MD Saint Louis University 1963
BA Gonzaga University 1954

Graham A Colditz, DRPH, M PH, MBBS
Niess-Gain Professor of Surgery (General Surgery) (primary
appointment)
Deputy Director for the Institute of Public Health
Professor of Medicine
DRPH Harvard University 1986
M PH Harvard University 1982
BS University of Queensland 1977
MBBS University of Queensland 1979

H. Groves Cooke III, DDENT, MS
Instructor in Clinical Surgery (Plastic and Reconstructive
Surgery) (primary appointment)
DDENT Washington Univ in St. Louis 1971
BA De Paul University 1967
MS George Washington University 1975

Douglas E Coplen, MD
Associate Professor of Surgery (Urologic Surgery) (primary
appointment)
MD Indiana University Bloomington 1985
BA Wabash College 1981

James L Cox, MD1, MD, UNKNOWN
Evarts A. Graham Professor Emeritus of Surgery (Cardiothoracic
Surgery) (primary appointment)
BS University of Mississippi 1964
MD1 University of Tennessee 1967
MD University of Tennessee 1967
UNKNOWN Duke University 1978

Michael Crittenden, BS1, MD
Associate Professor of Surgery (Cardiothoracic Surgery)
( primary appointment)
BS1 University of Notre Dame 1974
MD Georgetown University 1979

Amy Cyr, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
BA Creighton University 1997
MD Univ of Nebraska Med Center 2002

Ralph James Damiano Jr, MD
Evarts Ambrose Graham Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
BA Dartmouth College 1976
MD Duke University 1980

Kia L Davis, MPH, AB, PHS
Assistant Professor of Surgery (Public Health Sciences) (primary appointment)
MPH Saint Louis University 2007
AB Washington Univ in St. Louis 2018
PHS Harvard University 2015

Alana C Desai, MD
Assistant Professor of Surgery (Urologic Surgery) (primary appointment)
MD Georgetown University 2002
BS Marquette University 1997

Patrick A Dillon, MD
Associate Professor of Surgery (Pediatric Surgery) (primary appointment)
Associate Professor of Pediatrics
BA Brown University 1983
MD Georgetown University 1988

Francesca Maria Dimou, MS, MD
Assistant Professor of Surgery (General Surgery) (Pending Executive Faculty Approval) (primary appointment)
MS University of Texas Galveston 2015
BS Stetson University 2006
MD University of South Florida 2011

Maria Bernadette Majella Doyle, MD
Professor of Surgery (General Surgery) (primary appointment)
MD Trinity College Dublin 1996
BS Trinity College Dublin 1990

Bettina Drake, PhD, M PH
Professor of Surgery (Public Health Sciences) (primary appointment)
PHD University of South Carolina 2006
BS Baylor University 2001
M PH Univ Texas Health Science Ctr 2003

Kefu Du, MD
Assistant Professor of Surgery (Urological Surgery) (Pending Executive Faculty Approval) (primary appointment)
MD University of Tennessee 2011

BS Duke University 2007

Joseph W Eades, MD
Assistant Professor of Clinical Surgery (Plastic and Reconstructive Surgery) (primary appointment)
MD Washington Univ in St. Louis 1960
BA Amherst College 1956

J. Chris Eagon, MD, MS
Associate Professor of Surgery (General Surgery) (primary appointment)
MD Harvard University 1988
MS University of Utah 1997
BA Williams College 1984

Timothy J Eberlein, MA, MD
Bixby Professor of Surgery (General Surgery) (primary appointment)
Director of The Alvin J. Siteman Cancer Center
Head of the Department of Surgery
Professor of Pathology and Immunology
Spencer T. and Ann W. Olin Distinguished Professor
MA Harvard University 1996
MD University of Pittsburgh 1977
BS University of Pittsburgh 1973

Shaina Rose Eckhouse, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD Univ Texas Health Sci San Anto 2008

Pirooz Eghtesady, MD, D SC, MS
Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Professor of Pediatrics
MD University of CA Los Angeles 1993
D SC University of CA Los Angeles 1993
MS University of CA Los Angeles 1987
BS University of CA Los Angeles 1987

Zachary P Englert, DOST
Adjunct Assistant Professor of Surgery (primary appointment)
DOST Phil Coll of Osteopathic Med 2009
BS Pennsylvania State University 2005

Sean Jason English, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD University of Pennsylvania 2007
BA College of Wooster 2000

John Matthew Felder III, MD
Assistant Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)
BA University of Oregon 2004
Mary Culver Department of Surgery (09/16/19)

MD Baylor University 2009

Ryan Courtney Fields, MD
Professor of Surgery (General Surgery) (primary appointment)
MD Duke University 2003
BS Davenport University 1998

Robert S Figenshau, MD
Taylor Family and Ralph V. Claman, M.D. Professor of Surgery (Urologic Surgery) (primary appointment)
BS Macalester College 1981
MD University of Minnesota 1987

Gerald Richard Fortuna Jr
Adjunct Assistant Professor of Surgery (primary appointment)

Ida K Fox, MD
Associate Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)
MD University of Rochester 1999
BS Haverford College 1994

Bradley D. Freeman, MD
Professor of Surgery (General Surgery) (primary appointment)
MD Duke University 1988
BS University of Central Florida 1984

