Mary Culver
Department of Surgery

The formal instruction in surgery begins in 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 the department. The clerkship gives students opportunities to participate in the care of surgical patients, both in- and outpatient; to spend time in the operating rooms; and to attend seminars, teaching conferences and didactic sessions on a regular basis. In 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, cardiovascular and thoracic surgery, urologic surgery, and 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 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 314-286-0881 or by email (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 Offered (http://bulletin.wustl.edu/medicine/degrees) section of this Bulletin.

Research Labs

L. Michael Brunt, MD
Barnes-Jewish Hospital, 1160 Northwest Tower
Phone: 314-454-8877
Minimally invasive surgery, including endocrine applications. Minimum rotation length: four weeks. Under the auspices of the Washington University Institute for Minimally Invasive Surgery (WUIMIS), a number of surgeons are investigating the physiologic consequences of laparoscopic surgery and new applications for procedures and technologies. Dr. Brunt is currently investigating clinical outcomes of various laparoscopic surgical procedures, laparoscopic hiatal hernia surgery and adrenal surgery, and is carrying out education-related research of skills training for senior 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 investigate primarily nerve injury and regeneration including nerve transplantation. Students will be encouraged to design and complete their own research study during the elective. 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:

1. influence of growth factors and blood flow on nerve regeneration;
2. neural tissue engineering;
3. diagnostic potential of biomarkers to identify nerve injury; and
4. investigation of glial cells at the neuromuscular junction during development, maintenance, aging, and following 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:

1. in vivo tissue generation and tissue differentiation;
2. the mechanical, structural and biochemical effects of stress on scar tissue maturation;
3. in vivo anatomy of craniofacial deformities;
4. outcome analysis of methods of cleft lip and palate management;
5. breast reconstruction (3D imaging of breasts after cosmetic or reconstructive surgery, interpretation of angiograms of the breast to measure nipple perfusion);
6. use of nerve transfer to improve hand function in patients with cervical spinal cord injury/quadriplegia; and
7. surgical education (specifically web-based multimedia strategies for peripheral nerve surgery education).

The Department of Surgery can utilize 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 a Washington University student employee 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 through direct communication initiated by the student to faculty they wish to work alongside on specific subjects of interest with the goal of furthering their education. This can be for any year medical student.

**Faculty**

**Clerkship Director**
Michael M. Awad, MD, PHD

**Clerkship Associate Director**
Eleanor Lynn Powell Drew, MD, AB

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

**A**

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BA Cornell University 1993
MD University of Michigan 2005
MS Indiana University Indianapolis 2010

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

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

Gerald L Andriole, MD

**B**

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MD Jefferson Medical College 1978
BS Pennsylvania State University 1976

Christopher Thomas Arett, MD
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MD Washington Univ in St. Louis 2003
BS Washington Univ in St. Louis 1999

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PHD Brown University 2001
BS Brown University 1994
MD Brown University 2001

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Associate Professor of Medicine
MS Harvard University 2001
MD Universidad de San Carlos 1998

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MA Mass Inst of Technology (MIT) 2004

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MBBS University of Queensland 1979
DRPH Harvard University 1986
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MD1 University of Tennessee 1967
UNKNOWN Duke University 1978
MD University of Tennessee 1967

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Assistant Professor of Anesthesiology
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Su-Hsin Chang, PHD, MA
Assistant Professor of Surgery (Public Health Sciences) (primary
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Eugene M. Bricker Professor of Surgery (General Surgery)
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AB Washington Univ in St. Louis 2018  
PHS Harvard University 2015  
MPH Saint Louis University 2007  

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BS Marquette University 1997  
MD Georgetown University 2002  

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MS University of Utah 1997  
MD Harvard University 1988  
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BS1 Southern Illinois University 1997  
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MS1 Southern Illinois University 2000  

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Spencer T. and Ann W. Olin Distinguished Professor  
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D SC University of CA Los Angeles 1993  

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BA1 Williams College 1987
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MD Duke University 1991
MS1 Medical University of Sth Car 2006

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BS Duke University 1995

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PHD Shanghai Medical University 2000
MS Dalian Medical University 1997
BS Nanjing University 1991

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H

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Fellow in the Center for Health Policy
Professor of Health Care Management (Olin School of Business)
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BA Princeton University 1984
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MS Oregon Health Science Univ 2012

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MD State Univ of NY Stonybrook 1995
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MD University of Missouri 1982

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M PH Northwestern University 2011
PHD Northwestern University 2011
BA Vanderbilt University 1998

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MS Columbia University 2003
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Associate Professor of Pediatrics
BS University of Pennsylvania 1985
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Instructor in Clinical Otolaryngology
DDENT Washington Univ in St. Louis 1984
BS California State University 1978
MS Ohio State University 1987

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MS University of Illinois 1999
BS University of Illinois 1988

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Mary Culver Distinguished Professor
Vice Chairman for Education, Department of Surgery
BA Wellesley College 1988
MD Duke University 1992

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Assistant Professor of Surgery (General Surgery) (Pending Executive Faculty Approval) (primary appointment)
MD Emory University 2007
BA St Johns College 1999

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BS University of Rochester 1993
MD University of Rochester 1997

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Instructor in Clinical Surgery (General Surgery) (primary appointment)
BA Washington Univ in St. Louis 1965
MD Washington Univ in St. Louis 1969

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Professor of Pathology and Immunology
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PHD University of Pennsylvania 2002

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Associate Professor of Anesthesiology
BS Rice University 1994
MD Cornell University 1999

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BA Colorado College 1999
MD Mayo Clinic 2011
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MD Guangdong Medical College 1991
MS Sun Yat-Sen University 2004

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PHD Washington Univ in St. Louis 2005
BS Duke University 1997
MD Washington Univ in St. Louis 2005

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BS1 Washington Univ in St. Louis 2000
MS1 Northwestern University 2003
PHD University of Michigan 2014

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PHD Texas Tech University 2006
MD Southeast U Medical School 1995
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
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MD Washington Univ in St. Louis 1949

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PHD Medical College of Wisconsin 2007
BS Nankai University 1997
MS National Univ of Singapapore 2002

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BA Emory University 1972
MD University of Chicago 1976

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Associate Professor of Biostatistics
Associate Professor of Medicine
MS1 Duke University 2003
BS Renmin University of China 1998
MS Renmin University of China 2001
PHD Duke University 2006

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Professor of Occupational Therapy
Professor of Otolaryngology
MD Queen's University 1975
BA Queens College 1971

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MS Madurai Kamaraj University 1991
PHD Indian Institute of Science 1998

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PHD Indian Institute Of Technology 1997

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Associate Professor of Medicine

BS University of Michigan 1994
MD University of Illinois 1998

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MD University of Michigan 1982

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MD Southern Illinois University 1997

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MD Dow Medical College Karachi 2001

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BA California State Fresno 1973
MD University of CA Los Angeles 1981
PHD University of Minnesota 1993
MS Univ of Wisconsin Madison 1975

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MD University of Missouri 1985

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Spencer J Melby, MD
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MD University of Utah 2002
BS Brigham Young University 1997

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MD Washington Univ in St. Louis 1972

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BS University of Michigan 1981

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BA Tufts University 2006
MD University of Massachusetts 2011

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BA St Olaf College 1990

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BS Univ of Northern British Colu 2003

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DDENT University of Iowa 1983
BS Iowa State University 1979

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MD Univ Texas Health Science Ctr 2012
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BA Washington Univ in St. Louis 1948

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BS University of Houston 1992
M PH London Hygiene & Tropical Med 2009
MD Univ Texas Health Sci San Anto 1997

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UNKNOWN University of Pune 1967

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Courses

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 Acting Internship, Trauma Service
The student on this elective will function as a sub-intern 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 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 traumatized patients and other emergency care patients. The student will also participate in regular rounds, conferences, and in-house call.

M95 Surgery 818 Surgical Night Float & ER Sub-Internship
This sub-internship 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 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 as first responders to patients with acute abdominal pain, chest pain, hypotension, mental status changes, and other ER/on-call type 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
Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37 and 41. 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 sub-interns under the direct supervision of a faculty member. On the thoracic surgical rotation, students will have the opportunity of performing bronchoscopy, esophagoscopy, gastroscopy, and participate in surgical resections of lung cancer and esophageal cancer, as well as surgery for emphysema and for benign esophageal conditions. Students will also participate in lung transplantation surgery.