Anja G. Fuchs, PHD, MS
Assistant Professor of Surgery (General Surgery) (primary appointment)
BS School Not Listed 1994
PHD University of Manchester 2006
MS University of Manchester 2001

Feng Gao, PHD
Associate Professor of Surgery (Public Health Science) (primary appointment)
Associate Professor of Biostatistics
Associate Professor of Medicine
PHD Emory University 2003

Andrew E. Gelman, PHD
Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Professor of Pathology and Immunology
PHD University of Pennsylvania 2006
BS University of CA Los Angeles 1996

Patrick J Geraghty, MD
Professor of Surgery (General Surgery) (primary appointment)
BS Northwestern University 1989
MD Northwestern University 1991

William Ewald Gillanders, MD, BA1, MS, MS1
Professor of Surgery (General Surgery) (primary appointment)
Vice Chair for Research, Department of Surgery
MD Duke University 1991
BA1 Williams College 1987

MS Medical Univ South Carolina 2006
BA Williams College 1987
MS1 Medical University of Sth Car 2006

Sean C. Glasgow, MD
Associate Professor of Surgery (General Surgery) (primary appointment)
MD Duke University 1999
BS Duke University 1995

Katherine LuBell Glover-Collins, PHD, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
PHD Meharry Med College 2009
BS Xavier University Louisiana 2001
MD Meharry Med College 2009

Simon P Goedegebuure, MA, PHD
Associate Professor of Surgery (General Surgery) (primary appointment)
MA School Not Listed 1985
PHD Erasmus University Rotterdam 1989
BS School Not Listed 1982

Jun Guo, MS, PHD
Associate Professor of Surgery (Pediatric Surgery) (primary appointment)
MS Dalian Medical University 1997
BS Nanjing University 1991
PHD Shanghai Medical University 2000

Steven William Guyton
Associate Professor of Clinical Surgery (Cardiothoracic Surgery) (primary appointment)

Andrew Benjamin Hall, MD
Adjunct Assistant Professor of Surgery (primary appointment)
BS Univ of Nebraska at Omaha 2004
MD Saint Louis University 2008

Bruce Lee Hall, MBA, PHD, MD
Professor of Surgery (General Surgery) (primary appointment)
Fellow in the Center for Health Policy
Professor of Health Care Management (Olin School of Business)
MBA Harvard University 2000
PHD Duke University 1991
BA Princeton University 1984
MD Duke University 1992

Chet Hammill, MS, MD
Associate Professor of Surgery (General Surgery) (primary appointment)
MS Oregon Health Science Univers 2012
BS Univ of IL -Urbana-Champaign 1996
MD Univ of IL-Urbana-Champaign 2004

William G. Hawkins, MD
Professor of Surgery (General Surgery) (primary appointment)
Neidorff Family and Robert C Packman Professor  
BA New York University 1991  
MD State Univ of NY Stonybrook 1995

Michael E Hayek, MS, MD  
Instructor in Clinical Surgery (General Surgery) (primary appointment)  
BA Saint Louis University 1976  
MS Saint Louis University 1978  
MD University of Missouri 1982

Mark Francis Heiland  
Assistant Professor of Clinical Surgery (General Surgery) (primary appointment)

Virginia M Herrmann, MD  
Professor of Surgery (General Surgery) (primary appointment)  
Professor of Medicine  
MD Saint Louis University 1974

Sara E Holden, MD  
Assistant Professor of Surgery (General Surgery) (primary appointment)  
MD University of Minnesota 2010  
BS Truman State University 2005

Mark Houston Hoofnagle, MD, PHD  
Assistant Professor of Surgery (General Surgery) (primary appointment)  
MD University of Virginia 2009  
BS Bucknell University 1999  
PHD University of Virginia 2008

Ashley J Houston, OTD, MPA, MSCRIM  
Assistant Professor of Surgery (Public Health Sciences)(Pending Executive Faculty Approval) (primary appointment)  
BA University of Washington 2005  
OTD Washington Univ in St. Louis 2014  
MPA George Mason University 2007  
MSCRM Washington Univ in St. Louis 2014

Jean Marie Hunleth, PHD, M PH  
Instructor in Surgery (Public Health Sciences) (primary appointment)  
Instructor of Anthropology (Courtesy Affiliation)  
PHD Northwestern University 2011  
M PH Northwestern University 2011  
BA Vanderbilt University 1998

Steven R Hunt, MD  
Associate Professor of Surgery (General Surgery) (primary appointment)  
MD Stanford University 1997  
BA Dartmouth College 1992

Mohsen Ibrahim, MD  
Instructor in Surgery (Cardiothoracic Surgery) (primary appointment)  
MD University of Rome 1999

Obeid Noor Ilahi, MD  
Associate Professor of Surgery (General Surgery) (primary appointment)  
MD Aga Khan University 1992

Akinobu Itoh, MD, PHD  
Assistant Professor of Surgery (Cardiothoracic Surgery) (primary appointment)  
MD Tohoku University Sendai Miyag 1998  
PHD Tohoku University Sendai Miyag 2010

Aimee S. James, M PH, PHD, MA  
Professor of Surgery (General Surgery) (primary appointment)  
M PH University of Texas Houston 2000  
PHD University of Houston 1999  
MA University of Houston 1998  
BA Goucher College 1995

Shu Jiang, PHD, MS  
Assistant Professor of Surgery (Public Health Sciences) (primary appointment)  
BS Simon Fraser University 2015  
PHD University of Waterloo 2018  
MS University of Western Ontario 2016

Jeffrey Jim, MS, MD  
Associate Professor of Surgery (Urologic Surgery) (primary appointment)  
MD University of Minnesota 2011  
BS University of Minnesota 2007

Puja Kachroo, MS, MD  
Assistant Professor of Surgery (Cardiothoracic Surgery) (primary appointment)  
BS Boston University 2001  
MS Columbia University 2003  
MD Ross Univ School of Medicine 2007

Demetrios Katsikas, MD  
Instructor in Clinical Surgery (Urological Surgery) (primary appointment)  
MD Wayne State University 1989  
BS University of Michigan 1985

Martin S Keller, MD  
Associate Professor of Surgery (Pediatric Surgery) (primary appointment)
Kunal Deepak Kotkar, MD
Instructor in Surgery (Cardiothoracic Surgery) (primary appointment)
MD Grant Medical College 2004

Benjamin D. Kozower, MD
Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
BS University of Rochester 1993
MD University of Rochester 1997

Jessica Kramer
Instructor in Surgery (Cardiothoracic Surgery) (primary appointment)
BA Emory University 2001

Daniel Kreisel, PhD, MD
Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Professor of Pathology and Immunology
PHD University of Pennsylvania 2002
MD Mount Sinai School of Medicine 1995

Hing Hung H Lai, MD
Associate Professor of Surgery (Urologic Surgery) (primary appointment)
Associate Professor of Anesthesiology
BS Rice University 1994
MD Cornell University 1999

Jennifer M Leonard, MD, PHD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD Mayo Clinic 2011
BA Colorado College 1999
PHD Mayo Clinic 2011

Wenjun Li, MS, MD
Associate Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
MS Sun Yat-Sen University 2004
MD Guangdong Medical College 1991

Yiing Lin, MD, PHD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD Washington Univ in St. Louis 2005
BS Duke University 1997
PHD Washington Univ in St. Louis 2005

Erin Lynn Linnenbringer, MS1, PHD, BS1
Assistant Professor of Surgery (Public Health Sciences) (primary appointment)
MS1 Northwestern University 2003
PHD University of Michigan 2014
BS1 Washington Univ in St. Louis 2000

Ying Liu, PHD, MD
Assistant Professor of Surgery (Public Health Sciences) (primary appointment)
PHD Texas Tech University 2006
MD Southeast U Medical School 1995

Alan M Londe, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
MD Washington Univ in St. Louis 1961
BA Washington Univ in St. Louis 1957

Stanley L London, MD
Associate Professor Emeritus of Clinical Surgery (General Surgery) (primary appointment)
MD Washington Univ in St. Louis 1949

Esther Jiaxin Lu, MS, PHD
Assistant Professor of Surgery (Public Health Sciences) (primary appointment)
Assistant Professor of Biostatistics
MS National Univ of Singapapore 2002
PHD Medical College of Wisconsin 2007
BS Nankai University 1997

Mark A Ludwig, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
MD University of Chicago 1976
BA Emory University 1972

Jingqin Luo, MS, PHD, MS1
Associate Professor of Surgery (Public Health Sciences) (primary appointment)
Associate Professor of Biostatistics
Associate Professor of Medicine
MS Renmin University of China 2001
PHD Duke University 2006
BS Renmin University of China 1998
MS1 Duke University 2003

Susan E Mackinnon, MD
Sydney M., Jr. and Robert H. Shoenberg Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)
Professor of Occupational Therapy
Professor of Otolaryngology
BA Queens College 1971
MD Queen's University 1975

Kiran Mahajan, MS, PHD
Assistant Professor of Surgery (Urologic Surgery) (Pending Executive Faculty Approval) (primary appointment)
MS Madurai Kamaraj University 1991
PHD Indian Institute of Science 1998

Nupam P Mahajan, PHD
Professor of Surgery (Urological Surgery) (Pending Executive Faculty Approval) (primary appointment)

PHD Indian Institute Of Technology 1997

Hersh Maniar, MD
Associate Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Associate Professor of Medicine
BS University of Michigan 1994
MD University of Illinois 1998

Julie Ann Margenthaler, MD
Professor of Surgery (General Surgery) (primary appointment)
BA Boston University 1993
MD Southern Illinois University 1997

Muhammad Faraz Masood, MD
Assistant Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
MD Dow Medical College Karachi 2001

John E. Mazuski, PHD, MS, MD
Professor of Surgery (General Surgery) (primary appointment)
PHD University of Minnesota 1993
BA California State Fresno 1973
MS Univ of Wisconsin Madison 1975
MD University of CA Los Angeles 1981

Patricia A McGuire, MD
Instructor in Clinical Surgery (Plastic and Reconstructive Surgery) (primary appointment)
MD University of Missouri 1985

Michelle L Medintz
Adjunct Assistant Professor of Surgery (primary appointment)

Spencer J Melby, MD
Associate Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
BS Brigham Young University 1997
MD University of Utah 2002

Bryan F Meyers, MD
Patrick and Joy Williamson Endowed Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
MD University of Chicago 1986
BA Yale University 1982

Jerry R Meyers, MD
Assistant Professor of Clinical Surgery (General Surgery) (primary appointment)
BA University of Texas Austin 1962
MD Washington Univ in St. Louis 1966