M95 Surgery 830 Plastic and Reconstructive Surgery
The period on Plastic Surgery may either be spent as a clinical clerkship or conducting a research project. The purpose of the clinical clerkship 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, the student 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. Student will perform a 10-minute case presentation.

M95 Surgery 832 Plastic Surgery Externship

This course is for visiting medical students only. Flexible start dates for two- to four-week blocks are available. Certain rotation dates may be limited, depending on the number of students requesting rotations. Students rotate on different Plastic Surgery Services for two weeks each to maximize 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. Student will perform a 10-minute case presentation.

M95 Surgery 839 Orthopaedic Sports Medicine

This clinical elective is available for four weeks during which the student participates in orthopaedic conferences, outpatient clinics, surgical cases, and patient rounds on the Sports Medicine service.

M95 Surgery 839A Orthopaedic Sports Medicine

This clinical elective is available for four weeks during which the student participates in orthopaedic conferences, outpatient clinics, surgical cases, and patient rounds on the Sports Medicine service.

M95 Surgery 840A Orthopaedic Surgery-Foot/Ankle

This four-week clinical elective is available to medical students looking to further their knowledge/experience in orthopaedics, specifically foot and ankle surgery. Students will participate in surgical cases, outpatient clinics, inpatient care and weekly didactic sessions/conferences. At the completion of the elective, students should have gained a basic knowledge of foot and ankle problems as well as their operative and nonoperative care.

M95 Surgery 840B Orthopaedic Surgery-Foot/Ankle

This four-week clinical elective is available to medical students looking to further their knowledge/experience in orthopaedics, specifically foot and ankle surgery. Students will participate in surgical cases, outpatient clinics, inpatient care and weekly didactic sessions/conferences. At the completion of the elective, students should have gained a basic knowledge of foot and ankle problems as well as their operative and nonoperative care.

M95 Surgery 842B Orthopaedic Shoulder/Elbow Surgery

Clinical elective available, during which time the student will work with attending surgeons primarily at Barnes-Jewish Hospital. Activities will include participation in the care of hospitalized inpatients, participation in inpatient and outpatient procedures, attendance at designated attending office hours, attendance at designated orthopaedic conferences, and dissection of upper-extremity anatomical specimens.

M95 Surgery 845A Orthopaedic Hand and Upper Extremity Surgery

Clinical elective available, during which time the student will work with attending surgeons primarily at Chesterfield and Center for Advanced Medicine. The service includes care of adult patients with traumatic, sports (arthroscopy), nerve, and degenerative disease. Activities will include participation in outpatient procedures, attendance at faculty clinic office hours, and attendance at orthopaedic conferences.

M95 Surgery 845B Orthopaedic Hand and Upper Extremity Surgery

Clinical elective available, during which time the student will work with attending surgeons primarily at Barnes-Jewish Hospital, St. Louis Children's Hospital, and Shriners Hospital. The service includes care of adult and pediatric patients with congenital, traumatic, sports (arthroscopy), nerve, and degenerative disease. Activities will include participation in outpatient procedures, attendance at faculty clinic office hours, attendance at orthopaedic conferences, and dissection of upper-extremity anatomical specimens.

M95 Surgery 845C Orthopaedic Hand and Upper Extremity Surgery

Clinical elective available, during which time the student will work with attending surgeons primarily at Chesterfield and Center for Advanced Medicine and South County. The service includes care of adult and pediatric patients with traumatic, sports (arthroscopy), nerve, and degenerative disease. The rotation will cover general hand surgery as well as brachial plexus and peripheral nerve surgery. Activities will include participation in outpatient procedures, attendance at faculty clinic office hours, and attendance at orthopaedic conferences.