Kevin Joseph Mitchell, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
BS Howard University 1981
MD Howard University 1985

Marc R Moon, MD
John M Shoenberg Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
BS University of Michigan 1983
MD Wayne State University 1988

Amy M. Moore, MD
Associate Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)
MD Virginia Comm University 2004

Julian C Mosley, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
MD Washington Univ in St. Louis 1972
BS Saint Louis University 2000

Nabil A Munfakh, MD
Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
BS University of Michigan 1981
MD University of Michigan 1985

Gregory P Murphy, MD
Assistant Professor of Surgery (Urological Surgery) (primary appointment)
MD University of Massachussetts 2011
BA Tufts University 2006

Matthew G Mutch, MD
Professor of Surgery (General Surgery) (primary appointment)
MD Washington Univ in St. Louis 1994
BA St Olaf College 1990

Terence M. Myckatyn, MD
Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)
BS Univ of Northern British Colu 2003
MD Univ of Northern British Colu 1997

Dilip Sri Nath, MD
Assistant Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
BS University of CA Berkeley 1995
MD New York U. School of Medicine 1999

Ruben Nava, MD
Assistant Professor of Surgery (Cardiothoracic Surgery) (Pending Executive Faculty Approval) (primary appointment)
MD Univ of Armed Forces: Military 2000

Neal Neuman, MD
Instructor in Clinical Surgery (Urologic Surgery) (primary appointment)
MD Saint Louis University 1971

Thomas E Niesen, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
BS Tulane University 1975
MD Tulane University 1979

Richard James Nissen, DDENT, MS
Assistant Professor of Clinical Surgery (Plastic and Reconstructive Surgery) (primary appointment)
DDENT University of Iowa 1983
BS Iowa State University 1979
MS Washington Univ in St. Louis 1985

Anthony Ian Nunez
Instructor in Clinical Surgery (Cardio Surgery) (primary appointment)

John Westley Ohman, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD Univ Texas Health Science Ctr 2012
BS University of Texas Austin 2008

George A Oliver, MD
Assistant Professor Emeritus of Clinical Surgery (General Surgery) (primary appointment)
BA Washington Univ in St. Louis 1948
MD Washington Univ in St. Louis 1952

Tiffany Medlin Osborn, M PH, MD
Professor of Surgery (General Surgery) (primary appointment)
Professor of Emergency Medicine in Medicine
M PH London Hygiene & Tropical Med 2009
MD Univ Texas Health Sci San Anto 1997
BS University of Houston 1992

Sharad P Parikh, UNKNOWN
Instructor in Clinical Surgery (General Surgery) (primary appointment)
UNKNOWN University of Pune 1967

Yikyung Park, PHD, MS1
Associate Professor of Surgery (Public Health Sciences) (primary appointment)
BS EWHa Womans University 1994
PHD Harvard University 2005
MS1 EWHa Womans University 1996

Charles L Parks, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
MD Washington Univ in St. Louis 1969
BS University of South Dakota 1967

Jeffrey Andrew Parres, MD
Instructor in Clinical Surgery (Urologic Surgery) (primary appointment)
BA Washington Univ in St. Louis 1983
MD University of Missouri 1987
Michael K Pasque, MD  
Professor of Surgery (Cardiothoracic Surgery) (primary appointment)  
Professor of Biomedical Engineering  
Professor of Radiology  
MD University of Oklahoma 1978

Kamlesh Babulal Patel, MD  
Associate Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)  
MD University of Arizona 2005  
BS University of MO Kansas City 2000

G Alexander Patterson, MD  
Joseph C Bancroft Professor of Surgery (Cardiothoracic Surgery) (primary appointment)  
MD Queen's University 1974

Enrique Pedro Perinetti, MD, PHD  
Instructor in Clinical Surgery (Urologic Surgery) (primary appointment)  
MD School Not Listed 1969  
PHD School Not Listed 1975

Mitchell A Pet, MD  
Assistant Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)  
MD Washington Univ in St. Louis 2011

Mary Politi, M PHIL, PHD  
Associate Professor of Surgery (Public Health Sciences) (primary appointment)  
M PHIL George Washington University 2004  
BS Barnard College 2001  
PHD George Washington University 2006

Laurie Jean Punch, MD  
Associate Professor of Surgery (General Surgery) (primary appointment)  
MD University of Connecticut 2002  
BS Yale University 1997  
BS Yale University 1997

Varun Puri, MS, MD  
Associate Professor of Surgery (Cardiothoracic Surgery) (primary appointment)  
BS All-India Inst of Medical Sci 1998  
MS Creighton University 2007  
MD Washington Univ in St. Louis 2009

R

Nishant Raj, BS1, MD  
Assistant Professor of Surgery (General Surgery) (primary appointment)  
BS1 St Johns University 2004  
MD Ross Univ School of Medicine 2009

Ricardo Rao, MD  
Instructor in Clinical Surgery (General Surgery) (primary appointment)  
BA University of CA San Diego 1983  
MD University of Missouri 1987

Nanette Rahee Reed, MD  
Assistant Professor of Surgery (General Surgery) (primary appointment)  
MD Baylor College of Medicine 2004  
BS University of Notre Dame 2000

Frank O Richards, MD  
Assistant Professor Emeritus of Clinical Surgery (General Surgery) (primary appointment)  
MD Howard University 1947  
BA Talladega College 1944

Shale M Rifkin, MD  
Assistant Professor of Clinical Surgery (General Surgery) (primary appointment)  
MD Washington Univ in St. Louis 1948

Brian G Rubin, MD  
Professor of Surgery (General Surgery) (primary appointment)  
Professor of Radiology  
MD University of Vermont 1984  
BA Colgate University 1979

S

Jacqueline Mitsouko Saito, MD  
Associate Professor of Surgery (Pediatric Surgery) (primary appointment)  
BS Harvard Radcliff 1989  
MD Columbia University 1993

Luis A Sanchez, MD  
Professor of Surgery (General Surgery) (primary appointment)  
Gregorio A. Sicard Distinguished Professor  
Professor of Radiology  
BS Yale University 1983  
MD Harvard University 1987

Dominic Sanford, MD  
Assistant Professor of Surgery (General Surgery) (primary appointment)  
MD University of MO Columbia 2009  
BS Maryville University 2005

Donald C Sauer, MD  
Assistant Professor Emeritus of Clinical Surgery (General Surgery) (primary appointment)  
BA Washington Univ in St. Louis 1956  
MD Washington Univ in St. Louis 1960

Douglas J Schuerer, MD  
Professor of Surgery (General Surgery) (primary appointment)  
BS Allegheny College 1991  
MD University of Pittsburgh 1995
Richard B Schuessler, MS, PHD
Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Associate Professor of Biomedical Engineering
MS University of Missouri 1974
PHD Clemson University 1977
BS University of Missouri 1973
Mary E Schuh, MD, BS
Instructor in Clinical Surgery (General Surgery) (primary appointment)
BS University of North Dakota 1973
MD Washington Univ in St. Louis 1979
BS1 University of North Dakota 1977
Debra L Seoane, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
MD University of Miami 1986
Dipesh K Shah, MD
Assistant Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
MD L.P.S. Institute of Cardiology 2004
Baddr A H Shakhsheer
Assistant Professor of Surgery (Pediatric Surgery) (primary appointment)
Courtney Shands III, MD
Instructor in Clinical Surgery (Urologic Surgery) (primary appointment)
BA Stanford University 1978
MD Vanderbilt University 1982
Surendra Shenoy, PHD, MD
Professor of Surgery (General Surgery) (primary appointment)
BS Kasturba Medical College 1980
PHD Institute of Medical Science 1989
MD Kasturba Medical College 1984
Michelle Ilana Silver, MS, PHD
Assistant Professor of Surgery (Public Health Sciences) (Pending Executive Faculty Approval) (primary appointment)
BS Stanford University 2007
MS Johns Hopkins University 2009
PHD Johns Hopkins University 2015
Matthew Leon Silviera, MS1, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
BS Pennsylvania State University 2001
MS1 Temple University 2010
MD Temple University 2005
David Siroopour, MD
Assistant Professor of Clinical Surgery (General Surgery) (primary appointment)
MD School Not Listed 2000
Arjun Sivaraman, MD
Instructor in Surgery (Urologic Surgery) (primary appointment)
MD Madras Medical College 2005
Radhika K Smith, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD University of MO Kansas City 2010
Zachary Lee Smith, MD
Assistant Professor of Surgery (Urologic Surgery) (primary appointment)
MD University of MO Kansas City 2010
Jason Andrew Snyder, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD Marshall University 2008
BS Kettering University 2004
Alison K Snyder-Warwick, MD
Assistant Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)
MD Washington Univ in St. Louis 2004
BA Knox College 2000
Dirk M Spitzer, PHD
Assistant Professor of Surgery (General Surgery) (primary appointment)
BS School Not Listed 1995
PHD Technische U Braunschweig 1999
Charlie Srivilasa
Adjunct Assistant Professor of Surgery (primary appointment)
Alan Joel Stein, MD
Assistant Professor of Clinical Surgery (Urologic Surgery) (primary appointment)
BS Univ of Wisconsin Madison 1972
MD Wayne State University 1976
Melissa Kay Stewart, MD
Instructor in Surgery (General Surgery) (primary appointment)
MD University of Pittsburgh 2011
Daniel Charles Stoeckel
Instructor in Clinical Surgery (primary appointment)
Steven M Strasberg, MD
Pruett Professor of Surgery (General Surgery) (primary appointment)
Associate Professor of Cell Biology and Physiology
MD University of Toronto 1963
Vijay Subramanian, MD
Instructor in Surgery (General Surgery) (Pending Dean's Approval) (primary appointment)
MD Christian Medical College 2009
Herbert Sunshine, MD
<table>
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<tr>
<th>Name</th>
<th>Position</th>
<th>University or Institution</th>
<th>Degree/Program</th>
<th>Field of Study</th>
<th>Appointment</th>
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<td><strong>Instructor in Clinical Surgery</strong></td>
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<td>Instructor in Clinical Surgery (Urologic Surgery) (primary appointment)</td>
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<td>MD Washington Univ in St. Louis 1954</td>
<td>BA Washington Univ in St. Louis 1950</td>
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<tr>
<td><strong>Siobhan Sutcliffe, MHS, MS, PHD</strong></td>
<td>Professor of Surgery (Public Health Sciences) (primary appointment)</td>
<td>MHS Johns Hopkins University 2001</td>
<td>MS Johns Hopkins University 2004</td>
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<td>BS Princeton University 1998</td>
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<td><strong>Marissa Morningstar Tenenbaum, MD</strong></td>
<td>Associate Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)</td>
<td>BS Univ of Wisconsin Madison 1998</td>
<td>MD Washington Univ in St. Louis 2002</td>
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<td><strong>Robert W Thompson, MD</strong></td>
<td>Professor of Surgery (General Surgery) (primary appointment)</td>
<td>BA Hope College 1979</td>
<td>MD University of Michigan 1983</td>
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<td>Professor of Cell Biology and Physiology</td>
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<td><strong>Adetunji Toriola, PHD</strong></td>
<td>Associate Professor of Surgery (Public Health Sciences) (primary appointment)</td>
<td>PHD University of Tampere 2011</td>
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<td><strong>Ralph J Torrence, MD</strong></td>
<td>Asst Prof of Clinical Surgery (Urologic Surgery) (primary appointment)</td>
<td>MD Georgetown University 1983</td>
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<td><strong>Erica J Traxel, MD</strong></td>
<td>Assistant Professor of Surgery (Urologic Surgery) (primary appointment)</td>
<td>BS Texas A&amp;M University 1998</td>
<td>MD Beaufort Technical College 2002</td>
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<td><strong>Thomas H Tung, MD</strong></td>
<td>Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)</td>
<td>BS Duke University 1986</td>
<td>MD University of Maryland 1990</td>
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<td><strong>Isaiah Turnbull, MS, MD</strong></td>
<td>Assistant Professor of Surgery (General Surgery) (primary appointment)</td>
<td>MS Washington Univ in St. Louis 2008</td>
<td>BS University of Oregon 1998</td>
<td>MD Washington Univ in St. Louis 2008</td>
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<td><strong>Kelly Jean Vallar, MD</strong></td>
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<td>Howard S Walker, MD</td>
<td>Instructor in Clinical Surgery (Cardiothoracic Surgery) (primary appointment)</td>
<td>MD Beaufort Technical College 1974</td>
<td>BA Citadel 1971</td>
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<tr>
<td>Lisa Marie Waller, MS, PHD</td>
<td>Professor of Surgery (Public Health Science) (primary appointment)</td>
<td>BS Concordia College 1982</td>
<td>MS University of Memphis 1991</td>
<td>PHD University of Minnesota 1995</td>
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<td><strong>Fei Wan, MS, PHD</strong></td>
<td>Assistant Professor of Surgery (Public Health Sciences) (primary appointment)</td>
<td>BS University of Vermont 2001</td>
<td>PHD University of Pennsylvania 2015</td>
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<td><strong>Brad W. Warner, MD</strong></td>
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<td><strong>Erika Waters, M PH, PHD, MS PSYC</strong></td>
<td>Associate Professor of Surgery (Public Health Sciences) (primary appointment)</td>
<td>M PH Johns Hopkns University Medic 2007</td>
<td>PHD Rutgers University 2006</td>
<td>BS Arizona State University 1999</td>
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<td>MS PSYC Rutgers University 2003</td>
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<td><strong>Michael D Weiss, DPM, BS1</strong></td>
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</table>
Assistant Professor of Surgery (General Surgery) (primary appointment)
DPM Ohio College of Podiatric Medi 1981
BS1 Ohio State University 1977