M95 Surgery 845E Orthopaedic Hand and Upper Extremity Surgery

Clinical elective available, during which time the student will work with attending surgeons primarily at St Louis Children's Hospital, and Shriners Hospital, Chesterfield, Center for Advanced Medicine and St. Louis Children's Specialty Care Center. The service includes care of adult and pediatric patients with congenital, traumatic, sports (arthroscopy), nerve, and degenerative disease. Activities will include participation in outpatient procedures, attendance at faculty clinic office hours, attendance at orthopaedic conferences, and dissection of upper-extremity anatomical specimens.
M95 Surgery 845F Orthopaedic Hand and Upper Extremity Surgery
Clinical elective available, during which time the student will work with attending surgeons primarily at Barnes-Jewish Hospital, Center for Advanced Medicine and the Chesterfield office. The service includes care of adult and pediatric patients with traumatic, sports (arthroscopy), nerve, and degenerative disease. Activities will include participation in outpatient procedures, attendance at faculty clinic office hours, and attendance at orthopaedic conferences.

M95 Surgery 846B Orthopaedic Trauma
Clinical elective available for a four-week period, during which time the student will work in orthopaedic trauma at Barnes-Jewish Hospital. The student will work with a team of attendings, residents, PAs, and NPs to provide care for orthopaedic trauma patients. Activities include participation in the care of hospitalized inpatients, inpatient surgical procedures, outpatient office visits and daily conferences.

M95 Surgery 848A Orthopaedic Pediatric Surgery Elective
Clinical elective available for four weeks during which time the student will work with attending surgeon primarily at St. Louis Children's Hospital observing and assisting in outpatient and inpatient care. To be included are activities in the OR, ER, and outpatient clinics. Attendance at and participation in the weekly pediatric orthopaedic conference activities required.

M95 Surgery 848B Orthopaedic Pediatric Surgery Elective
Clinical elective available for four weeks during which time the student will work with attending surgeon primarily at St. Louis Children's Hospital observing and assisting in outpatient and inpatient care. To be included are activities in the OR, ER, and outpatient clinics. Attendance at and participation in the weekly pediatric orthopaedic conference activities required.

M95 Surgery 848C Orthopaedic Pediatric Surgery Elective
Clinical elective available for four weeks during which time the student will work with attending surgeon primarily at St. Louis Children's Hospital observing and assisting in outpatient and inpatient care. To be included are activities in the OR, ER, and outpatient clinics. Attendance at and participation in the weekly pediatric orthopaedic conference activities required.

M95 Surgery 849A Orthopaedic Spine Surgery In Adult Patients
This clinical elective is available for four weeks during which the student will work with the attending surgeon primarily at Barnes-Jewish Hospital and offers an introduction to the anatomic and surgical aspects of patient care under the supervision of the fellow assigned to this service. The spine fellow assigned to this service will serve as a primary contributor to the student's education experience on this rotation.

M95 Surgery 849B Orthopaedic Spine Surgery in Adult Patients
This clinical elective is available for four weeks during which time the student will work with the attending surgeon primarily at Barnes-Jewish Hospital observing and assisting when appropriate in outpatient and inpatient care. To be included are activities in the OR, ER, and outpatient clinics. Attendance at and participation in the weekly orthopaedic conference activities is required. The spine fellow assigned to this service will serve as a primary contributor to the student’s education experience on this rotation.

M95 Surgery 849C Orthopaedic Spine Surgery in Adult Patients
This clinical elective is available for four weeks during which the student will work with the attending surgeon primarily at Barnes-Jewish Hospital, Barnes-Jewish West County Hospital, Washington University Orthopedics - Center for Advanced Medicine observing and assisting when appropriate in outpatient and inpatient care. To be included are activities in the OR, ED, and outpatient clinics. Attendance at and participation in the weekly orthopaedic conference activities is required. The spine fellow assigned to this service will serve as a primary contributor to the student's education experience on this rotation.

M95 Surgery 850 Urology
A four-week clinical clerkship in pediatric and/or adult urology will offer the interested student experience with a spectrum of problems in 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 three days per week.

M95 Surgery 855A Reconstructive/Joint Preservation Surgery
Clinical elective available, during which time the student will work with the attending physician on the Adult Reconstruction and Joint Preservation/Replacement service. This rotation is primarily centered at Barnes-Jewish Hospital and includes care of hospitalized inpatients, participant in inpatient and outpatient procedures, attendance at designated office hours, and attendance at and participation in orthopaedic educational conferences and anatomy sessions.