Jason R Wellen, MD
Associate Professor of Surgery (General Surgery) (primary appointment)
BS Emory University 1998
MD St George's University 2002

Brad C White, MD
Instructor in Clinical Surgery (Urologic Surgery) (primary appointment)
BS Illinois State University 1986
MD Loyola University Chicago 1993

Bruce I White, MD
Instructor in Clinical Surgery (Plastic and Reconstructive Surgery) (primary appointment)
MD Washington Univ in St. Louis 1964

Paul Edward Wise, MD
Professor of Surgery (General Surgery) (primary appointment)
BS Georgetown University 1992
MD John Hopkins University 1996

Brian Wing-Chi Wong, PHD
Assistant Professor of Surgery (General Surgery) (primary appointment)
PHD University of British Columbia 2011
BS University of British Columbia 2001

Matthew D Wood, MS, PHD
Assistant Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)
BS Saint Louis University 2005
BS Washington Univ in St. Louis 2008
MS Washington Univ in St. Louis 2009
PHD Washington Univ in St. Louis 2009

Y

Yan Yan, MD, PHD, MHS
Professor of Surgery (Public Health Sciences) (primary appointment)
Professor of Biostatistics
MD Nanjing Medical University 1983
PHD Johns Hopkins University 1998
MHS Johns Hopkins University 1995

Muhammad T Yasin, MD
Assistant Professor of Surgery (General Surgery) (primary appointment)
MD Punjab University 1985

William D Yates, MD
Instructor in Clinical Surgery (General Surgery) (primary appointment)
MD Northwestern University 1985

Robert A Young, MD, JD, MS
Instructor in Clinical Surgery (Plastic and Reconstructive Surgery) (primary appointment)
MD Ohio State University 1978
JD Saint Louis University 1997
BA University of Michigan 1973
MS Ohio State University 1975

M95 Surgery 790 Integrated Surgical Disciplines Clerkship
During the 12-week surgery clerkship, each student is assigned to three separate rotations. Each student is assigned to a required general surgery rotation at Barnes-Jewish Hospital or the John Cochran Veterans Administration Medical Center. In addition, each student selects elective rotations in other general surgical fields, surgical subspecialties and related disciplines of critical care. The student is an active participant in the daily care of patients on each service and attends the service teaching conferences and rounds. For the duration of the 12-week rotation, there are weekly small-group tutorial sessions with faculty members and a biweekly lecture series. Credit 462 units.