M95 Surgery 855B Reconstructive/Joint Preservation Surgery
Clinical elective available, during which time the student will work with the attending physician on the Adult Reconstruction and Joint Preservation/Replacement service. This rotation is primarily centered at Barnes-Jewish Hospital and includes care of hospitalized inpatients, participant in inpatient and outpatient procedures, attendance at designated office hours, and attendance at and participation in orthopaedic educational conferences and anatomy sessions.

M95 Surgery 855C Reconstructive/Joint Preservation Surgery
Clinical elective available, during which time the student will work with the attending physician on the Adult Reconstruction and
Joint Preservation/Replacement service. This rotation is primarily centered at Barnes-Jewish Hospital and includes care of young patients with hip impingement pathology and older patients with end stage joint arthritis, hospitalized inpatients, participant in inpatient and outpatient procedures, attendance at designated office hours, and attendance at and participation in orthopaedic educational conferences and anatomy sessions.

**M95 Surgery 855D Reconstructive/Joint Preservation Surgery**
Clinical elective available, during which time the student will work with the attending physician on the Adult Reconstruction and Joint Preservation/Replacement service. This rotation is primarily centered at Barnes-Jewish Hospital and includes care of young patients with hip impingement pathology and older patients with end stage joint arthritis, hospitalized inpatients, participant in inpatient and outpatient procedures, attendance at designated office hours, and attendance at and participation in orthopaedic educational conferences and anatomy sessions.

**M95 Surgery 859 Orthopaedic Oncology**
Clinical elective available for four weeks, during which time the student will work with the attending physicians on the Musculoskeletal Oncology service. The student will participate in orthopaedic conferences, outpatient clinics, surgical cases and patient rounds.

**M95 Surgery 862 Acting Internship, Colon and Rectal Surgery**
This sub-internship 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 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 attending physicians on the Colorectal Surgery Service prior to beginning this elective.

**M95 Surgery 863 Acting Internship, Surgical Oncology and Endocrine Surgery**
This sub-internship 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 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 opportunity 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 exploration of the ethical challenges discussed during didactic conferences and in clinical settings within the Department of Surgery at Washington University in St. Louis School of Medicine. 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 finished manuscript to be submitted for publication 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 Acting Internship, Vascular Surgery**
This sub-internship 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 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 opportunity 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 Acting Internship, Hepatobiliary-Pancreatic Surgery**
This sub-internship elective is designed to give students in-depth experience in the clinical management of patients on the Hepatobiliary-Pancreatic (Unit II) Service. The Unit II Service is a busy upper-gastrointestinal service with a focus on hepatobiliary and pancreatic diseases and their treatment. The course will offer 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 opportunity 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**
This sub-internship elective 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, nurse practitioner, and attending staff, and 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, ED/Trauma, and GI conferences. Students have an opportunity to understand the widely differing anatomy and physiology of patients ranging from newborn infant 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
The care of transplant patients requires the integration of multiple diverse medical and surgical disciplines. This elective clerkship in organ transplantation encompasses the preoperative evaluation and management of adult and pediatric recipients of liver, kidney, and pancreas. Students participate in procurement of allografts from cadaveric or living donors, organ preservation, and transplantation. Emphasis is also placed on postoperative care, multimodality immunosuppression and management of allograft rejection. Basic hepatic and renal physiology, fluid and electrolyte balance, and transplantation immunology are stressed. Rotation provides an elaborate exposure to different facets of 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 Acting Internship, Minimally Invasive Surgery
This sub-internship 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 8991 Orthopaedic Surgery Externship (Visiting Students Only)
Flexible scheduling is available for this externship. Students rotate on Orthopaedic Services in four-week blocks. During their rotations, students are assigned to two different services for two weeks each. Students may rotate on a variety of subspecialties including trauma sports medicine, hand and upper extremity, foot and ankle, musculoskeletal oncology, adult reconstructive surgery, pediatric orthopaedics, shoulder and elbow, and spine. For more information about the Orthopaedic Surgery Externship Program, visit our website.

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