M95 Surgery 814 Trauma Service Subinternship
The student on this elective will function as a subintern on the Trauma and Acute Care Surgical Service within the Section of Acute and Critical Care Surgery. Student involvement in all aspects of clinical surgery is accomplished by student attendance in the operating room, outpatient office, preoperative patient evaluation, in-hospital patient management, and postoperative outpatient follow-up after discharge. Practical experience will focus on the initial evaluation and resuscitation of trauma patients and other emergency general surgical patients. The student will also participate in regular rounds, conferences, and in-house call.

M95 Surgery 818 Surgical Night Float & ED Subinternship
This subinternship is specifically designed to give senior medical students an intern-level experience in managing acute on-call problems in surgical patients and in evaluating urgent and emergent problems in the emergency department (ED). The rotation will be divided into two two-week segments: one segment in the ED and the second on night float call on the surgical floors. Students will gain experience evaluating and managing the types of acute problems they will encounter as surgical interns and first responders to patients with acute abdominal pain, chest pain, hypotension, mental status changes,
and other ED/on-call types of problems. They will be assigned to the on-call surgical resident and will have a structured experience in order to maximize development of their diagnostic, management, and case presentation skills in the acute care setting so that they may more smoothly make the transition to a surgical internship.

M95 Surgery 820 Cardiothoracic Surgery Subinternship
The senior elective in cardiothoracic surgery is a four-week clinical rotation with two-week blocks divided between adult cardiac, pediatric cardiothoracic, and general thoracic surgery according to the student's preference. Students will participate in morning work rounds, attend the operative procedures of their choice, and attend weekly conferences and teaching rounds. Students will be introduced not only to the surgical procedures but also to the postoperative care of the surgical patients. On the pediatric and adult cardiac services, students will be introduced to the principles of cardiopulmonary bypass, ventricular assist devices, cardiac transplantation, coronary artery bypass surgery (on and off pump), valve repair and replacement, complex aortic surgery, the MAZE procedures, and others. On the adult cardiac surgery service, students will function as subinterns under the direct supervision of a faculty member. On the thoracic surgical rotation, students will have the opportunity to perform bronchoscopy, esophagoscopy, and gastroscopy; to participate in surgical resections of lung cancer and esophageal cancer; and to participate in surgery for emphysema and for benign esophageal conditions. Students will also participate in lung transplantation surgery.

M95 Surgery 830 Plastic & Reconstructive Surgery Subinternship
The period on Plastic Surgery may either be spent as a clinical clerkship or conducting a research project. The purpose of the clinical subinternship is to familiarize the student with the basic principles of plastic surgery. The student will have successive assignments to each of the attending staff and the ward resident services during the four weeks. This will expose the student to the breadth and depth of plastic surgery. Alternatively, if the student has identified a focus of interest, they may participate on those services of special interest, such as hand or pediatric plastic surgery. The student will assume an active role on the plastic surgery service and will participate in the total management of a wide variety of surgical problems, including congenital anomalies, microvascular surgery, surgery of the upper extremity, peripheral nerve surgery, cosmetic surgery, and general reconstructive plastic surgery. Research projects should be student-motivated and must be approved prior to scheduling and confirming the research rotation. Students will also prepare a 10-minute case presentation.

M95 Surgery 832 Plastic Surgery Externship
This course is for visiting medical students only. Students rotate on different plastic surgery services for two weeks each to maximize their exposure to all faculty. The student will assume an active role on the plastic surgery service and will participate in the total management of a wide variety of surgical problems, including congenital anomalies, microvascular surgery, surgery of the upper extremity, peripheral nerve surgery, cosmetic surgery, and general reconstructive plastic surgery. Participation in conferences is expected. Students will turn in two histories and physicals.

M95 Surgery 850 Urology Subinternship
This four-week clinical subinternship will offer the interested student experience with a spectrum of problems in both adult and pediatric clinical urology. The student will learn the basic diagnostic procedures and management of surgical and nonsurgical aspects of patient care under the supervision of the attending staff and house staff. Clinical conferences are held two days per week.

M95 Surgery 862 Colon & Rectal Surgery Subinternship
This subinternship elective is designed to give students in-depth experience in the clinical management of patients on the Colorectal Surgery Service. Students work closely with the attendings within the Section of Colon and Rectal Surgery, and clinical exposure is focused on a wide range of benign and malignant colorectal diseases. There is exposure to radiation oncology and the specialized areas of nursing related to the care of patients with colorectal cancer and inflammatory bowel disease. The course will offer opportunities for students to gain experience in preoperative, intraoperative, and postoperative patient management under house staff, fellows, and faculty guidance as well as ample opportunity to attend and participate in conferences. Notice: If a student desires to work more closely with a specific attending, they must make special arrangements with the Colorectal Surgery Office prior to beginning this elective.

M95 Surgery 863 Surgical Oncology & Endocrine Surgery Subinternship
This subinternship elective is designed to give students in-depth experience in the clinical management of patients on the Endocrine and Surgical Oncology Service (Unit I Service). Students will serve as clerks and will be responsible for patient management with house staff under the guidance of the chief resident and attending surgeons. Clinical exposure is focused on thyroid and parathyroid surgery as well as on breast oncology, melanoma, and soft-tissue sarcomas. The course will offer opportunities for students to gain experience in preoperative, intraoperative, and postoperative patient management. There will be opportunities for students to evaluate patients, decide on a diagnostic and management strategy, and provide care under house staff and faculty guidance, as well as ample opportunity to attend and participate in conferences.

M95 Surgery 864 Ethical Challenges in Surgery and Medicine
This elective will involve the exploration of the ethical challenges discussed during didactic conferences and in clinical settings within the Department of Surgery at Washington University School of Medicine in St. Louis. The student will be guided through readings, discussions, and projects by department faculty members with expertise in clinical ethics. The elective will result in a manuscript ready to be revised/finalized for publication submission with the student as lead author. This elective provides the opportunity to work closely with faculty mentors and should appeal to any student interested in the ethical and humanitarian challenges facing physicians in particular and society in general.

M95 Surgery 871 Vascular Surgery Subinternship
This subinternship elective is designed to give students in-depth experience in the clinical management of patients on the Vascular Surgery Service. The elective will offer opportunities for students to gain experience in the preoperative, intraoperative, and postoperative management of patients with surgically
treated vascular diseases/conditions. Students will serve as clerks and will be responsible for patient management with house staff under the guidance of the fellow and attending surgeons. There will be opportunities for students to evaluate patients, decide on a diagnostic and management strategy, and provide care under house staff and faculty guidance, as well as ample opportunity to attend and participate in conferences. Notice: If a student desires to work more closely with a specific attending, they must make special arrangements with the faculty member prior to beginning this elective.

M95 Surgery 879 Hepatobiliary-Pancreatic Surgery Subinternship
This subinternship is designed to give students in-depth experience in the clinical management of patients on the Hepatobiliary-Pancreatic (HPB) Service. The HPB Service is a busy upper gastrointestinal service with a focus on hepatobiliary and pancreatic diseases and their treatment. The course offers opportunities for students to gain experience in preoperative, intraoperative, and postoperative patient management. Students will serve as clerks and will be responsible for patient management with house staff under the guidance of the fellow, chief resident, and attending surgeons. There will be opportunities for students to evaluate patients, decide on a diagnostic and management strategy, and provide care under house staff and faculty guidance, as well as ample opportunity to attend and participate in conferences. Note: If a student desires to work more closely with a specific attending, they must make special arrangements with the faculty member prior to beginning this elective.

M95 Surgery 880 Pediatric Surgery Subinternship
This subinternship will expose the student to a wide variety of pediatric surgical cases. This includes the preoperative and postoperative care of patients as well as the care of pediatric trauma patients. Daily walking or sit-down rounds are made with the resident, the nurse practitioner, and the attending staff; participation is expected in the pediatric surgery clinic and the operating room. Weekly conference attendance is mandatory and includes mortality and morbidity, radiology, pathology, solid tumor board, emergency department/trauma, and gastrointestinal conferences. Students have an opportunity to understand the widely differing anatomy and physiology of patients ranging from newborn infants to teenagers and young adults. The student functions as a team member and assumes level-appropriate responsibilities as determined by senior team members in this highly specialized care field.

M95 Surgery 891 Organ Transplantation Subinternship
The care of transplant patients requires the integration of multiple diverse medical and surgical disciplines. This subinternship in organ transplantation encompasses the preoperative evaluation and management of adult and pediatric recipients of liver, kidney, and pancreas. Students participate in the procurement of allografts from cadaveric or living donors, organ preservation, and transplantation. Emphasis is also placed on postoperative care, multimodality immunosuppression, and the management of allograft rejection. Basic hepatic and renal physiology, fluid and electrolyte balance, and transplantation immunology are stressed. The rotation provides an elaborate exposure to different facets of the management of end-stage renal and liver disease. Management of the complications of diabetes, hypertension, portal hypertension, and infectious problems are an integral part of pre- and post-transplant care. This course is designed to offer the student an overview of the field of organ transplantation; however, in addition to transplant surgery, students will also get some exposure to vascular access and hepatobiliary surgery. The student functions as a member of the transplant team and assumes appropriate responsibilities under supervision.

M95 Surgery 893 Minimally Invasive Surgery Subinternship
This subinternship elective in minimally invasive surgery is offered by the chief of the Section of Minimally Invasive Surgery in the General Surgery Division. Surgeons in the Minimally Invasive Surgery group regularly perform the following procedures laparoscopically: cholecystectomy, splenectomy, adrenalectomy, hiatal hernia repair, endoscopic myotomy for achalasia, inguinal hernia repair, ventral hernia repair, complex abdominal wall reconstruction, robotic surgery, and bariatric surgery for morbid obesity. The medical student electing this rotation will participate in the outpatient office and direct patient care, assist and observe in a wide range of laparoscopic procedures, and participate in teaching rounds and conferences. During this rotation, the student will also have the opportunity to observe and participate in minimally invasive surgical procedures performed by various surgeons within the Section of Minimally Invasive Surgery and will function as an acting intern.

M95 Surgery 900 Research Opportunities — Surgery
Research opportunities may be available. If interested, please contact the department of Surgery.